

PUB. 172
SAILING DIRECTIONS
(ENROUTE)



RED SEA
AND
THE PERSIAN GULF



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Explanatory Remarks

Sailing Directions are published by the National Geospatial-Intelligence Agency (NGA), under the authority of Department of Defense Directive 5105.40, dated 12 December 1988, and pursuant to the authority contained in U. S. Code Title 10, Sections 2791 and 2792 and Title 44, Section 1336. Sailing Directions, covering the harbors, coasts, and waters of the world, provide information that cannot be shown graphically on nautical charts and is not readily available elsewhere.

Sailing Directions (Enroute) include detailed coastal and port approach information which supplements the largest scale chart produced by the National Geospatial-Intelligence Agency. This publication is divided into geographic areas called "Sectors."

Bearings.—Bearings are true, and are expressed in degrees from 000° (north) to 360°, measured clockwise. General bearings are expressed by initial letters of points of the compass (e.g. N, NNE, NE, etc.). Adjective and adverb endings have been discarded. Wherever precise bearings are intended degrees are used.

Coastal Features.—It is assumed that the majority of ships have radar. Available coastal descriptions and views, useful for radar and visual piloting are included in geographic sequence in each Sector.

Corrective Information.—Corrective information and other comments about this publication can be forwarded to NGA, as follows:

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Courses.—Courses are true, and are expressed in the same manner as bearings. The directives "steer" and "make good" a course mean, without exception, to proceed from a point of origin along a track having the identical meridional angle as the designated course. Vessels following the directives must allow for every influence tending to cause deviation from such track,

and navigate so that the designated course is continuously being made good.

Currents.—Current directions are the true directions toward which currents set.

Dangers.—As a rule outer dangers are fully described, but inner dangers which are well-charted are, for the most part, omitted. Numerous offshore dangers, grouped together, are mentioned only in general terms. Dangers adjacent to a coastal passage or fairway are described.

Distances.—Distances are expressed in nautical miles of 1 minute of latitude. Distances of less than 1 mile are expressed in meters, or tenths of miles.

Geographic Names.—Geographic names are generally those used by the nation having sovereignty. Names in parentheses following another name are alternate names that may appear on some charts. In general, alternate names are quoted only in the principal description of the place. Diacritical marks, such as accents, cedillas, and circumflexes, which are related to specific letters in certain foreign languages, are not used in the interest of typographical simplicity. Geographic names or their spellings do not necessarily reflect recognition of the political status of an area by the United States Government.

Heights.—Heights are referred to the plane of reference used for that purpose on the charts and are expressed in meters.

Index-Gazetteer.—Navigational features and place-names are listed alphabetically in the back of the book. The approximate position, along with the Sector and paragraph numbers (e.g. 1.1), facilitate location in the text.

Internet Links.—This publication provides internet links to web sites concerned with maritime navigational safety, including but not limited to, Federal government sites, foreign Hydrographic Offices, and foreign public/private port facilities. NGA makes no claims, promises, or guarantees concerning the accuracy, completeness, or adequacy of the contents of the web sites and expressly disclaims any liability for errors and omissions of these web sites.

Light and Fog Signals.—Lights and fog signals are not described, and light sectors are not usually defined. The Light Lists should be consulted for complete information.

Ports.—Directions for entering ports are depicted where appropriate by means of chartlets, sketches, and photos, which facilitate positive identification of landmarks and navigational aids. These chartlets and sketches are not always to scale, however, and should be used only as a general informational guide in conjunction with the best scale chart. Specific port facilities are omitted from the standard format. They are tabulated in Pub. 150, World Port Index.

Radio Navigational Aids.—Radio navigational aids are not described in detail. Publication No. 117 Radio Navigational Aids and NOAA Publication, Selected Worldwide Marine Broadcasts, should be consulted.

Soundings.—Soundings are referred to the datum of the charts and are expressed in meters.

Special Warnings.—A Special Warning may be in force for the geographic area covered by this publication. Special Warnings are printed in the weekly Notice to Mariners upon promulgation and are reprinted annually in Notice to Mariners No. 1. A listing of Special Warnings currently in force is printed in each weekly Notice to Mariners, Section III, Broadcast Warnings, along with the notice number of promulgation.

Special Warnings are also available on the Maritime Division website.

NGA Maritime Division Website (Special Warnings)
http://164.214.12.145/warn/warn_j_query.html

Wind Directions.—Wind directions are the true directions from which winds blow.

Reference List

The principal sources examined in the preparation of this publication were:

British Hydrographic Department Sailing Directions.

Various port handbooks.

Reports from United States Naval and merchant vessels and various shipping companies.

Other U.S. Government publications, reports, and documents.

Charts, light lists, tide and current tables, and other documents in possession of the Agency.

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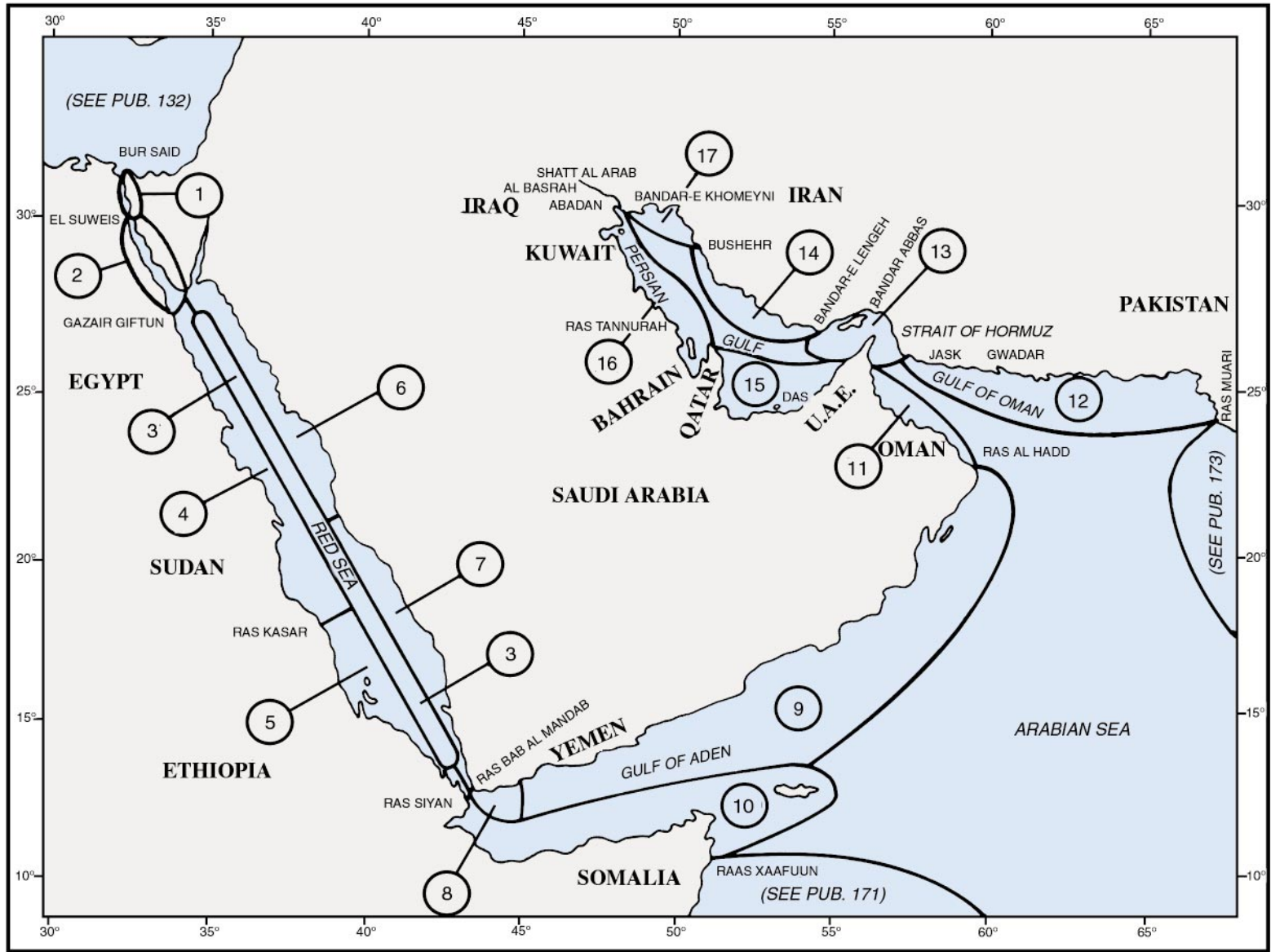
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SECTOR LIMITS — PUB. 172

Conversion Tables

Feet to Meters

Feet	0	1	2	3	4	5	6	7	8	9
0	0.00	0.30	0.61	0.91	1.22	1.52	1.83	2.13	2.44	2.74
10	3.05	3.35	3.66	3.96	4.27	4.57	4.88	5.18	5.49	5.79
20	6.10	6.40	6.71	7.01	7.32	7.62	7.92	8.23	8.53	8.84
30	9.14	9.45	9.75	10.06	10.36	10.67	10.97	11.28	11.58	11.89
40	12.19	12.50	12.80	13.11	13.41	13.72	14.02	14.33	14.63	14.93
50	15.24	15.54	15.85	16.15	16.46	16.76	17.07	17.37	17.68	17.98
60	18.29	18.59	18.90	19.20	19.51	19.81	20.12	20.42	20.73	21.03
70	21.34	21.64	21.95	22.25	22.55	22.86	23.16	23.47	23.77	24.08
80	24.38	24.69	24.99	25.30	25.60	25.91	26.21	26.52	26.82	27.13
90	27.43	27.74	28.04	28.35	28.65	28.96	29.26	29.57	29.87	30.17

Fathoms to Meters

Fathoms	0	1	2	3	4	5	6	7	8	9
0	0.00	1.83	3.66	5.49	7.32	9.14	10.97	12.80	14.63	16.46
10	18.29	20.12	21.95	23.77	25.60	27.43	29.26	31.09	32.92	34.75
20	36.58	38.40	40.23	42.06	43.89	45.72	47.55	49.38	51.21	53.03
30	54.86	56.69	58.52	60.35	62.18	64.01	65.84	67.67	69.49	71.32
40	73.15	74.98	76.81	78.64	80.47	82.30	84.12	85.95	87.78	89.61
50	91.44	93.27	95.10	96.93	98.75	100.58	102.41	104.24	106.07	107.90
60	109.73	111.56	113.39	115.21	117.04	118.87	120.70	122.53	124.36	126.19
70	128.02	129.85	131.67	133.50	135.33	137.16	138.99	140.82	142.65	144.47
80	146.30	148.13	149.96	151.79	153.62	155.45	157.28	159.11	160.93	162.76
90	164.59	166.42	168.25	170.08	171.91	173.74	175.56	177.39	179.22	181.05

Meters to Feet

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	3.28	6.56	9.84	13.12	16.40	19.68	22.97	26.25	29.53
10	32.81	36.09	39.37	42.65	45.93	49.21	52.49	55.77	59.06	62.34
20	65.62	68.90	72.18	75.46	78.74	82.02	85.30	88.58	91.86	95.14
30	98.42	101.71	104.99	108.27	111.55	114.83	118.11	121.39	124.67	127.95
40	131.23	134.51	137.80	141.08	144.36	147.64	150.92	154.20	157.48	160.76
50	164.04	167.32	170.60	173.88	177.16	180.45	183.73	187.01	190.29	193.57
60	196.85	200.13	203.41	206.69	209.97	213.25	216.54	219.82	223.10	226.38
70	229.66	232.94	236.22	239.50	242.78	246.06	249.34	252.62	255.90	259.19
80	262.47	265.75	269.03	272.31	275.59	278.87	282.15	285.43	288.71	291.99
90	295.28	298.56	301.84	305.12	308.40	311.68	314.96	318.24	321.52	324.80

Meters to Fathoms

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	0.55	1.09	1.64	2.19	2.73	3.28	3.83	4.37	4.92
10	5.47	6.01	6.56	7.11	7.66	8.20	8.75	9.30	9.84	10.39
20	10.94	11.48	12.03	12.58	13.12	13.67	14.22	14.76	15.31	15.86
30	16.40	16.95	17.50	18.04	18.59	19.14	19.68	20.23	20.78	21.33
40	21.87	22.42	22.97	23.51	24.06	24.61	25.15	25.70	26.25	26.79
50	27.34	27.89	28.43	28.98	29.53	30.07	30.62	31.17	31.71	32.26
60	32.81	33.36	33.90	34.45	35.00	35.54	36.09	36.64	37.18	37.73
70	38.28	38.82	39.37	39.92	40.46	41.01	41.56	42.10	42.65	43.20
80	43.74	44.29	44.84	45.38	45.93	46.48	47.03	47.57	48.12	48.67
90	49.21	49.76	50.31	50.85	51.40	51.95	52.49	53.04	53.59	54.13

Abbreviations

The following abbreviations may be used in the text:

Units

°C	degree(s) Centigrade	km	kilometer(s)
cm	centimeter(s)	m	meter(s)
cu.m.	cubic meter(s)	mb	millibars
dwt	deadweight tons	MHz	megahertz
FEU	forty-foot equivalent units	mm	millimeter(s)
grt	gross registered tons	nrt	net registered tons
kHz	kilohertz	TEU	twenty-foot equivalent units

Directions

N	north	S	south
NNE	northnortheast	SSW	southsouthwest
NE	northeast	SW	southwest
ENE	eastnortheast	WSW	westsouthwest
E	east	W	west
ESE	eastsoutheast	WNW	westnorthwest
SE	southeast	NW	northwest
SSE	southsoutheast	NNW	northnorthwest

Vessel types

LASH	Lighter Aboard Ship	ro-ro	Roll-on Roll-off
LNG	Liquified Natural Gas	ULCC	Ultra Large Crude Carrier
LPG	Liquified Petroleum Gas	VLCC	Very Large Crude Carrier
OBO	Ore/Bulk/Oil		

Time

ETA	estimated time of arrival	GMT	Greenwich Mean Time
ETD	estimated time of departure	UTC	Coordinated Universal Time

Water level

MSL	mean sea level	LWS	low water springs
HW	high water	MHWN	mean high water neaps
LW	low water	MHWS	mean high water springs
MHW	mean high water	MLWN	mean low water neaps
MLW	mean low water	MLWS	mean low water springs
HWN	high water neaps	HAT	highest astronomical tide
HWS	high water springs	LAT	lowest astronomical tide
LWN	low water neaps		

Communications

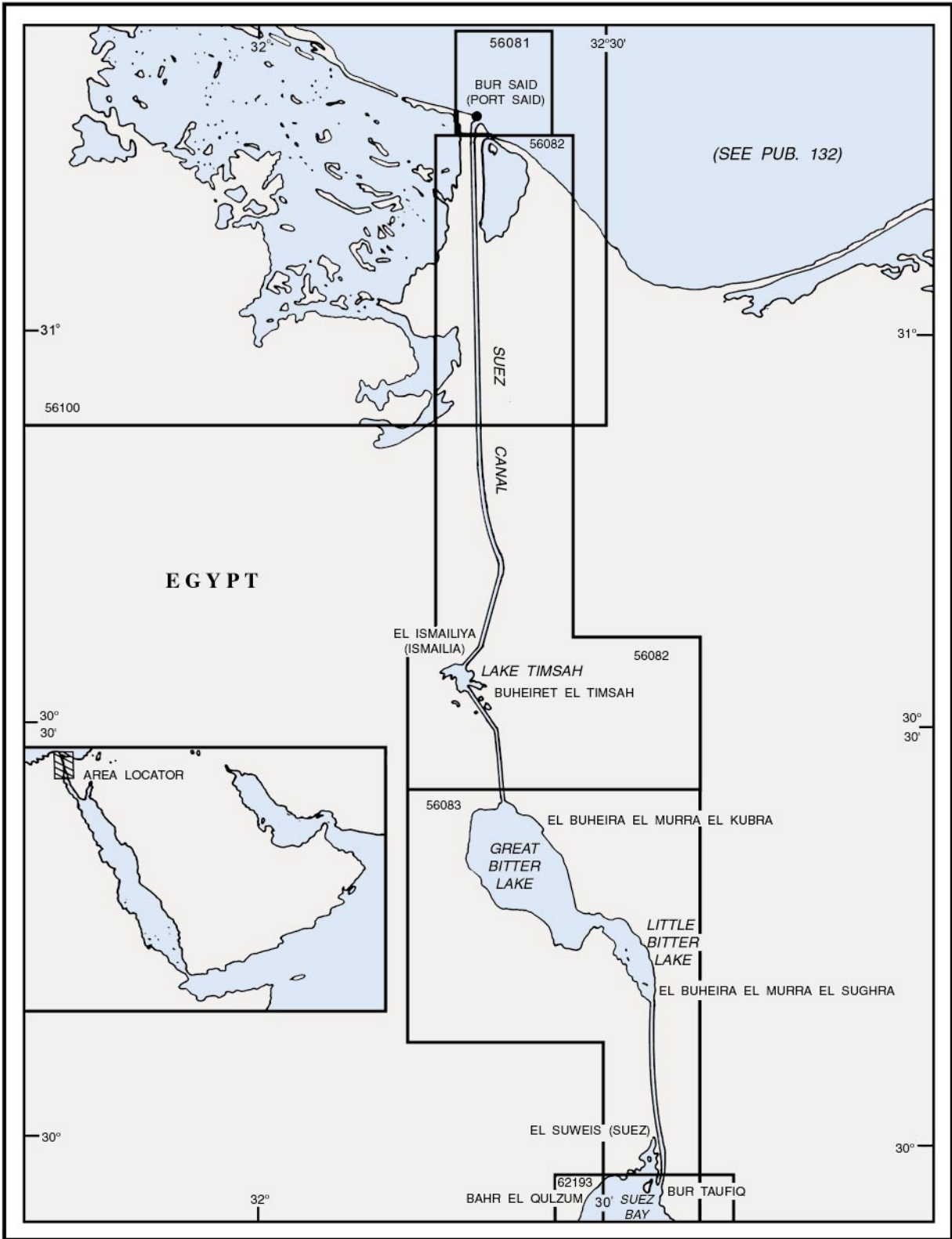
D/F	direction finder	MF	medium frequency
R/T	radiotelephone	HF	high frequency
GMDSS	Global Maritime Distress and Safety System	VHF	very high frequency
LF	low frequency	UHF	ultra high frequency

Navigation

LANBY	Large Automatic Navigation Buoy	SPM	Single Point Mooring
NAVSAT	Navigation Satellite	TSS	Traffic Separation Scheme
ODAS	Ocean Data Acquisition System	VTC	Vessel Traffic Center
SBM	Single Buoy Mooring	VTS	Vessel Traffic Service

Miscellaneous

COLREGS	Collision Regulations		
IALA	International Association of Lighthouse Authorities	No./Nos.	Number/Numbers
		PA	Position approximate
IHO	International Hydrographic Office	PD	Position doubtful
IMO	International Maritime Organization	Pub.	Publication
loa	length overall	St./Ste.	Saint/Sainte



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 1 — CHART INFORMATION

SECTOR 1

EGYPT—THE SUEZ CANAL AND SUEZ BAY

Plan.—This sector describes the Suez Canal and Suez Bay, and is divided into nine parts. Parts A through G contain information for transiting the canal. Part H describes the anchorage areas available to vessels transiting the canal and associated areas. Part I contains a general description of the Suez Canal, its ports, and Suez Bay.

Part A.

General Remarks

Part B.

Suez Canal Vessel Traffic Management System

Part C.

Suez Canal Signals

Part D.

Suez Canal Navigation Regulations

Part E.

Suez Canal Transit Requirements

Part F.

Suez Canal Convoy System

Part G.

Suez Canal Pilotage

Part H.

Anchorage Areas

Part I.

General Description

Part A. General Remarks

1.1 The Suez Canal connects the Mediterranean Sea with the Gulf of Suez, and thence with the Red Sea. The canal is 105 miles long. Proceeding S from Port Said, it runs in an almost undeviating straight line to Lake Timsah. It then cuts to Great Bitter Lake and Little Bitter Lake, which is now a single body of water, and then S again past the city of Suez to reach the Gulf of Suez at Port Taufiq. The canal has no locks and can accommodate very large vessels. Widened and deepened over the years, it now is capable of accommodating ships with a maximum draft of 18.9m. The transit times range from 12 to 16 hours, with an average time of 14 hours.

Depths in the Suez Canal are maintained to a centerline depth of 23.5m, except in following areas:

1. Main Canal (Km 0.0 to Km 17.0)—14.8m.
2. El-Ballah West Branch (Km 51.5 to Km 60.5)—15.5 to 18.5m
3. Buheiret el-Timsah (Km 76.0 to Km 81.9)—15.5 to 19.0m.

4. Difiswar and El-Buheira el-Murra el-Kubra (Great Bitter Lake) West Branch (Km 95.9 to Km 114.1)—15.5 to 18.0m.

5. El Kabrit West Branch (Km 114.1 to Km 122.1)—15.0m.

6. Main Canal (Km 149.5 to Km 162.25)—23.0 to 25.0m.

The canal is open to vessels of all nations that comply with the conditions stated in the present rules of navigation. All references and circulars, which constitute an integral part of the rules, are issued by the Suez Canal Authority (SCA). Vessels must comply with the provisions of the International Regulations for International Convention for the Safety of Life at Sea and its amendments, the International Convention for Prevention of Pollution from ships, as well as the provisions of the International Regulations for Preventing Collisions at Sea, and all laws, orders, and regulations issued by the Egyptian Government.

The SCA reserves the right to refuse access to the canal waters, or order the towage or convoy of vessels considered dangerous or troublesome to navigation in the canal.

By the sole fact of using the canal waters, masters and owners of vessels bind themselves to accept all the conditions of the present rules of navigation, with which they acknowledge being acquainted with, to conform with these conditions in every respect, to comply with any requisition made with a view to their being duly carried out, and to adhere to the SCA private Code of Signals.

Up-to-date information is available from the SCA or an approved agent.

Every vessel, other than a warship, intending to transit the canal, or staying at Port Said (Bur Said) or Port Suez, or within the limits of the Suez Canal basins or dock, must be represented by an agent and must be approved by the SCA.

Warships intending to transit the canal should pass their request for booking via diplomatic channels, through the Ministry of Foreign Affairs, the Ministry of Defense, and/or the Ports and Lights Administration.

Canal Waters mean the canal proper and the access channels there to, the waters within the SCA concession adjacent to the canal proper, Port Said Harbor, and Port Suez.

The length of the canal proper runs from Km 3.710, West Branch, for vessels entering from Port Said Harbor, and from Km 1.333, East Branch, for vessels entering through the East Approach Channel to Hm 3 at Suez. Included are the two channels of El-Buheira El-Murra El-Kubra (Great Bitter Lake) and all canal by-passes.

The width of the canal is bounded by two banks when they are immersed; if the banks are submerged, the width of the canal is limited to the perpendiculars at the point of intersection of the submarine bank with the horizontal plane corresponding to the maximum draft authorized, including squat.

The maximum permitted beam is 77.49m. Vessels in ballast, with a maximum beam of 74.67m and drafts up to 9.75m for-

ward and 11.0m aft, will be permitted to transit in favorable weather conditions and with wind speeds of not more than 10 knots. Ballasted vessels with a beam exceeding 74.67m must have prior approval of the Suez Canal Authority to transit the canal.

The actual draft a vessel may possess while in the canal is dependent upon the convoy the vessel is a member of, the vessel's beam, and the intended speed of transit.

Vessels permitted by the Maximum Draft Tables to transit the Suez Canal, at a draft of between 15.2 and 18.9m, must carry out a satisfactory sea trial at Bur Said Roads or at Port Suez before making their first passage at that draft.

Except for the areas noted on the chart, the canal was dredged to a depth of 20.5m in 1994. A typical cross-section of the canal shows a channel width of 119m between about the 20m curves. However, areas with a width of 104m are listed in the *Suez Canal Authority Rules of Navigation*.

A road bridge, with a vertical clearance of 68m, crosses the canal between Km 48.0 and Km 49.0.

The maximum draft for loaded vessels transiting N or S is dependent on the vessel's beam, as given in the Suez Canal Beam and Draft Table II (Amended), from which the following values have been extracted:

Beam (up to)	Draft
49.98m	18.90m
50.80m	18.59m
51.66m	18.29m
52.52m	17.98m
53.44m	17.68m
54.38m	17.37m
55.34m	17.07m
56.33m	16.76m
57.37m	16.46m
58.47m	16.15m
59.58m	15.85m
60.75m	15.54m
61.97m	15.24m
63.24m	14.93m
64.46m	14.65m
65.83m	14.33m
67.38m	14.02m
68.88m	13.72m
70.43m	13.41m
72.08m	13.11m
73.78m	12.80m
75.59m	12.50m
77.49m	12.19m

It is virtually impossible to completely transit the canal during daylight hours. The transit times range from 12 to 16 hours, with an average time of 14 hours.

Sections of the canal have been enlarged for one-way traffic, which makes for a faster transit time.

At times, however, vessels may be instructed to tie up to mooring bollards located on both banks of the canal.

Aids to navigation.—Additionally, in the vicinity of the 8.5m curve, the canal is marked at various intervals by lighted beacons with the following characteristics:

1. East side of channel—white oval topmark with green border, exhibiting a green fixed light.
2. West side of channel—white oval topmark with red border, exhibiting a red fixed light.
3. Junctions—cardinal topmark over an oval topmark with yellow and black horizontal bands, exhibiting a light with characteristics in accordance with cardinal markings.
4. Boundary between East Branch Channel and West Branch Channel in El-Buheira El-Murra El-Kubra (Great Bitter Lake)—yellow X-shaped topmark, exhibiting a white isophase light.

Tidal buoys, which show the direction of flow of the water, are painted, as follows:

1. Downstream side—red and white bands, with one reflector.
2. Upstream side—black and white stripes, with two reflectors

Therefore, a vessel heading against the flow of water will see a buoy with red and white bands and one reflector. It has been reported that the tidal buoys are no longer present in the canal.

To conform to international convention, the Local Direction of Buoyage is the direction taken by the mariner when approaching the canal from seaward.

In view of the double-ended nature of the canal, there is a point at which the buoyage direction has been reported to be reversed. This is at Km 4.0 in Port Said Harbor and Km 2.8E in Port Said By-pass in approximate latitude 31°13.5'N. To the N of these positions the port hand buoys are on the E side of the channel and starboard to the W. To the S of these positions, the buoyage is reversed.

The canal's W bank is marked by kilometer posts numbered from Port Said High Light S. From Buheiret El-Timsah (Lake Timsah) S, the markings are in Arabic numerals. However, it has been reported that all kilometer posts from Port Said High Light to the port of Suez are marked in English numerals.

Where there are two channels, the suffix "E" is used to denote that the position referred to is in the Eastern Channel, e.g. Km 5.6E.

Positions along the approach channels may also be described by their distance along the channel in Hectometers (Hm) from the origin of the Sea Channel. At Port Said, Hm 0.0 is Km 0.0. At Bur el Suweis, Hm 0.0 is Km 162.25.

Shiphandling in the canal.—In the pilotage of a vessel in Suez Canal, the main point requiring attention is the speed, which by Suez Canal Authority regulation is normally 7.5 knots. Each vessel has a speed suitable to its size at which it steers best. If a vessel that normally handles well steers badly in the canal, it is probable that its speed is wrong, which should be adjusted accordingly.

In passing from a wide into a narrower portion of the canal, it will be necessary to reduce speed in order to maintain good steering.

It should also be noted that there is a certain speed attainable by each vessel in the canal which will not be exceeded no matter how much the speed of the engines is increased. This is owing to the large displacement of water as compared with the width and depth of the canal and, of course, does not affect a vessel so much in the lakes.

When passing through a curve in the canal, the greatest caution is necessary in very long vessels; there should be a tug towing ahead and the engines should be stopped or going as slowly as possible. Particular attention is required, especially in a vessel with twin screws, to the proximity of the propeller to the banks.

In passing a canal dredge hauled to the bank or a vessel moored to a gare (places where the canal was widened to enable a vessel to secure to the bank so that another might pass) or in a bypass, great caution is required. The speed should be very slow, for at even a moderate speed the reaction of the waves caused by the passing vessel is liable to carry away the hawsers of the stationary vessel, which might then foul the passing vessel.

Close attention is required to the steering so that only a small amount of helm is used. Hand steering only is to be used while in the canal. Use of the vessel's gyro pilot is prohibited.

The canal banks are not always symmetrical to the center of the dredged channel marked by buoys; unevenness in the banks may also affect the vessel's steering. The pilot's advice is therefore essential to keep the vessel in the center of the channel.

When the wind blows across the canal, care must be taken to prevent the vessel drifting to leeward. It is better to stop and secure to the bollards than to risk damaging the propeller by using it near the lee bank, this being the only serious damage vessels are liable to sustain in transiting the canal.

Similarly, with a wind abeam, care is required in getting underway after mooring to the bank.

Tides—Currents.—Between Port Said and El-Buheira El-Murra El-Kubra (Great Bitter Lake), tidal currents may reach 1 knot; however, it can reach 2 knots with strong prevailing winds. A strong NW current in El-Buheira El-Murra El-Kubra was reported (2003) to reach a velocity of 3 knots; a N current, with a rate of 3 knots, has also been reported (1998) to exist S of El-Buheira El-Murra El-Sughra.

Peak currents between Port Said and the Bitter Lakes occur about 50 minutes after predicted HW and LW at Port Said.

The duration and velocity of currents in the part of the canal are greatly affected by the relative mean sea levels between the Mediterranean Sea, the Bitter Lakes, and the Red Sea and the meteorological conditions of the region.

In summer, between July and October, the mean sea level at Port Said and Port Suez is slightly higher than that of the Bitter Lakes. This difference, coupled with evaporation in the Bitter Lakes, causes the predominance of a S current from Port Said to the lakes and a N current from Port Suez to the lakes.

In winter, between December and April, the mean sea level at the Bitter Lakes is slightly higher than that of Port Said and Port Suez. This difference causes the predominance of a N

current from the lakes to Port Said and a S current from the lakes to Port Suez.

The lakes along the canal have an important role in dampening the effects of sudden meteorological changes.

Between Port Suez and the Bitter Lakes, the N current is called the flood; the S current is called the ebb. Peak currents occur about 50 minutes after HW and LW at Port Tewfik.

At the entrance to the canal, at Km 159.0, the flood starts at an average of 3 hours after LW at Suez; the ebb starts 3 hours after HW at Suez. Usually in summer, the duration of the ebb exceeds 6 hours. In winter, the flood dominates. The ebb is prolonged by strong NW winds; the flood by strong S winds.

In the S part of the canal, the current averages 1.5 knots and 2.5 knots at springs and are rather strong and uniform.

Six meteorological stations span the canal and information concerning local weather will be passed to vessels from the pilots.

Caution.—It has been reported that fog, sometimes limiting visibility to less than 100m, may be encountered transiting the canal.

Part B. Suez Canal Vessel Traffic Management System

1.2 The Suez Canal Vessel Traffic Management System (SCVTMS) is a system for ensuring safety of transit in the canal as well as increasing the numerical capacity. The system offers the following services, which includes continuous monitoring of a vessel's position, speed, off-track, and space between vessels, by means of computerized tracking radars at Port Said, Port Tewfik, and El-Buheira El-Murra El-Kubra (Great Bitter Lake).

1. A Loran-C network covering the canal and its approaches.
2. A voice communication network that enables direct communication between pilots and movement centers.
3. A computerized data base containing vessels particulars and transit requirements.

At Port Tewfik or Port Said, the radar coverage extends about 19 miles offshore.

Vessels approaching the canal, from either end, should call the respective harbor office on the frequencies listed in Part C—Suez Canal Signals.

Vessels calling the harbor office for the first time should give the international call sign and Suez Canal file number. The file number will enable the SCA to retrieve information on the vessel from the data base.

Approaching the roads, vessels are requested to call the harbor office declaring their international call sign.

The harbor office tracks the vessel as long as the pilot is aboard. On entering the canal, special Loran-C receiver/transmitters will be taken on board each vessel as she enters the canal. The carry-on receiver transmitter (CORT) will fix the ship's position from the shore-based transmitters' coded pulses by time-difference measurements.

The information is continuously sent by the CORT to Ismailia Center, where it is used to calculate the vessel's speed, position, off-track and distance between other vessels. The CORT should be mounted on the vessels W wing. A trained technician will mount and dismount the CORT.

Vessels will be tracked both by radar and Loran C in the Great Bitter Lake Area and by television, which covers the canal and is controlled from Ismailia.

On approaching either end of the canal, the respective harbor office will be handed the responsibility of follow-up as the vessel proceeds to sea.

Vessels should observe the radio reporting points listed under the “Information to be passed to the SCA on arrival” topic in Part E, Suez Canal Transit Requirements.

It has been reported that the CORT system is no longer in use.

Part C. Suez Canal Signals

1.3 The Suez Canal Authority (SCA) prescribes the signals, both visual and sound, for use at Port Said and in the Suez Canal.

The manual that contains these signals, *Rules of Navigation, Part III, Communications—Signals*, is held by the pilot for use by the master of the vessel.

All flags and pendants referred to, and many of the signals referenced, are those used in the Pub. 102, International Code of Signals.

Night signal lights shall be hoisted at the foremast head or where best seen by other vessels. Excerpts from the SCA manual (*Rules of Navigation—Part III, Communications—Signals*) are given below.

The following pilotage signals are displayed in the day and at night:

Day	Night	Meaning
Flag G under a black ball	Three white lights in a vertical line	I require a pilot
If proceeding from port to sea, or for changing berths, this signal is to be raised 30 minutes before departure from the dock. If transiting the canal, the signal should be hoisted about 2 hours before the first vessel enters the canal.		

The following aground signals are used by vessels, as needed:

Day	Night	Meaning
Black ball above Pennant No. 2 at masthead	Red light at masthead	Vessel aground. Passage clear for tugs
Black ball above Pennant No. 2 above Flag N	Two red lights vertically disposed	Vessel aground. Passage not clear for tugs

The following signal is used in convoys:

Day	Night	Meaning
Flag Z	Green light over white light	Last vessel in convoy

The following special signals are used by vessels carrying certain hazardous cargo:

Day	Night	Meaning
Flag B over one black ball	Two red lights over one white light vertically disposed	Tanker carrying bulk petroleum (flash point between 23°C and 49°C)
One black ball over Flag B	One white light over two red lights vertically disposed	Vessels carrying explosives or other dangerous cargo, including non-gas-free tankers, LPG and LNG vessels, and LNG vessels carrying dangerous cargo in bulk.
Flag B between two black balls	Three red lights vertically disposed	Vessels carrying bulk petroleum (flash point below 23°C)
Flag F between two black balls	Four red lights vertically disposed	Vessels carrying radioactive substances

The following maneuvering signals are used:

Day	Night	Meaning
Pennant No. 2	Two white lights vertically disposed	The vessel is making fast. It is to be noted that when the vessel is made fast in the canal the white lights aft are to be replaced by a red stern light.
Pennant No. 2 above answering pendant	Red light between two white lights, vertically disposed	Vessel is not ready and will not maintain its place in the convoy. If hoisted by a vessel in the canal, it means “I am securely made fast and can be crossed or doubled by other vessels.”
Pennant No. 1	White light above red light	Vessel is maneuvering to get underway in the canal

The only sound signals allowed in the Suez Canal and at Port Said are, as follows:

1. The sound signals laid down in the International Regulations for Preventing Collisions at Sea.

2. Five or six short blasts repeated at short intervals—I am reducing speed and may have to stop or make fast.
3. One prolonged blast—to attract attention.
4. Other sound signals as laid down in the SCA manual.

Vessels approaching the canal are required to observe radio reporting points and pass certain information to the appropriate harbor office when approaching the canal. See Part E—Suez Canal Transit Requirements for details.

Vessels approaching the roads should also contact the appropriate harbor office. Vessels intending to maneuver within the canal or its approaches without a pilot aboard should contact “SUQ” and request permission to do so.

Vessels must have their radio gear in good working order prior to transiting the canal. They must also be fitted with a VHF set capable of being operated from the bridge with a frequency range of 156 to 174 MHz (VHF channels 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 71, 73, and 74). If not fitted with a VHF set, vessels may rent a VHF set from the SCA. Vessel to tug communications are usually on UHF.

Vessels approaching from seaward make contact, as follows

Contact	Call sign	VHF channel
Port Said		
Port Management	Port Said 16 (HP1)	16
Pilot Vessel and Radar Guidance:		
Outside harbor	Port Said 12 (HP2)	12
Inside harbor	Port Said 13 (HP3)	13
Port Suez		
Port Management	Suez 16 (HP1)	16
Pilot Vessel and Radar Guidance:		
Outside harbor	Suez 11 (HP2)	11
Inside harbor	Suez 14 (HP3)	14

The Suez Canal Authority Ismailia may be contacted directly through “SUQ.” The Suez Canal Authority Ismailia can also be contacted by e-mail, as follows:

ismradio@hotmail.com

Masters shall place their communications equipment at the disposal of the SCA during transit of the canal.

Pilots shall be allowed to receive and send all service messages which may be deemed necessary, free of charge, to the SCA.

Radio watches will be kept as directed by the pilot; it may even be required that a continual watch be kept during transit of the canal.

Part D. Suez Canal Navigation Regulations

1.4 Suez Canal Navigation Regulations will be found in the manual *Suez Canal Authority Rules of Navigation*, published by the SCA. A copy of these rules is held by the pilot for

the masters use. It has been reported (1998) that vessels must request the pilot bring a copy of the *Suez Canal Authority Rules of Navigation* in their Advance Notification of Transit message.

Masters are bound to make themselves well-acquainted with these regulations as a condition of passage through the canal; the excerpts which follow may be of use to vessels approaching the canal.

Transit through the Suez Canal is open to vessels of all nations, subject to their complying with the conditions set down in the *Suez Canal Authority Rules of Navigation*. The SCA reserves the right to refuse access to canal waters or order the towage or conveying of vessels considered dangerous or troublesome to navigation in the canal.

By the sole fact of using the canal (i.e., Suez Canal, Port Said harbor and access channels, etc. within the SCA’s concession), masters and owners of vessels bind themselves to accept all the conditions of the current *Suez Canal Authority Rules of Navigation*, with which they acknowledge being well acquainted, to conform with these conditions in every respect, to comply with any requisition made with a view to their being duly carried out, and to adhere to the SCA’s private Code of Signals.

When in canal waters, any vessel or floating structure of any description is responsible for any damage and consequential loss it may cause either directly or indirectly to the SCA without option for the owners and/or operators to release themselves from responsibility by purely and simply abandoning the vessel, floating structure, or wreck.

Vessels carrying petroleum or dangerous cargo must comply with these regulations and also with the *Suez Canal Authority Rules of Navigation* and the Appendix for Vessels Carrying Dangerous Cargo, a copy of which is given to masters on their arrival at the canal.

The following vessels will not be allowed to transit the canal:

1. Any vessel whose Tropical Load Line is submerged or whose Plimsoll Marks are not plainly visible.
2. Any vessel considered by the SCA to be dangerous to navigation.
3. Vessels carrying dangerous cargo not conforming to the Appendix of Rules to Navigation for vessels carrying same.
4. Vessels having a list of more than 3°.
5. Vessels trimmed in such a way as to cause poor maneuverability.
6. Vessels with deck loads protruding so as to endanger the safety of transit.
7. Vessels loaded in such a manner so as to impair stability.
8. Vessels whose draft is in excess of that permitted.
9. VLCCs or ULCCs if there is a strong wind (a beam wind of over 10 knots).
10. Any vessel without anchors.

Movement of vessels.—Entering or moving within canal waters without the approval of the SCA and a pilot aboard is prohibited. For information concerning when vessel’s may navigate in canal waters without a pilot, see Part G—Suez Canal Pilotage.

When several vessels are ready to get underway at the same time, the order of sailing will be set by the SCA. The SCA will prescribe the movements of vessels under way in order to ensure the maximum safety to navigation.

Consequently, no vessel may demand immediate passage through the canal, and no claim for delay arising from the foregoing causes can be admitted. Masters must avoid anchoring in the canal, except in case of absolute necessity.

Navigation of sailing craft of every description by night is entirely forbidden. During night transit, vessels must keep their searchlight on. They must show their regulation lights and keep a lookout forward.

Vessels not provided with searchlights and having no means to use hired ones from shore are only allowed to transit at night in exceptional circumstances, escorted by tugs, with the master being entirely responsible. Vessels going through the canal under these conditions are subject to all the other rules for night transit.

In canal waters, sounding the ship's whistle is only allowed as laid down in the signal section

Boats, other than the SCA's own, are not allowed to come alongside vessels which are underway or maneuvering, except the following at their own risk, which include quarantine and police boats, mooring boats, and the ship's agent's boat.

Prohibitions.—The following prohibitions are hereby notified to masters:

1. Allowing any shots to be fired.
2. Taking boats or floating appliances of whatever description in tow of vessels.
3. Throwing overboard earth, ashes, cinders, or articles of any kind into canal waters at any point during transit from sea to sea.
4. Emptying or letting oil, gas, heavy oil, fuel oil, scouring, cleansing water, or flow from tanks having contained such products. The loading, unloading, and, generally, handling of liquid fuel must be so carried out as to avoid any fuel leaking into canal waters, failing which the SCA reserves the right to stop such operations until the necessary repairs shall have been effected.
5. Picking up, without the direct intervention of the SCA's officials, any object that may have fallen into canal waters.

Whenever any object or merchandise whatsoever falls overboard, it must be immediately reported to the SCA.

Accidents.—Whenever a vessel underway is accidentally stopped it must, if other vessels are following, attract their attention by making the sound signal described in the SCA manual. At night, in addition, the white stern light must be replaced by a red light.

In case of grounding, the master must immediately hoist the signal and send a radio message stating whether a tug is required or not; if required, whether or not passage is clear for the tug and whether lightening is necessary, etc.

When a vessel runs aground, the SCA's officials are alone empowered to order and direct all operations required to get the vessel afloat and, in case of need, to get it unloaded and towed.

All attempts on the part of other vessels to get off a vessel aground are strictly prohibited.

Whenever a collision appears probable, vessels must not hesitate to run aground, should this be necessary to avoid it.

Suez Canal tonnage and dues.—The tonnage on which all dues and charges to be paid by vessels, as specified in these regulations, is the net tonnage resulting from the system of measurement laid down by the International Commission held at Constantinople (Istanbul) in 1873 and duly entered on the special certificates issued by the competent authorities in each country.

For further information on tonnage and dues, *Suez Canal Authority Rules of Navigation* should be consulted.

Searchlights.—Vessels must satisfy the officials of the SCA that they are equipped with an adequate searchlight and overhead lighting. Night transit may be suspended in case of breakdown or inadequate or defective functioning of this apparatus.

The searchlight is to be placed on the bow in the axis of the vessel and must show the canal clearly 1,800m ahead, and be built so as to meet the following criteria:

1. The searchlight is to be able to be operated both horizontally and vertically.
2. The front glass must be of a hardened type that can stand rapid cooling.
3. The reflector must be in two halves of precise ground glass mirror of highest quality or of polished aluminum having at least 95% of the reflective ability of the glass mirror.
4. The two halves of the reflector can be brought together to make a single reflector light and can be separated to give two separate light beams each of 5° in the horizontal, with a dark sector of 0° to 10°.
5. The reflector's body must be provided with a vent on which a flexible hose can be fitted to dissipate the heat.
6. The searchlight must be equipped with two lamp carriers which can be turned into position to let the lamps in the focus of the reflector.
7. The electric system must be of the first class marine type. The power of the incandescent lamps must be 2,000 watts for ships up to 30,000 SCGT and 3,000 watts for ships exceeding 30,000 SCGT, such that the luminous intensity not less than 3,000,000 candela.

Vessels carrying petroleum, LPG, LNG, or inflammable substances or vessels not gas-free, must have a gas-tight searchlight.

On board electrically-powered vessels or vessels having electrically-powered gear, the number of generators and their individual power output must be sufficient to ensure uninterrupted functioning of the searchlight in the event of a power failure. No exception to this rule will be allowed, except when there is an independent generator and circuit on board specifically set apart for the searchlight. All electrical cable, and fixtures for the searchlight, are to be of a permanent nature, insulated, and gas tight.

Vessels whose bulbous bows are less than 3m below sea level, all LNG or LPG carriers, all vessels entering the canal directly from sea, and vessels entering the canal directly from the anchorage S of Conry Rock must provide their own searchlights.

Two shore electricians must be embarked to operate searchlights during the transit, whether they are hired or are provided by the vessel; a sheltered place is to be provided for them.

Recently, a new magnetically-mounted searchlight was authorized. Vessels using this facility are required to be fitted with an unpainted steel plate platform, square or round of 0.75m side or diameter, placed on the centerline on the upper part of the stem.

Overhead lights, visible from all points of the compass and powerful enough to light up a circular area of about 200m diameter around the vessel, are required.

Vessels are also required to illuminate their funnels to aid identification.

Part E. Suez Canal Transit Requirements

1.5 Advance notification of transit.—The Suez Canal Authority (SCA) requires 4 days advance notice from vessels that want to join a convoy to pass through the Suez Canal.

Vessels possessing special characteristics and wishing to transit the canal should submit a request well in advance. The message must contain the following information:

1. Vessel type, nationality, and name.
2. Draft on day of transit.
3. Suez Canal Gross Tonnage and dwt.

Notice of cancellation or alteration of passage must be given at least 24 hours ahead or a fine will be levied. Vessels arriving without booking ahead will join the convoy if traffic in the canal allows or they may join the next convoy.

Information required in advance of arrival.—The following information should be sent to the SCA through “SUQ” preferably, or through the vessel’s agent, at least 48 hours and 24 hours prior to arrival:

1. Type of vessel, nationality, and name (with former name, if any).
2. Suez Canal Gross Tonnage, dwt, draft, and beam.
3. Whether vessel intends to transit canal or stop in the harbors, including the duration of stay in harbor.
4. ETA Port Said (Southbound) or Port Suez (Northbound).
5. Quantity and IMO class of any dangerous cargo.

Information to be passed to the SCA on arrival.—The harbor office should be contacted by VHF when the vessel is:

1. About 15 miles from Fairway Lighted Buoy off Port Said (31°21.3’N., 32°20.7’E.)—Port Said Harbor Office on VHF channel 16.
2. About 5 miles from Separation Zone Lighted Buoy No. 1 in the Suez Bay approach (29°40’N., 32°32’E.)—Port of Suez Harbor Office on VHF channel 14.

The following information should be passed at that time:

1. Position (latitude and longitude).
2. Vessel’s name.
3. Call sign.
4. Suez Canal Identification Number (SCID).
5. Suez Canal Gross Tonnage and dwt.
6. Draft.
7. Whether vessel is loaded or in ballast.
8. Nature of cargo.
9. Any defects affecting the safety of navigation.

In addition, vessels transiting the canal for the first time should state:

1. Date of building.

2. Whether Suez Canal Tonnage Certificate is held and, if so, its date of issue.

3. Call sign or SCID.

4. Length overall.

5. Beam.

6. Type of engines.

7. Whether vessel intends to transit canal or only stop in the harbor.

It has been reported (2003) that information concerning the location and condition of the vessel’s anchors and the required searchlights (see paragraph 1.4), as well as the vessel’s last port of call and next port of call, were requested.

Documents.—The following documents must be readily available:

1. Suez Canal Special Tonnage Certificate.
2. Certificate of Registry.
3. Statistical Declaration.
4. Extract from any of the vessel’s official documents and information concerning its type and cargo.
5. Declaration concerning the use of double bottom tanks and the lower part of high tanks.
6. Declaration concerning vessels in ballast.
7. Declaration of state of navigability.
8. The last classification certificate issued.
9. Capacity plan.
10. General arrangement plan.
11. Piping plan of LPG and LNG vessels.
12. Canal searchlight certificate.
13. Four copies of the crew list.
14. Four copies of the passenger list.
15. Any other information relevant to the vessel’s transit.

Pre-transit procedures.—All vessels ready to enter the canal must have their ladders and jib booms run in, their boats swung in and any derricks, obstructing the view forward, lowered.

Vessels must be equipped with a rudder angle indicator and an engine RPM indicator in the wheelhouse, easily seen by the pilot.

The bow anchors must be ready to let go. Prior to entering the canal, it must be ascertained that main engines, steering gear, engine order telegraph, rudder angle and RPM indicators, VHF, and radar are in good working order.

Vessels in ballast must fill spaces used for carrying water ballast as directed by the SCA.

Deck cargo is to be stowed in a way so as to provide a clear view from the navigating bridge while transiting the canal, as well as not to affect the vessel’s stability.

Mooring ropes.—Vessels shall have at least six flexible floating mooring lines, in good condition, fitted with eyes. Vessels equipped with tension mooring wires may reduce this number to four. Any mooring lines likely to produce sparks are forbidden on board tankers or any vessels carrying inflammable substances.

Mooring boats.—Mooring boats must be in constant readiness for lowering to run the hawsers to the mooring bollards without delay. The number of mooring boats required is based upon the vessel’s SCGT. Vessels hire mooring boats from a mooring company approved by the SCA, as follows:

1. Vessels under 2,500 SCGT—one mooring boat or one motor boat.

2. Vessels from 2,500 to 5,000 SCGT—one motorboat.
3. Vessels from 5,000 to 30,000 SCGT—one motorboat and one mooring boat, or two mooring boats.
4. Vessels over 30,000 SCGT—two motor boats.

Masters may request additional boats. The lifting appliances handling mooring boats must have a Safe Weight Limit of at least 4 tons, and must not be placed so far aft that the boat and crew are exposed to the ship's propellers.

Part F. Suez Canal Convoy System

1.6 Transit through the Suez Canal is operated on a convoy system. The Southbound Convoy and Northbound Convoy are usually timed so that they will pass in the El-Buheira El-Murra El-Kubra (Great Bitter Lake) area.

Large bulk carriers, ULCCs, VLCCs, and other designated vessels will be escorted by tugs, as follows:

1. Loaded vessels of less than 130,000 dwt will be escorted by one tug if the SCA finds it necessary for technical reasons or when the vessel's draft is greater than 14.3m.
2. Loaded vessels from 130,000 to 170,000 dwt will be escorted by one tug.
3. Loaded vessels over 170,000 dwt will be escorted by two tugs.
4. Vessels in ballast over 165,000 dwt will be escorted by one tug.
5. LPG and LNG vessels over 25,000 SCGT will be escorted by one tug. Gas-free vessels will be treated as tankers in ballast.
6. Vessels in ballast with a beam of over 66.5m, up to a beam of 71.02m, will be escorted by one tug.
7. Vessels in ballast with a beam over 71.02m will be escorted by two tugs.
8. Towed scrap vessels in ballast of 150,000 dwt and over will be escorted by one tug.
9. Loaded heavy-lift ships are to be escorted by one or more tugs.

The above-mentioned vessels, as well as vessels under 100,000 dwt if their draft is greater than 14.33m, have to prepare two polypropylene ropes of 16-inch circumference to join the stern to the tug during stopping operations. The ropes should be eye-spliced to fit in the quick release hook on the tug and with adequate length to give a distance between the fore of the tug and the stern of vessel at about 50m.

On the vessel, these ropes will be made fast on port and starboard stern bitts. The eyes will be hanging over the stern about 2m above the water and lashed with rope stoppers to break loose when necessary.

The SCA may impose mandatory tug escorts in the following instances:

1. The Suez Canal Authority may require any vessel to take a tug or tugs through the canal, when in its judgment such action is necessary to ensure safety to the vessel or to the canal.
2. Any vessel without mechanical power, or the machinery of which are/or become disabled, or steers badly, or who is liable to become unmanageable for any reason, shall be towed through the canal.
3. Vessels having engine or steering gear trouble for the second time during the same passage.

4. Vessels who, owing to deck cargo, containers, cranes or constructions, have an obstructed view from the wheelhouse and wings.

5. Vessels unable to use one of their two anchors, vessels over 1,000 SCGT built with one anchor, or vessels over 1,000 SCGT built with more than one anchor if only one of them is located on the bow.

6. Drilling vessels.

7. Vessels with two engines on one propeller, one of which is out of order for any reason, and cannot maintain a speed of at least 10 knots without a current sea trial to assure the speed and a valid Seaworthiness Certificate.

8. Vessels with two engines on two propellers, one of which is out of order.

9. On the master's request for one or more tugs.

At Port Said, tugs maybe placed at the disposal of masters if the SCA deems it necessary. Vessels maneuvering in the harbor are required to provide their own hawsers.

Wire tow-ropes are not allowed. The SCA may order that certain defective vessels, or vessels carrying dangerous cargo, shall be towed or convoyed in the canal by one of the SCA's tugs.

With the exception of certain cases involving fire, grounding, etc., the master of a vessel utilizing a tug placed at its disposal has the exclusive direction and control of the maneuvering of both the vessel and the tug.

Shipowners are authorized to have their vessels towed or convoyed by their own tugs, or tugs belonging to third parties, upon their entire responsibility; such tugs must be approved by the SCA.

Southbound Convoy (N1)

Group A is made up of vessels in Port Said. Vessels in this group enter the canal at the S end of Port Said Harbor.

Group B is made up of the following vessels anchored in the Northern Anchorage Area:

1. Third and fourth generation container vessels.
2. VLCCs in ballast.
3. Vessels with a draft of over 12.8m.
4. LPG, LNG, and non-gas-free vessels, whether loaded or in ballast.
5. LASH vessels over 40,000 SCGT.

Vessels in Group B enter the Port Said By-pass Approach Channel in time to join Group A at Km 17.0.

Group C is made up of vessels in the South Anchorage that will enter through Port Said West Approach Channel in time to join Group B at Km 17.0.

The speed of transit 14 km/hour (7.6 knots).

By 1900 vessels (both Group A and Group B) must have arrived in the Port Said Anchorage Areas and be declared ready for transit by the agent. Southbound Convoy N1 proceeds to the canal entrance at about 0100, with vessels able to join it, at additional cost, until 2200.

Group A proceeds as soon as the last vessel of the Northbound Convoy has entered the E channel at Km 17.0.

The Southbound Convoy has a free run to Bitter Lakes heading via El Ballah East Branch (Km 51.0 to 61.0); Lake Timsah By-pass (Km 79.0); the W channel at Deversoir By-pass West Branch (Km 95.0 to 103.0), except for vessels with a draft greater than 12.8m, which use Deversoir By-pass East

Branch; and then anchoring on the W side of the channel through El-Buheira El-Murra El-Kubra (Great Bitter Lake).

When the Northbound Convoy has passed in the Bitter Lakes, the Southbound Convoy proceeds, with Group B leading.

Second Southbound Convoy (N2)

Sometimes, if the intensity of traffic warrants, a second Southbound Convoy (N2) is formed. The following vessels are not permitted to join the second Southbound Convoy (N2):

1. Tankers or bulk carriers carrying petroleum A or similar, with a flashpoint below 23°C.
2. LPG, LNG, and non-gas-free vessels, whether loaded or in ballast.
3. Single bottom tankers carrying liquid bulk chemicals.
4. Vessels carrying uncontainerized radioactive materials (Group 1).
5. Vessels carrying dangerous waste.
6. Heavy lift vessels carrying heavy lift units greater than the lifting capacity of their individual cranes..
7. Vessels carrying deck cargo protruding more than allowed.
8. Vessels over 90,000 SCGT.
9. Warships.

The second Southbound Convoy (N2), leaves Port Said between 0630 and 0900. The convoy is required to tie-up in El Ballah West Branch until the Northbound Convoy has entered El Ballah East Branch.

Vessels in this convoy are subject to the limitations in the Beam and Draft Tables given previously in paragraph 1.1.

The latest time for vessels to arrive in the Port Said Anchorage Areas and to be declared ready for transit by the agent is 0500.

Northbound Convoy

The Northbound Convoy consists of two groups, which are called Group A and Group B.

Group A is made up of two parts, A(1) and A(2), as follows:

1. A(1) is comprised of naval vessels, third and fourth generation container ships, LPG and LNG (both loaded or non-gas-free), loaded chemical tankers, and LASH vessels over 40,000 SCGT.
2. A(2) is composed of loaded tankers and heavy bulk carriers. To be considered a “heavy bulk carrier” for the transit of Suez Canal, the bulk carrier has to have a draft of more than 11.6m or have a length between perpendiculars of greater than 289.7m.

Group B is composed of vessels anchored in the Suez Anchorages.

The speed of transit of Group A is 11-15 km/hour (6.0-8.0 knots). The speed of transit of Group B is 13-16 km/hour (7.0-7.6 knots).

Northbound LPG and LNG vessels, for safety consideration, are included in the “tanker” group; consult the Dangerous Cargoes Appendix to the SCA Rules of Navigation held by the pilot. Vessels carrying chemicals in bulk are considered part of this group only if they are loaded.

By 0100, vessels in Group A must have convoyed at the anchorage and be declared ready for transit by their agents. Vessels may join the group, at additional cost, until 0330.

By 0300, vessels in Group B must have arrived in the waiting area SE of Newport Rock Channel and be declared ready for transit by their agents. Vessels may join the group, at additional cost, until 0500.

At 0600, the leading vessel of Group A(1) enters the canal at Km 160.0. At about 0700, the leading vessel of Group A(2) enters the canal. Group B follows the last vessel of Group A(2), with a cut-off time of 1130.

The Northbound Convoy usually proceeds without stopping via El-Kabrit East Channel, through Great Bitter Lake East Branch, Deversoir By-pass East Branch (Km 103.0 to 195.0), Lake Timsah By-pass, El Ballah East Branch (Km 61.0 to 51.0), Port Said By-pass, and then through Port Said By-Pass Approach Channel to the Mediterranean Sea.

If the Northbound Convoy has to stop in the Bitter Lakes due to traffic problems with the Southbound Convoy or any other emergency, vessels anchor in the Great Bitter Lake East Branch, in the anchorages E of the channel, or make fast in El Kabrit East Branch, where there are three berths available for emergency use.

Part G. Suez Canal Pilotage

1.7 Pilotage is compulsory for all vessels, whatever their tonnage, when entering, leaving, moving, changing berth or shifting on Canal Waters or Port Said and Port Suez harbors. Any exception must be explicitly authorized by the Suez Canal Authority (SCA). However, the SCA reserves the right to assign a tug master on board vessels under 1,500 SCGT, and a coxswain on board vessels under 800 SCGT, instead of a pilot.

Navy ships and vessels carrying dangerous cargo must have a pilot, regardless of their tonnage.

Masters are held solely responsible for all damage or accidents of whatever kind resulting from the navigation or handling of their vessels, directly or indirectly, by day or night.

When a vessel is transiting the canal, the master or the master’s qualified representative should be present at all times on the bridge. The master or the master’s qualified representative is to keep the pilot informed of any individual peculiarities in the handling of the vessel, thus permitting the pilot to better navigate and move the vessel.

The duties of pilots commence and cease at the entrance buoys of Port Said and Port Suez. The pilot only gives advice on maneuvering the vessel, course to steer, etc. The pilot puts at the disposal of the master the experience and practical knowledge of the canal, but as the pilot cannot know the defects or difficulties of maneuverability for every vessel. This responsibility falls completely upon the master.

It is the responsibility of the master, taking into account the indications given by the pilot, to give the necessary orders to the helm, to the engines, and to the tugs. However, in the interest of rapid maneuvering, if the master prefers that the pilot give orders directly, then those maneuvers carried out by the pilot are still considered as orders of the master, and the responsibility of the master as well.

The pilot has to ensure that the vessel abides by:

1. The articles of Rules of Navigation.
2. The orders of transit given by movement control.

Pilots are employed in four stages.

For southbound vessels pilotage is, as follows:

1. From Fairway Lighted Buoy to berths in Port Said Harbor through Port Said Harbor Approach Channel or from the North Anchorages (Zone One and Zone Two) through Port Said By-pass Approach Channel to the N entrance to Port Said By-Pass..

2. From Port Said Harbor, or the N entrance to Port Said By-pass to Ismailia.

3. From Ismailia to the pair of lighted buoys marking the S entrance to the canal.

4. From the pair of lighted buoys marking the S entrance of the canal to Km 80.5, the S entrance to Newport Rock Channel. However, pilotage make be requested to cease at Km 44.4 at Newport Rock.

For northbound vessels, pilots are engaged, as follows:

1. From the Deep-Draft Anchorages S of Conry Rock, or from the Main Anchorage Waiting Area, to the pair of lighted buoys marking the S entrance of the canal.

2. From the pair of lighted buoys marking the S entrance of the canal to Ismailia.

3. From Ismailia to the N entrance to Port Said By-pass.

4. Through Port Said By-pass Approach Channel to Km 80.0.

Additional pilots will be assigned to vessels in the following situations:

1. Vessels greater than 80,000 SCGT.

2. Vessels with a poor view from the bridge.

3. Vessels which, due to slow speed or other causes, that have to transit the canal in stages.

4. Vessels that do not have suitable accommodations for the pilot to rest when not underway.

5. Fourth generation container vessels, third generation container vessels over 60,000 SCGT, and LASH vessels of 35,000 SCGT or greater.

6. Masters may request an additional pilot or the SCA may assign one if it deems it necessary.

The signal requesting a pilot should be hoisted 2 hours. before the expected time of getting underway. See Part C—Suez Canal Signals for specific signals.

Pilots for navigation in the Suez Canal are due on board 1 hours 30 minutes after the signal has been hoisted. Pilots for

proceeding to sea or for changing berth are due 30 minutes after the signal has been hoisted.

Pilots are exchanged at Ismailia (30°35'N., 32°17'E.).

Pilot boarding positions are given in the accompanying table.

When a pilot is unable to board vessels due to bad weather in the approaches to the canal, vessels may navigate without a pilot under their own responsibility in the following circumstances:

1. Southbound vessels joining a southbound convoy, via Port Said By-Pass Approach Channel from the Mediterranean Sea anchorage areas at the N end of the canal to the entrance to the canal at Km 0.0 of Port Said By-Pass Channel.

2. Southbound vessels in a southbound convoy from Km 162.0 to sea.

3. Northbound vessels joining a northbound convoy from the Deep-Draft Anchorage of the Main Anchorage waiting area to the entrance to the canal, when a canal pilot will board near Km 161.1.

4. Northbound vessels in a northbound convoy from Km 3.0E in Port Said By-Pass Channel.

Upon sighting the signal that a pilot is coming out, vessels must make ready to bring the pilot aboard and enter the canal without delay. A vessel at anchor in a waiting area must shorten its cable and make a lee for the pilot launch to come alongside.

Accommodation ladders should be rigged for use by the pilot. Should the accommodation ladder be situated near the vessel's propeller, a pilot ladder should be rigged amidships.

Vessels with a high freeboard should provide a mechanical hoist for the pilot. A ship's officer should be in attendance when the pilot boards.

If a pilot's services are dispensed with after arrival on board or the time of departure be postponed, or if a pilot sails with a vessel due to heavy weather or due to the vessel's request, additional charges will be made.

A spare cabin or space should be set aside where the pilot can rest during the vessel's waiting period. Vessels unable to provide this space will be subject to delays and extra pilotage dues.

Suez Canal Pilot Boarding Positions	
Vessels entering from the Mediterranean Sea	
VLCCs, fourth and third generation container vessels, LASH vessels over 35,000 SCGT, LPG and LNG vessels (both loaded or not gas-free), and vessels with a draft greater than 12.8m	North Anchorage Area (Zone One)
Vessels with drafts between 11.9m and 12.8m	North Anchorage Area (Zone Two)
All other vessels	Near Fairway Lighted Buoy
Vessels entering from the Red Sea	
VLCCs, large bulk carriers, fourth and third generation container vessels, LASH vessels over 35,000 SCGT, LPG and LNG vessels (both loaded or not gas-free), and vessels with a draft greater than 11.6m	Anchorage area S of Conry Rock
All other vessels	Waiting area N of Conry Rock

In the event of the pilot being suddenly unable to go on with pilotage duties, the master must:

1. Warn the vessel astern of the intended maneuvers by the visual and sound signals as listed in Part C—Suez Canal Signals, as well as by VHF or other means via Ismailia Radio Station (SUQ).
2. Reduce speed and contact the Movement Office at Ismailia for advice on making fast if in the canal or entrance channels, or anchoring if in the lakes.
3. Keep the Movement Office at Ismailia informed at all times via UHF or VHF, with confirmations by INMARSAT or by other means via Ismailia Radio Station (SUQ).

Part H. Anchorage Areas

1.8 The anchorages given below are used by vessels awaiting transit of the Suez Canal. Regulations for their use are detailed in the preceding sections. Anchorages within the canal proper, including Buheiret El-Timsah and El-Buhera El-Murra El-Kubra are given in Part I—General Description in paragraph 1.9 and paragraph 1.10, respectively. All of the anchorages described below are best seen on the appropriate chart.

Port Said.—Off Port Said, three anchorage areas are available; they are all best seen on the chart.

North Anchorage (Zone 1) is for deep-draft vessels with a draft greater than 12.8m waiting to enter the Suez Canal.

North Anchorage (Zone 2) is for deep-draft vessels waiting to enter the Suez Canal. Vessels authorized to use this anchorages are third generation container vessels, VLCCs in ballast or partially loaded, and vessels with drafts between 11.9m and 12.8m. Each anchor of the eight berths has a radius of 750m and are designated V1 through V8.

South Anchorage is for vessels with a draft of up to 11.9m waiting to enter Bur Said Harbor or the Suez Canal through Bur Said Harbor. Each of the 15 anchor berths has a radius of 500m and are designated C1 through C15. The bottom is mud, good holding ground.

Anchorage is prohibited within a charted Prohibited Anchorage Area W of charted anchorages. Anchorage is also prohibited between the E limit of North Anchorages (Zone 2) and South Anchorage and Bur Said East Branch.

Vessels from sea should, if practicable, avoid entering the Bur Sa'id (Port Said) anchorage areas between 0100 and 0500 when vessels within these areas are leaving to form convoys for entering the canal.

Port Suez.—South of Suez Bay, nine charted anchorage berths are located SE of Conry Rock; these anchorage berths are available to northbound VLCCs, bulk carriers, third generation container vessels, and vessels with drafts greater than 11.6m. The berths are numbered and also prefixed with the letter V.

All other northbound vessels should anchor in the charted waiting area N of Conry Rock. Anchorage is prohibited in the charted area W of the waiting area.

Fourteen anchorage berths, designated W-1 through W-14, each with a radius of 300m, are located W of the S end of Newport Rock Channel and NW of the charted prohibited anchorage area; they may best be seen on the chart.

A dangerous wreck lies on the W edge of this area, 1.5 miles N of SC No. 2 Lighted Float. Another dangerous wreck,

marked close S by a lighted buoy, lies in the charted prohibited anchorage area, about 0.5 mile NE of SC No. 2 Lighted Float.

Anchorages in Suez Bay (Bahr el Qulzum) are described in paragraph 1.12.

Part I. General Description

1.9 Port Said (Bur Said) (31°16'N., 32°18'E.) was founded in 1859, when the Suez Canal was inaugurated. It is situated largely on man-made land; a low sandy strip separating the Mediterranean Sea from Lake Al-Manzilah. It lies at the N entrance to the Suez Canal. Port Said is described in Pub. 132 Sailing Directions (Enroute) Eastern Mediterranean.

Several pontoon bridges, bridges, submarine pipelines, ferries, and cable areas cross the channel at various places along the canal, and may best be seen on the appropriate chart.

A road bridge, with a vertical clearance of 68m, crosses the canal between Km 48.0 and Km 49.0. A swing bridge crosses the canal at Km 68.0, about 2 miles S of the SCA signal tower at El Firdan.

The Suez Canal Bur Said West Branch is entered between two lighted buoys moored at the S end of Husein Basin. The Bur Said Bypass, also known as the Suez Canal East Branch, enters the Mediterranean Sea about 2.5 miles SE of the **Bur Said High Light** (31°16'N., 32°19'E.).

Except for the areas mentioned in Part A—General Remarks, the canal is dredged to a centerline depth of 23.5m.

Bur Said Bypass and Bur Said West Branch are straight, from sea or from about Km 4.0, respectively, to their junction at Km 17.0. The Bur Said West Branch has been dredged to a depth of 14.8m to Km 17.0.

From Km 17.0 to El-Qantara, about 15 miles S, the canal is straight and passes through what was formerly the bed of Buhayrat Al Manzilah (Lake Manzala).

On the E side, this lake is now a dry flat sandy plain scarcely higher than the level of the canal; the W side is slightly lower and receives the waters of the Nile through various channels.

The E bank of the canal is being constantly increased by the deposit of dredged material. The W bank is formed of the black sandy mud and clay from the lake bottom.

From El-Qantara to **Buheiret El-Timsah** (30°35'N., 32°18'E.), a distance of about 17 miles, the canal passes through low sand hills until it reaches the depression near El-Ballah. About 2 miles N of El-Ballah, the canal runs S in two branches for about 5.5 miles.

The canal through the lake has been sufficiently widened to permit turning and anchoring.

El-Ballah Bypass, also known as El Ballah Eastern Branch, is a straight cut between Km 51.0 and Km 60.0. El Ballah West Branch has dredged depths of 15.5 to 18.5m, and is normally used by the Second Southbound Convoy (N2), which ties up here to let the Northbound Convoy pass. There are 15 berths with shore bollards situated on the E side of El Ballah West Branch.

Buheiret El-Timsah (Lake Timsah) lies almost in the center of the canal. Timsah West Branch, marked by lighted buoys through the lake, has been dredged to depths of 15.5 to 19.0m.

Only vessels with a draft not greater than 5.5m are permitted to anchor between this above area and the shore NW. Six des-



Suez Canal—North Entrance

ignated anchorage berths, best seen on the chart, are located in Timsah West Branch.

Buheiret El-Timsah By-pass is cut on a curve E of Timsah West Branch between Km 76.0 and 82.0; it has a dredged depth of 23.5m.

1.10 Ismailia (El-Ismailiya) (30°35'N., 32°17'E.) (World Port Index No. 48050), an intermediate port of the Suez Canal situated on the N shore of Lake Timsah, is the Control Center of the Suez Canal Authority. Ships transiting the canal change pilots at this port. There is quayage for lighters in the harbor.

A war memorial stands on the summit of Jabal Maryam, on the W side of the canal abeam Km 82.0.

Between Tusun and Km 93.0, 3.5 miles S, the canal runs straight, through compact sand or clay which is not hard enough to be dangerous to vessels.

From Km 93.0, Difirswar Bypass (Deversoir Bypass) divides the channel into two parts to pass through the Bitter Lakes. The E branch is cut E of the original canal.

The West Branch is dredged to a depth of 15m while the East Branch is dredged to a depth of 23.5m. There are plantations of

trees on the W bank, along with a signal station at Difirswar (Deversoir).

El-Buheira El-Murra El-Kubra (Great Bitter Lake) and **El-Buheira El-Murra El-Sughra** (Little Bitter Lake) (34°15'S., 32°33'E.) occupy a depression formerly connected with Bahr El-Qulzum (Suez Bay). Together, they extend about 19 miles in a N to S direction, with a greatest width of about 6 miles. The lakes are separated by a point on which is situated the El-Kabrit Signal Station.

The channels through El-Buheira El-Murra El-Kubra connect the Difirswar Bypass to the El-Kabrit Loop and are marked by buoys. The E branch is dredged to 23.5m, while the W branch is maintained to a depth of 15m.

There are dredged anchorage areas on either side of the channels dredged through the lake, the boundaries of which are marked by buoys. The Eastern Anchorage is for the use of northbound vessels, while the Western Anchorage is used by southbound vessels. Each anchorage is sub-divided into several smaller anchorages of varying depth.

These smaller anchorages are numbered, are prefixed with an E or W, and are best seen on the chart. An anchorage for vessels with a maximum draft of 4.8m is located NE of An-



Port Said

chorage Area E2 and may best be seen on the chart. The depth in each anchorage area is, as follows:

1. Area W1—13.0m.
2. Area W2—13.5m.
3. Area W3—14.5m.
4. Area W4—9.0m

5. Area W5—13.5m.
6. Area E1—18.0m
7. Area E2—16.0m
8. Area E3—14.0m
9. Area E4—13.0m. Caution is necessary as a reduced depth of 12.0m has been reported (2002) to exist in this anchorage.

Abu Sultan Quay, located at the NW corner of the larger lake, about 2.5 miles ESE of the signal station at Difirswar, is protected by a detached breakwater which is in disrepair. Depths alongside are reported to be 1.5 to 2.7m.

Fanara Quay (30°17'N., 32°21'E.), about 7 miles SSE of Abu Sultan Quay, has a depth of 2.4m alongside.

El-Kabrit Loop connects El-Buheira El-Murra El-Kubra and El-Buheira El-Murra El-Sughra and is dredged to a depth of 23.5m in the E branch and 15.5m in the W branch. The channels are separated by a bank with depths of less than 2m, on which are located mooring posts.

The canal from El-Buheira El-Murra El-Sughra to El-Suweis (Suez), a distance of about 11 miles, trends S about 6 miles from the S end of El-Buheira El-Murra El-Sughra, then curves slightly E about 5 miles; it then curves gradually SW, past the area known as Port Tewfik, and into Suez Bay.

This part of the canal passes through hard, and sometimes rocky, ground. The rocky areas, where it would be dangerous for vessels to moor to the bank, are marked by buoys, and by red posts on the banks. At El Shatt, on the E bank between Km 157.0 and Km 158.0, there are 550m of wharf space for lighters, with a depth of 2.4m alongside.

1.11 Port Tewfik (29°56'N., 32°34'E.) is that part of Suez Canal lying within 1 mile of its S entrance. South Basin, situated at the N end of the Port Tewfik "gare," has depths of 4.4 to 8.5m.

Gares are places at which the canal was widened to allow a vessel to secure to the bank so that another might pass.

North of South Basin is a channel dredged to a depth of 4m. The SCA signal station, which is a prominent metal structure with transverse arms, stands on the NW side of the S entrance to the canal.

Qad el-Marakib (29°56'N., 32°34'E.), within the S entrance of the canal at its E side, is a low, sandy point covered at high water. A drying sand bank extends about 0.5 mile W and SW of the point. A breakwater extending across the sand bank S of Qad el-Marakib, is connected to that point by sheet piling.

Wharves occupy the canal side of the point, the S half of which has a charted depth of 8.5m. Port Tewfik and Qad el-Marakib are described in paragraph 1.13.

Birket Misalla Light is shown from a beacon standing 2 miles SE of Qad el-Marakib. A landing strip and a beacon are located 0.5 mile NNW and 1 mile NW, respectively, of the light.

Suex Bay

1.12 Suez Bay (Bahr el Qulzum) (29°54'N., 32°32'E.), extending about 4.5 miles S from its head, is entered between **Ras el-Adabiya** (29°52'N., 32°30'E.) and **Ras Misalla** (29°49'N., 32°37'E.).

The Suez Quarantine Station, where there is a pier with a flagstaff at its head and a conspicuous water tower, lies about 5.5 miles ENE of Ras Adabiya.

Large expanses of reefs border the sides of the bay, which should not be approached without local knowledge.

The shores of Suez Bay are low and sandy, except to the SW, where Jabal Ataqah ascends from the shore to a maximum elevation of 570m.

Eastward of this mountain range and on the N side of the bay is a desert plain, with the town of Suez still farther E on a spit of the desert.

On the E side of the bay a plain, mostly sand, extends about 12 miles inland in a SE direction, gradually rising to moderately-high hills.

Along the N side of the bay are numerous storage tanks located up to 2.5 miles W of As Suways, as well as two conspicuous chimneys.

A cable area lies on the W side of the bay, and may best be seen on the chart.

Tides—Currents.—Strong S winds raise the water level in Suez Bay, which affects the currents in the canal. The greatest rate, about 1.75 knots, is attained near El Kubra, Km 149.0. During strong S winds, the N current attains a rate of 2.5 knots at springs.

Off South Basin, care must be taken to guard against a strong current setting across the canal, frequently opposing the current in the canal.

Depths—Limitations.—Depths in the middle of the bay range from 11 to 18.5m, mud and clay. There are numerous detached patches of 6.5m or less scattered throughout the bay, as well as occasional drying patches.

Fringing shoal flats and reefs front the sides of the bay, extending as far as 1.5 miles offshore. Lights and lighted buoys in Suez Bay may be difficult to make out, especially if there is much shipping in the bay.

Qala Kebira (29°55'N., 32°32'E.) is a coral shoal of less than 5.5m lying in the middle of the bay. Green Island, lying in the middle of the shoal, is marked by a light. Lighted buoys and beacons mark the extent of a shoal area around the island.

An offshore oil berth, located 1 mile NW of Green Island, is connected to the shore by a below-water pipeline. The berth can accommodate a vessel up to 60,000 dwt, with a maximum length of 228m and a maximum draft of 10.3m.

Newport Rock (Zenobia) (29°53'N., 32°33'E.) is a small knoll of soft mud with a depth of 6.7m.

Two conspicuous wrecks lie 0.6 mile NE and 1.5 miles E, respectively, of the beacon marking the rock. The first wreck appears as a vessel at anchor, listing to port, while only the masts of the second are visible.

Above and below-water wrecks, mostly unmarked by buoys, are scattered throughout the Suez Bay. The wreck positions are best seen on the chart.

The three main fairways in the approaches to Suez Bay are Eastern Channel, Western Channel, and Newport Rock Channel.

Vessels entering the port from sea or leaving the port for sea should use Western Channel, except for vessels anchoring in Berth 1C and Berth 2C, which should use Eastern Channel.

Vessels entering the canal from the port should use Western Channel, joining Eastern Channel SE of Green Island, except the vessels in anchorage Berth 1C to Berth 7C, which should proceed direct to the canal entrance.

Vessels entering the port from the canal should use Eastern Channel and then Western Channel, except for vessels anchoring in Berth 1C to Berth 7C, which may proceed directly to these berths.

Eastern Channel projects SSW and S from the lighted buoys marking the S entrance to Suez Canal, 0.5 mile SW of Port Tewfik to Newport Rock, 2.5 miles S. The channel is maintained to a depth of 23.5m; anchorage is prohibited within it.

Western Channel lies NW, W, and S of Green Island. Newport Rock Channel projects 2 miles S from the S end of Eastern Channel abeam Newport Rock. The channel is reported to be maintained to a depth of 23.5m.

Pilotage.—Pilotage is compulsory. See Part G—Suez Canal Pilotage for details.

Vessels are recommended not to enter Suez Bay when the pilot boat is prevented from coming out due to foul weather. However, masters of vessels may call the SCA via radio to make other arrangements.

Regulations.—All ships underway in the roads shall conform to the International Regulations for Preventing Collisions at Sea. Other regulations are, as follows:

1. Navigation shall be limited to approved channels only.
2. Crossing or overtaking in the channels is expressly forbidden.
3. Vessels must proceed with caution and at reduced speed.
4. Vessels must not anchor except in designated anchorages.
5. Vessels proceeding S in Eastern Channel have priority. Northbound vessels should wait outside until the channel is clear.

Anchorage.—Numerous anchorage berths, allocated by the SCA, are available in Suez Bay, and are best seen on the chart. Limiting values of each berth are given in the accompany table.

Limiting Values of Anchorage Berths in Suez Bay		
Anchorage Berth No.	Maximum draft	Radius of swing area
Group A Anchorages		
1A	11.3m	274m
2A	11.3m	274m
3A	11.3m	274m
4A	11.3m	274m
5A	11.3m	274m
6A	11.3m	274m
7A	11.3m	274m
8A	11.3m	274m
9A	11.3m	274m

Limiting Values of Anchorage Berths in Suez Bay		
Anchorage Berth No.	Maximum draft	Radius of swing area
10A	11.3m	274m
Group B Anchorages		
1B	11.3m	290m
2B	11.3m	290m
3B	11.3m	290m
4B	11.3m	350m
5B	11.3m	290m
6B	11.3m	290m
7B	11.3m	350m
8B	10.7m	290m
9B	11.3m	290m
10B	11.3m	213m
11B	11.3m	198m
12B	11.3m	198m
13B	11.3m	213m
Group C Anchorages		
1C	7.6m	213m
2C	7.6m	213m
3C	7.6m	213m
4C	9.1m	305m
5C	7.6m	244m
6C	7.6m	183m
7C	7.6m	183m
8C	9.1m	213m
9C	9.1m	244m
10C	7.6m	183m
11C	7.6m	183m
12C	10.7m	244m
13C	10.7m	183m
14C	10.7m	183m
15C	7.6m	183m
16C	10.7m	183m
Group D Anchorages		
1D	—	360m
2D	—	360m
3D	—	360m
4D	—	260m
5D	—	260m

Limiting Values of Anchorage Berths in Suez Bay		
Anchorage Berth No.	Maximum draft	Radius of swing area
6D	—	230m
Group H Anchorages		
1H	12.6m	274m
2H	12.6m	274m

Caution.—A dangerous wreck, with its masts visible and marked close E by a lighted buoy, lies in Berth 7B.

A dangerous wreck, marked close N by a lighted buoy, lies close N of the Group C anchorages.

As Suways (Port Suez) (29°58'N., 32°33'E.)

World Port Index No. 48040

1.13 Several berthing facilities are scattered about As Suways (Port Suez) and are described below.

Bur Ibrahim, the port for As Suways, is connected to the city by a causeway on which there is a railroad.

The harbor consists of a N basin and a S basin, separated by a central quay. The basins are fronted by breakwaters, through which there is an entrance 114m wide leading to the basins. An entrance channel to the basins has a least depth of 7.2m.



Port Suez Control Tower

North Basin has over 737m of quayside with depths of 7.9 to 8.2m alongside. Outside this basin there are berths with at least 4m alongside.

South Basin, at the head of which there are drydock and repair facilities, has about 670m of quayside with depths up to 8.5m alongside.

The central quay has numerous berths with depths up to 8.5m. South Quay, lying on the SE side of South Basin, is built of stone, with depths of 5.3m alongside.

A floating dock, approached by a channel dredged to a depth of 10m, lies just S of South Basin, and may best be seen on the chart.

Port Tewfik (29°56'N., 32°34'E.), on the W side W of the canal entrance, consists of South Basin, with depths of 4.4 to 8.5m alongside. A channel and basin dredged to a depth of 4m lie E of South Basin.

Qad el-Marakib, on the E side of the canal entrance, was described earlier in paragraph 1.10, with a least depth of 8.5m in its S portion.



Suez Canal Authority at Port Said

Range lights on the central quay, aligned 060°, lead into the harbor.

El-Adabiya Berthing Limitations			
Berth	Length	Max. draft	Remarks
No. 1	80m	13.0m	Grain and naval vessels. See note.
No. 2	350m	13.0m	General cargo. See note.
No. 3	150m	13.0m	General cargo. See note.
No. 4	215m	13.0m	General cargo. See Note.

El-Adabiya Berthing Limitations			
Berth	Length	Max. draft	Remarks
No. 5	220m	13.0m	Grain and naval vessels. See note.
No. 6	300m	13.0m	General cargo.
No. 7	100m	12.5m	Grain.
No. 8	150m	12.5m	General cargo.
No. 9	175m	12.5m	Containers.
Cement berth	100m	10.0m	
Note. —Vessels using these berths may only berth during daylight hours with their bows facing W.			

El-Mina El-Gadida (29°57'N., 32°32'E.) is the area located NW of Bur Ibrahim. It is fronted by a detached breakwater marked by a light at each end.

The W side of the area is enclosed by a breakwater extending S from Petroleum Basin toward the entrance W of the detached breakwater.

The W entrance has a depth of 10m; the maximum depth of the E entrance is 5.2m.

Petroleum Basin is enclosed by breakwaters, except on its S side. The approach channel has depths of 5.7 to 8.3m. Vessels are urged to contact the local authorities for the latest information on this basin before attempting to berth here.

An offshore petroleum terminal is available about 2 miles SW of the Petroleum Basin. It has been reported that one berth is operational, with an alongside depth of 11.5m, which will handle vessels up to 228m in length.

Aspect.—Conspicuous chimneys, 70m high, stand among storage tanks about 0.4 mile N of the basin.

Storage tanks extend along the N shore of Suez Bay for 1.5 miles W of Petroleum Basin.

A grey cooling tower and a chimney, both prominent, stand to the W of Petroleum Basin. A large factory and a green-grey concrete water tower stand 2 miles further WSW.

Signals.—During gales from the S, which are liable to occur from October to March, a black flag is displayed by day, and three red lights, disposed vertically, are exhibited at night, at the signal station near the S corner of South Basin.

When As Suways is closed because of bad weather, two black cylinders, disposed vertically, are displayed by day, and a green light between two red lights disposed vertically, are shown at night, at the signal station at Port Tewfik.

1.14 Gunet el-Adabiya (Adabiya Bay) (29°52'N., 32°28'E.) is entered NW of Ras el-Adabiya, in the SW part of Suez Bay. Its S and W shores are fringed with a coral reef, while the bay is encumbered with rocks and shoals.

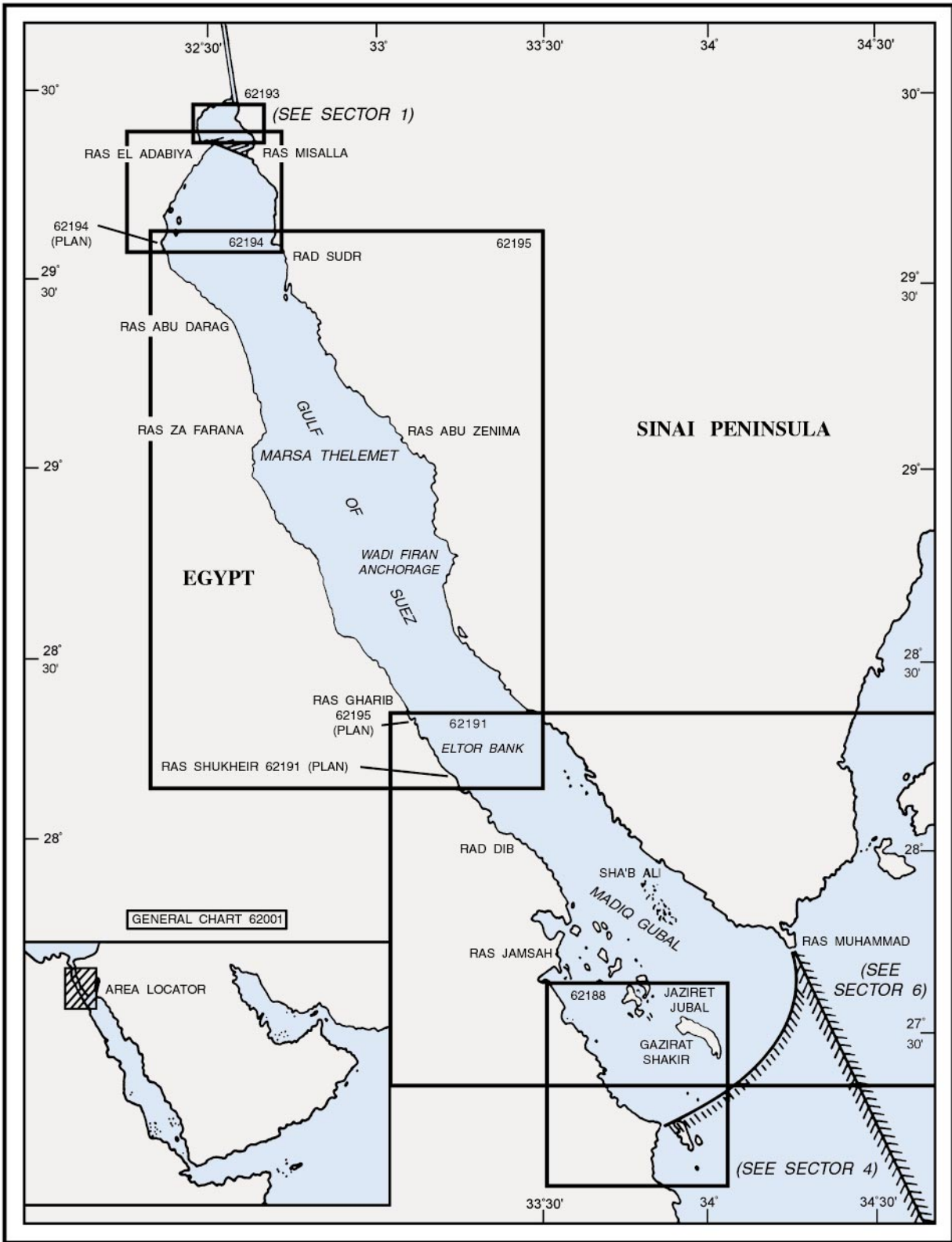
El-Adabiya (29°52'N., 32°28'E.) (World Port Index No. 48045) lies in the SW part of Gunet el-Adabiya. Two quays extend SE from the shore about 1.5 miles WNW of Ras el-Adabiya. The facilities are used mainly for the importation of grain. Berthing limitations are given in the accompanying table.

Gunet el-Adabiya affords good and sheltered anchorage, in depths of 8.2 to 14.6m, mud, about 1.5 miles WNW of Ras el-Adabiya.

Vessels anchor in Suez Bay in numbered berths as allocated by the SCA; these berths are best seen on the chart.

Vessels approach El-Adabiya with the head of the SW quay bearing 243°. When the light on Shab Ataqa is abeam, course may be changed as necessary for entering the harbor.

Ras el-Adabiya (29°52'N., 32°31'E.) is described in paragraph 2.2.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 2 — CHART INFORMATION

SECTOR 2

EGYPT—THE GULF OF SUEZ

Plan.—This sector describes the Gulf of Suez (Khalij As Suways) from Bahr El-Qulzum to the Gazair Giftun, including Madiq Ciut-al.

The W shore of the Gulf of Suez, from Ras el-Aclabiya to Gazair Giftun is described first. The E shore of the Gulf of Suez, from Ras Misalla to Ras Muhammad, is then described. The arrangement is generally SSE and SE from Bahr El-Qulzum.

General Remarks

2.1 Winds—Weather.—Winds from the N prevail in the Gulf of Suez most of the year. An occasional moderate S gale may occur during the period from December to March. The effect of N and NW wind is generally diminished close to the W shore, particularly in the vicinity of high land.

During strong NW winds in the gulf, it is usually calm during the day S of Jabal Ataqah, on the W side of Bahr El-Qulzum. At El Suweis, the N wind usually freshens late in the afternoon and continues until about midnight.

Tides—Currents.—Almost simultaneously, HW occurs in the gulf between El Suweis and **Kas Gharib** (28°21'N., 33°06'E.). It is HW in the S part of the gulf when it is LW at El Suweis. The tidal currents set N throughout the gulf while the tide is rising at El Suweis, and to the S when it is falling there.

Both currents set mid-channel, with a maximum velocity of 1.5 knots at springs and 0.5 knot at neaps, except in the vicinity of Ras Abu Darag, on the W side of the gulf, about 36 miles S of El Suweis; near Sheratib Shoals, on the E side of the gulf, 88 miles SSE of El Suweis; and off the islands in Madiq Gubal, where the direction is uncertain.

In Madiq Gubal, the current velocity is from 1.5 to 2 knots and sets N longer than S, but in the vicinity of the reefs, they frequently set toward them.

Aspect.—The Gulf of Suez is backed by high land, which in many cases closely approaches the coast and provides conspicuous landmarks. Both shores of the gulf are bordered by coral reefs; those on the E side extend a considerable distance from the shore, while on the W side they are, in general, quite close to the coast. A number of off-lying patches are scattered throughout the Gulf of Suez and in Madiq Gubal.

Regulations.—The IMO has approved a set of special Navigation Regulations in the Gulf of Suez, which is consistent with the volume of traffic transiting the area and special local conditions. The regulations apply to all vessels and are in addition to the International Regulations for Preventing Collisions at Sea. See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details.

Vessels in the Red Sea, bound for Egyptian ports, should do the following:

1. Request permission to enter Egyptian waters from the Port Authorities 48 hours prior to crossing the 23°N parallel.
2. Send ETA at least 24 hours in advance stating last port of call, position, course and speed.

3. Contact the Port Authorities when within 24 miles of the Egyptian coast for entry instructions.

4. Vessels in the Gulf of Suez should maintain a continuous listening watch on VHF channel 16.

No overtaking is permitted between latitudes 28°00'N and 28°20'N. Overtaking is also prohibited in the vicinity of rigs or oil fields.

The Gulf of Suez Traffic Separation Scheme has been established to separate southbound and northbound traffic. The scheme extends from a position about 5 miles S of Ras el Adabiya to a position E of Shaker Island. The scheme may best be seen on the appropriate charts. This is an IMO-adopted scheme.

Traffic lanes for westbound and southeastbound vessels, approaching and leaving, respectively, the Ain Sukhna Terminal join the main N separation zone and are indicated on the chart of the area.

Anchorage.—There are several convenient anchorages in the Gulf of Suez for small vessels during bad weather. Nearly all are in the vicinity of coral reefs, and great care is necessary when approaching them. When possible, the sun should be kept astern.

During NW winds it is advisable to keep a moderate distance offshore when anchoring because of the possibility of an unexpected shift of wind.

The proper updated charts should be consulted before anchoring.

Caution.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details on areas dangerous due to mines.

Prudence and planning are essential to safely navigate the Gulf of Suez due to the high concentration of shipping using the Suez Canal, and the extensive offshore mineral exploration and exploitation operations in and about the seaway.

Numerous oil rigs and flares exist on both shores of the Gulf of Suez; many of the oil rigs and platforms are marked by lights and, in some cases, by racons. Many of these are temporary and the mariner should not rely on their charted position when navigating.

Caution should be exercised when in the vicinity of oilfields as drill rigs, production platforms, submarine pipelines, and other various hazards, both above and below water, may be present. Entry into certain areas containing oil fields is prohibited.

Aids to navigation in the Gulf of Suez are reported to be unreliable. Aids may be missing, unlit, or off station. Vessels should navigate with particular caution.

The Gulf of Suez—West Shore

2.2 Ras el-Adabiya (Ras Adahiya) (29°52'N., 32°30'E.) is the extremity of a low, sandy spit forming the SW entrance point of Bahr El-Qulzum. Ras el-Adabiya is bordered by a

shore bank which extends about 1 mile NE, N, and NW. The bank has depths less than 5.5m and the inner part dries.

A prominent stranded wreck lies about 0.3 mile ESE of Ras el-Adabiya. A group of houses stands about 0.5 mile SW of the point.

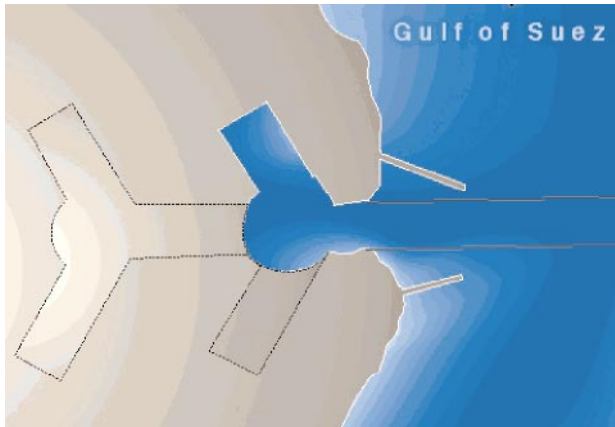
Between Ras el-Adabiya and Ras Abu Darag, about 29 miles S, the coast recedes W to form a large bay. The S shore of this bay is backed by Gebel El-Galala El-Bahariya, a range extending about 22 miles inland.

Caution.—An extensive foul area, best seen on the chart, extends N and NE of Ras el-Adabiya.

2.3 Ras Muhggara (29°49'N., 32°29'E.) is located about 3 miles SW of Ras el-Adabiya. A radio tower stands 1 mile N of the point. A light, with a racon, is exhibited about 3 miles SW of the point.

Ras Sadat Terminal (29°46'N., 32°27'E.) is a permanently-moored storage tanker located 1.2 miles ESE of Ras Sadat. A submerged oil pipeline extends W from the tanker to the shore.

Sokhna Port Gas Tanker Terminal (29°41'N., 32°22'E.) is located about 6.5 miles SW of Ras Sadat Terminal. The channel approaching the terminal is 120m wide, with a dredged depth of 8m. The maximum draft permitted alongside is 7m..



North Ain Sukhna Expansion Plans

North Ain Sukhna Port (Sokhna Port) (29°39'N., 32°22'E.) is located about 2.5 miles S of Sokhna Port Gas Tanker Terminal. The port presently consists of one basin but three more basins are planned to be added to the harbor.

Sokhna Port Home Page

<http://www.spdc.com>

Depths—Limitations.—The harbor is reached from the E through a channel dredged to a depth of 18m and marked by lighted buoys. Two lighted breakwaters extend from the shore as the harbor is reached. The inner portion of the entrance channel and the turning basin have been dredged to 17m. Vessels up to 170,000 dwt can be accommodated.

The bulk terminal can accommodate two 30,000 dwt vessels or one vessel of 150,000 dwt.

North Ain Sukhna—Berth Information		
Berth	Length	Depth
Northeast side of basin		
General cargo terminal	350m	17m
Bulk terminal	400m	17m
Southwest side of basin		
Container terminal	450m	17m
Fertilizer terminal	300m	17m

Aspect.—A group of tanks stands NW of the quays. A port control tower stands N of the channel along the shoreline.

Pilotage.—Pilotage is compulsory for all vessels greater than 50m long. Pilots board in the vicinity of Fairway Lighted Buoy.

Regulations.—The vessel's ETA should be sent, via the agent, 72 hours, 48 hours, and 24 hours prior to arrival. The ETA should also be directly confirmed with the pilot station.

The port can be contacted on VHF channel 12 and by e-mail, as follows:

info@spdc.com.eg

Anchorage.—Eight circular anchorage areas, designated S1 through S8 and best seen on the chart, for vessels waiting to enter the port, are located in an area E of the port.

Caution.—Mariners are cautioned that the area outside the channel is incompletely surveyed and that uncharted shoals may exist.

2.4 Ain Sukhna (29°35'N., 32°22'E.) (World Port Index No. 48055) consists of an open roadstead containing four Single Buoy Moorings (SBMs) and an anchorage area SE of the cargo berths.

Ain Sukhna is a private port controlled by SUMED and is situated about 29 miles S of Suez. Crude oil is off-loaded from ships that are too large to enter the Suez Canal fully loaded. The oil is pumped in pipelines to Sid Kerir.

Winds—Weather.—Winds from the N are prevalent for most of the year, with few dust storms.

Visibility is usually excellent; fogs are infrequent and rainstorms rare. Summers are hot and dry, while winters are relatively cool.

Tides—Currents.—The mean tidal range at the port is 2.3m. The tidal current sets N on the flood and S on the ebb with a maximum drift of 0.5 knot.

Depths—Limitations.—Berth 1 and Berth 2 are located, respectively, about 2 miles ESE and SE of the coast. They can accommodate vessels up to 350,000 dwt, with a maximum draft of 22.8m. With special permission, Berth 2 can accept a vessel up to 400,000 dwt.

Berth 3 can accommodate vessels up to 150,000 dwt, with a maximum draft of 16.7m. However, vessels up to 200,000 dwt may be accepted with prior permission.

Berth 4 can accommodate vessels up to 500,000 dwt, with a maximum draft of 31.5m.

Charted depths at the berths may be reduced up to 5.2m by installations on the seabed.

The Mooring Master will indicate if conditions are safe enough to pick up the mooring buoy at the berth and will warn the master when conditions warrant stopping the transfer operations, and/or vacating the berth. The limiting conditions at the mooring buoys are, as follows:

1. Maximum wind speed—35 knots.
2. Maximum tidal range—2m.
3. Maximum wave height—3.4m.
4. Maximum surface current—2 knots.
5. Maximum sea bed current—1 knot.

Aspect.—Two radio towers, 80m and 130m in elevation, stand 1 mile WNW and NW respectively, of the landing place of the pipelines.

Numerous tanks stand between the radio towers and the coast.

Pilotage.—Pilotage is compulsory. A Mooring Master will board the vessel within 2 miles SE of SBM Lighted Buoy No. 4.

An ETA should be sent to SUMED Alexandria immediately on sailing from the loading port. A further message should be sent thereafter if there is a change in ETA exceeding 6 hours, then 72 hours, 48 hours, and 24 hours prior to arrival.

The terminal should be contacted by VHF 6 hours prior to arrival on VHF channels 78 and 79, if available, or on VHF channel 16.

Regulations.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details on regulations pertaining to vessels in Egyptian waters and the Gulf of Suez.

Additionally, see the regulations described in paragraph 2.1. Shore leave is not permitted. Ship's engines should be ready for immediate maneuver.

Signals.—The terminal may be contacted on VHF channels 16, 78, and 79 or by radiotelephone. Vessels should contact the terminal via VHF 6 hours prior to arrival.

The International Code of Signals Flag "B" shall be flown by day, and an all-around red light shall be displayed by night, during oil transfer operations.

Anchorage.—Anchorage is available in the charted anchorage area SE of the mooring buoys, in charted depths of 38 to 54m, over a sandy bottom.

Directions.—Keeping in mind the IMO-adopted regulations for vessels sailing in the Gulf of Suez, vessels should observe the charted Traffic Separation Scheme, using the appropriate caution when joining, crossing, or leaving a traffic lane.

Caution.—Disused cables have been reported to lie in an area between the Traffic Separation Scheme and the port limits and also in the E portion of the anchorage. Vessels are urged to exercise the appropriate caution.

Vessels sailing between 29°25'N and 29°35'N are to coordinate their passage with the tankers proceeding to Ain Sukhna oil terminal.

2.5 Ras Abu Darag (29°23'N., 32°34'E.) lies about 18 miles SE of Ain Sukhna. A light, with a racon, is shown from a white round concrete tower surrounded by white buildings standing close seaward of a ruined lighthouse.

From Ras Abu Darag to Ras Zafarana, about 17 miles SSE, the coast is bordered by coral reefs extending as much as 1 mile offshore. A rocky spit extends about 0.5 mile offshore from a position 2.5 miles SE of Ras Abu Darag; a similar spit extends from a position about 0.5 mile NW of Ras Zatarana. A conspicuous radio mast stands in an approximate position about 3.5 miles SSE of Ras Abu Darag.

Ras Zafarana (29°07'N., 32°40'E.) is reported to give a good radar return up to a distance of 19 miles. The point is marked by a light with a racon.

Zafarana Terminal (29°10'N., 32°41'E.), consisting of a moored offshore tanker, is located about 4.7 miles NNE of Ras Zafarana. Vessels up to 130,000 dwt, with a maximum length of 259m and a maximum draft of 16.7m, can be accommodated. Vessels should send their ETA 72 hours, 48 hours, and 24 hours in advance to the Egyptian General Petroleum Company and the terminal. The pilot boards in the anchorage in position 28°59.0'N, 32°41.6'E.

Between Ras Zafarana and Ras Gharib, about 51 miles SSE, there are some coastal indentations, but no prominent land features. The coast is backed by an undulating desert plain rising gradually to the bases of mountains, which are about 3 to 20 miles inland.

Gebel Thilmet, in a position about 8 miles SW of Ras Zafarana, has four knobs and is a good landmark. A cairn stands on the summit. Some tanks standing close to the shore about 4 miles SE of the summit are conspicuous.

The high tableland of Gebel el Qalala el Qibliya, which extends SW from a position about 16 miles SW of Ras Zafarana, rises at its N end to Gebel Umm Zenetir. The NE extremity is a conspicuous nipple-shaped hill 1,218m high, surmounted by a cairn, lying about 7 miles SSE of Gebel Umm Zenetir.

Gebel Umm Tenassib, about 26 miles SSE of Jabal Umm Zenetir, has a sharp, conical peak at its S end.

Using caution, the coast between Marsa Thelemet and **Ras Gharib** (28°21'N., 33°06'E.) can be approached to within 1.5 miles.

Anchorage for small vessels with local knowledge can be taken at several places S of the coastal reef off Ras Zafarana.

2.6 Mersa Thelemet (29°03'N., 32°38'E.) is a narrow bight having a width of about 0.5 mile between the reefs bordering its sides. There is good anchorage in the bight, but caution must be used to avoid the reefs.

Two beacons in range 302° lead into the entrance of Mersa Thelemet. The beacons stand in front of and behind a building at the head of the bight. Should the beacons be indistinguishable, a conspicuous peak at the N end of the hills behind the building, in range with the center of the building, will lead into the entrance on the same bearing.

When inside the reef, vessels should steer N and anchor E of the aforementioned building.

A pier, which dries, and is marked at each extremity by a light, stands S of Mersa Thelemet and is best seen on the chart.

Ras Ruahmi (28°44'N., 32°50'E.), in a position about 22 miles SSE of Mersa Thelemet, has a cove on its S side which is

sheltered from N by a reef. The point is marked by a light with a racon.

An oil platform stands in the separation zone, between the traffic lanes, about 8 miles NE of Ras Ruahmi. A second oil platform stands on the E edge of the southbound traffic lane, about 6 miles ENE of the same position. A submarine pipeline extends from each platform to a point close N of Ras Ruahmi.

Ras Abu Bakr (28°33'N., 32°56'E.), about 12 miles SSE of Ras Ruahmi, is fronted by a reef. A submarine pipeline extends about 20 miles NNE from Ras Abu Bakr to a production platform.

Caution.—An area close N of Ras Abu Bakr is declared dangerous due to mines.

Several oil rigs and flares burning waste oils stand near the coast between a position about 2 miles NNW of Ras Abu Bakr and Ras Gharib.

Amer Oil Field lies close offshore between Ras Abu Bakr and False Ras Gharib. Submarine pipelines connect the individual platforms to the shore.

2.7 There are a number of buildings and oil tanks in the vicinity of **False Ras Gharib** (28°29'N., 33°00'E.).

Ras Gharib (28°21'N., 33°06'E.), about 10 miles SE of False Ras Gharib, is a prominent coastal projection near the foot of a whitish-appearing range of low hills.

Shab Gharib Oil Field lies close offshore about 3 miles NW of Ras Gharib. Submarine pipelines connect the individual platforms to the shore.

Gebel Gharib, about 18 miles SW of Ras Gharib, is a solitary precipitous peak that at night can often be seen from the gulf and is a good landmark.

2.8 Ras Gharib (28°21'N., 33°06'E.) (World Port Index No. 48020), the port lying immediately S of the coastal projection of the same name, comprises an open roadstead off a shore-based petroleum terminal. The terminal has three submarine pipelines extending to offshore berths for loading crude oil in the roadstead. All pipelines are in a charted area where unauthorized vessels are prohibited from navigating or anchoring.

Winds—Weather.—Winds from the N prevail during most of the year, force 3 to 5, with some calms in December and January. Gales from the S that are of short duration, occur on very rare occasions, but cause the anchorage to become untenable.

The N wind causes some swell in the anchorage but is not usually severe enough to interfere with the working of lighters.

Small boats can lay alongside the piers, which are well protected.

A moderate swell around the promontory of Ras Gharib is experienced on most days. Rain hardly ever falls and infrequent sandstorms do not interfere with work in the anchorage.

Tides—Currents.—The mean tidal rise is 0.4m; the spring rise is 0.5m.

Depths—Limitations.—No. 1 Berth (North Berth) will accommodate vessels up to 137m long, with drafts of 7.3m. No. 2 Berth (South Berth) will accommodate vessels up to 183m long, with drafts of 9.7m. No. 3 Berth (New South Berth) will accommodate vessels up to 299m long, with drafts of 16.7m.

A dangerous wreck and a 9.4m shoal lie, respectively, 0.5 mile SE and 0.5 mile E of North Berth.

Aspect.—Several oil rigs, both onshore and offshore, lie in an area about 3 miles N of Ras Gharib. Ras Gharib Light and the buildings of the terminal are conspicuous.

Pilotage.—Pilotage is compulsory; the pilots may be contacted through the harbor master's office on VHF channel 2, 4, or 16. Vessels are boarded in the charted Waiting Area.

Regulations.—Berthing and unberthing are done during daylight hours only. Berthing may also be delayed by strong winds.

See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details on regulations pertaining to vessels in Egyptian waters and the Gulf of Suez.

Signals.—The harbor master's office may be contacted on VHF channel 2, 4, or 16.

Anchorage.—The pilot will conduct the vessel to a suitable anchorage if conditions warrant it.

Directions.—Keeping in mind the regulations mentioned above, vessels should observe the Traffic Separation Scheme, exercising the appropriate caution when joining or leaving it.

The terminal proper should be approached from the SE, using caution, as the 20m curve is charted up to 1.5 miles off this section of coast.

Several lights and range beacons used by the pilot to assist in anchoring or berthing are available, but are difficult to identify until close inshore.

Caution.—A Prohibited Anchorage Area, best seen on the chart between Ras Gharib and Ras Dib, about 25 miles SE, the coast is low and fringed by reefs. A vessel should not approach the shore closer than 1.5 miles or proceed into depths less than 22m. Along this stretch are a few 12.8 to 18.3m spots about 0.5 mile outside the 20m curve.

The light structure on Ras Shukheir is below the cliff line and is difficult to distinguish. At night the light is surrounded by brighter lights and is difficult to identify.

A Prohibited Anchorage Area, best seen on the chart, extends over almost the whole width of the Gulf of Suez, from a point about 2 miles S of Ras Gharib to a point about 3 miles S of Ras Shukheir.

Ramadan Oil Field, consisting of several production wells, lies about 9.5 miles NNE of Ras Shukheir. Yulyu Oil Field, lying 4 miles SW of the first field, lies within the Separation Zone, and is connected to the gulf's W shore by a submarine pipeline; a conspicuous flare marks the field. El-Morgan Oil Field, contained within a Prohibited Area, lies about 8 miles SE of Yulyu Oil Field and is also marked by a conspicuous flare.

Uncharted oil and drill rigs may be encountered in this area, some of which may be placed temporarily within the Traffic Separation Scheme. Service vessels may be encountered crossing the Traffic Separation Scheme.

2.9 Ras Shukheir (Ras Shukhayr) (28°08'N., 33°17'E.) (World Port Index No. 48015), which is about 15 miles SE of Ras Gharib, consists of two offshore berths devoted to petroleum products, contained within a Restricted Area, and an offshore LPG terminal about 5.5 miles further SE.

Winds—Weather.—For most of the year the prevailing winds are from the NNW. It is strongest from May to August,

when it occasionally reaches gale force. The swell raised by these gale winds makes use of the anchorage and the berths difficult.

Depths—Limitations.—Berth 1 can accommodate vessels of 229 to 305m in length, with a maximum draft of 19.5m. Berth 2 can accommodate vessels of 229 to 305m in length, with a maximum draft of 17.1m.

The LPG terminal, known as Berth 4, can accommodate vessels up to 1,600 dwt, with a maximum length of 100m and a maximum draft of 5.2m.

A small harbor for vessels not more than 70m in length is situated close SE of Ras Shukheir. The harbor, which has two piers, has general depths of about 9m, and is obstructed by a bar with a depth of 5.2m. Large cargo vessels anchor outside the harbor to lighter.

Aspect.—Ras Shukheir rises in gravel cliffs to a height of 77m. A group of brown tanks stands on top of the cliffs. There are numerous oil tanks and other oil installations at the foot of the cliff. The point is marked by a light. A conspicuous flare burns intermittently about 1 mile SSE of the light. A buoyed channel leads to Berth 4.

Pilotage.—Pilotage is compulsory and is available during daylight hours only. The pilot boards in the vicinity of Ras Shukheir Lightfloat. Berthing is accomplished during daylight only, but vessels must request permission to berth at night. Unberthing takes place day or night.

Regulations.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details on regulations pertaining to vessels in Egyptian waters and the Gulf of Suez.

Vessels are required to send their ETA to the terminal operators through Alexandria Coast Radio Station (SUH) or Port Said Coast Radio Station (SUP) 72 hours in advance; the ETA should also be sent to PANINTOIL Cairo, and repeated to Gupco Cairo, 72 hours, 24 hours, and 12 hours prior to arrival. Six hours prior to arrival, the vessel should contact the terminal on VHF channel 16.

The vessel's last confirmation message should contain an estimate of the time required by the vessel to discharge ballast, which is pumped ashore.

Vessels leaving the terminal and intending to use the northbound traffic lane should inform other vessels of their intentions on VHF and should enter the northbound traffic lane only when there is no southbound traffic in the vicinity.

Signals.—The terminal may be contacted on VHF channel 16.

Caution.—Vessels should observe the precautionary area off the port and the limits of the charted oilfields, as may best be seen on the appropriate chart.

Caution is advised as this anchorage lies within the middle of the gulf and exposed to all winds. A wreck, with a depth of 33m, lies just NW of the anchorage. Vessels should take the greatest care in approaching this anchorage and sail for it via the precautionary area off the port.

The terminal operators report that if the vessel is directed to anchor within the vicinity of the oil berths, vessels should never anchor to the N of the berth.

Keeping in mind the IMO-adopted regulations mentioned in paragraph 2.1, observe the Traffic Separation Scheme charted in the gulf. Watch for heavy cross traffic, especially within the

Precautionary Area, and remember to remain at least 0.5 mile S of the southbound Separation Line.

2.10 Ras Dib (28°02'N., 33°25'E.), at the N end of Jabal az Zayt, is marked by a light. Several radar conspicuous wrecks lie between 1.5 miles WNW and 4 miles SE of the light.

Between Ras Dib and Umm al Kiman, about 15 miles SSE, the coast is fringed by a reef. Jabal az Zayt (Gebel el-Zeit), which rises from 0.5 to 1 mile inland and appears as islets from a distance, backs the coast along this sector. The summit of this range is about 8 miles SSE of Ras Dib and the S end of the range forms a peninsula.

Ras az Zayt, in a position about 7.5 miles SSE of Ras Dib, projects slightly from the coast. Several submarine pipelines, contained within a Prohibited Anchorage Area, extend across the S portion of the gulf, and are best seen on the chart.

Umm Al Kiman (27°50'N., 33°35'E.) is a low sandy islet on the S part of a coral reef, the E edge of which lies about 0.3 mile offshore; a coast guard station is on the islet. A large flat-roofed building stands on the point W of Umm al Kiman.

Close SW of Umm al Kiman is a bight, with the ruins of several stone buildings near its shores. To the W of the bight is a hill surmounted by a beacon.

From the mainland abreast Umm al Kiman to **Franken Point** (27°14'N., 33°51'E.), about 39 miles SSE, the coast is bordered by reef, outside of which are innumerable islands, shoals, reefs, and channels. To the S of the peninsula at the S end of Jabal az Zayt, the coast is generally low. The peninsula is connected by a reef to Jazirat Ghanim, low and sandy, about 0.6 mile SSE.

2.11 Zeit Bay Terminal (27°50'N., 33°36'E.) (World Port Index No. 47985) consists of a Single Buoy Mooring (SBM) located about 1 mile ESE of Umm al Kiman.

Winds—Weather.—The weather is Zeit Bay is normally good. The visibility is usually excellent, with few dust storms and infrequent fog.

The winds are generally NNW and are steady from May to October, with a maximum speed of 45 knots, although between June and September winds are almost non-existent. Gales can be expected from the NW between October and May.

Depths—Limitations.—The berth will accept vessels up to 240,000 dwt, with a minimum length of 167.6m, a maximum length of 198m and a maximum allowable draft of 25.9m. The vessel's trim should not exceed 2m by the stern.

Berthing, which may be prevented by winds greater than 25 knots, is accomplished in daylight only, and must be completed by 1600. Unberthing may be done at any time.

Aspect.—The SBM is colored yellow and has a light.

Pilotage.—Pilotage is compulsory. The pilots board in the charted Waiting Area located about 1.2 miles SE of the terminal.

Regulations.—Vessels should send their ETA 72 hours, 48 hours, and 24 hours in advance to SUCO Cairo.

Vessels should contact Zeit Bay Radio 12 hours and 6 hours prior to arrival on VHF channels 12 and 16.

Anchorage.—A waiting anchorage, which is also used by vessels at East Zeit Bay Terminal, is located in Bughaz el-Zeit, and may best be seen on the chart. The anchorage, which is 1

mile in radius, shows charted depths of 20 to 38m, over a bottom charted as coral, holding quality unknown.

2.12 East Zeit Terminal (27°51'N., 33°36'E.), about 1.2 miles N of Zeit Bay Terminal, consists of a Single Buoy Mooring (SBM).

Winds—Weather.—Information on winds and weather can be found with Zeit Bay Terminal in paragraph 2.11.

Depths—Limitations.—The terminal accepts vessels up to 130,000 dwt, but no less than 35,000 dwt. Vessels up to 255m long can be accommodated but the distance between the vessel's bow and its manifold can be no greater than 137m. The maximum allowable draft 18.3m.

Vessels should arrive trimmed 1.2 to 1.8m by the stern.

Vessels are berthed during daylight hours only. Unberthing can be done at any time.

Pilotage.—Pilotage is compulsory. The pilots board in the charted Waiting Area located about 1.2 miles SE of Zeit Bay Terminal.

Regulations.—Vessels should send their ETA to the terminal operators at least 72 hours in advance, confirming 24 hours and 12 hours prior to arrival.

Vessels should contact the terminal, call sign East Zeit Terminal, 4 hours before arrival on VHF channel 13. The terminal should be contacted before approaching if it is necessary to use the Waiting Area.

Anchorage.—A waiting anchorage, which is also used by vessels at Zeit Bay Terminal, is located in Bughaz el-Zeit, and may best be seen on the chart. The anchorage, which is 1 mile in radius, shows charted depths of 20 to 38m, over a bottom charted as coral, holding quality unknown.

2.13 Ghubbat Az Zayt (27°47'N., 33°31'E.), on the SW side of the peninsula, is bordered by a bank extending as far as 0.4 mile offshore in places.

From Ras al Bahr, the SW entrance point of Ghubbat az Zayt, a reef extends about 0.8 mile E and 1 mile N.

A spit, with a depth of 2.3 to 5.5m, extends about 1 mile NNW of the latter reef.

The entrance channel leading into Ghubbat az Zayt has a least depth of 7.3m and is about 0.2 mile wide between the reef extending E from Ras al Bahr and the foul ground extending S from the peninsula.

2.14 Zeit Bay LPG Terminal (27°48'N., 33°34'E.) has been established on the NE shore of Ghubbat Az Zayt.

Information on winds and weather can be found with Zeit Bay Terminal in paragraph 2.11.

The terminal can accommodate vessels up to 2,500 dwt, with a maximum length of 108m and a maximum draft of 8m. Berthing may be delayed if the wind speed exceeds 19 knots. Berthing and unberthing are allowed during daylight hours only.

Pilotage is compulsory. Pilots board in the charted Waiting Area located 3 miles S of Zeit Bay Terminal.

The vessel's ETA must be sent 72 hours, 48 hours, and 24 hours in advance.

Caution is advised as the approaches to the bight pass through an oil field, best seen on the chart.

2.15 Ras Jamsah (27°38'N., 33°35'E.) rises in yellowish and white hills to an elevation of 81m, with several buildings charted on it. A small jetty projects from the E side of the peninsula, about 0.7 mile NNW of the peninsula's S end. The peninsula is reported to give a good radar return up to a distance of 22 miles.

Reefs, on which Umm al Heimet and Umm al Heimet Saghira lie, extend about 10 miles SSE from **Geziret Ghanim** (27°46'N., 33°36'E.). A second string of reefs, among which is Shab Jamsah, extends about 5 miles SSE from Ras Jamsah.

A third string of reefs, interspersed with islets and boulders, extends about 7 miles in the same direction from a point W of Ras Jamsah. The channels between these reefs and between the reefs and the islands to the E are quite intricate.

Anchorage.—Jamsah Anchorage, E of Ras Jamsah and N of Shab Jamsah, has depths of 7.3 to 14.6m. It is exposed to N winds, which generally create a nasty sea.

Kibrit Anchorage, about 0.6 mile SE of Ras Jamsah, between Shab Jamsah and Shab Barok, affords good anchorage, in 6.4 to 16.5m. A beacon stands about 0.1 mile within the SE end of Shab Barok.

Gebel Ush (27°30'N., 33°33'E.), a double peak, is located about 2 miles from the coast. It is the highest peak in the coastal range, which terminates in Gebel Abu Shar al Qibli, about 10.5 miles SSE.

Gebel Ushsh is reported to give a good radar return up to a distance of 25 miles.

The Gulf of Suez—Islands and Dangers off the West Shore

2.16 Juzur Ashrafi (Guzur Ashrafi) (27°47'N., 33°42'E.) consists of three reefs, with several islets, 1.8 to 4.5m high, composed of dead coral and sand, on the two W reefs.

The reef to the E consists of three patches, the S one of which is about 2 miles long and covered at LW. The two N patches are narrow and separated by a shallow passage.

A disused light structure, a red iron framework tower, 43m high, stands on the SE end of the N patch. A stranded wreck lies 1 mile NW of the disused light structure. A small pier is near the base of the above tower.

Lighted platforms stand 0.7 mile ENE and 1.5 miles W of the abandoned lighthouse.

A light is reported to be shown from the SE end of about the middle patch. The light structure is reported to give a good radar return up to a distance of 14 miles.

Shab Mukowarat (27°47'N., 33°41'E.), the central reef of Juzur Ashrafi, is about 6 miles in length, with several islets on its N part and **Sandy Islet** (27°43'N., 33°43'E.), 2m high, near its S extremity.

Vessels with local knowledge and a draft not exceeding 3.7m can obtain anchorage in a natural basin in the reefs entered from E, a little more than 1 mile N of Sandy Islet. Within this basin there are depths of about 3.7 to 12.8m, sand.

The height of the water in this locality is considerably affected by the wind. The tidal currents within 2 miles of these reefs are very uncertain in direction.

Qaysum ash Shamaliyah (North Qaysum) (27°42'N., 33°41'E.) is flat with a small hill, 17m high, about 0.3 mile S of its NE extremity.

Quaysum al Janubiyah (South Qaysum) extends S and SW from a position about 1 mile SE of Sandy Islet. The island is low and sandy with a 30m hill at its NE end and an 18m hill about 2 miles farther SW; the former is conical and dark brown while the latter is white and sandy.

The N part of this island has white sandy cliffs. A beacon marks the end of a reef extending E from the E extremity of the island.

Jazirat Jubal, about 3 miles SE of Qaysum al Janubiyah, rises in its NE part to a round summit, 121m high; the E side of the island is steep-to. The island is a good landmark.

Shab Jubal extends about 3 miles NNW from the N end of Jazirat Jubal and is marked on its NW edge by a beacon.

Jazirat at Tawilah (27°35'N., 33°44'E.) is low, flat, and composed of coral. The summit in the E portion of the island is topped by a cairn. Shab Abu Shayban, close SE, covers at HW.

2.17 Gaziret Shakir (Shadwan Island) (Shaker Island) (27°30'N., 34°00'E.) is high and rugged, with the hills, cut up by ravines, having rather steep sides.

From a distance, the island appears flat. Gaziret Shakir is reported to give a good radar return up to a distance of 17 miles. A stranded wreck lies on the island's E shore.

Approaching Gaziret Shakir closer than 1.6 miles by day and 3.2 miles by night is prohibited. This regulation does not apply to shipping using the Traffic Separation Scheme NE of the island.

Anchorage is obtainable off the SW side of Gaziret Shakir, 5.5 miles WNW of Gaziret Shakir Light, with shelter from N winds, in a depth of 11m, sand and coral, but this is a prohibited area.

Shab Umm Ush (27°35'N., 33°53'E.) covers at LW. The edges of this reef are clearly visible during daylight and, except for two 3.7m patches lying within 0.5 mile of its W and NW sides, there are no off-lying dangers.

Blind Reef, about 2 miles SSE of Shab Umm Ush, is very narrow, steep-to, and not clearly visible.

Shab el Erq (Shab el Erg) (27°24'N., 33°52'E.), about 9 miles WSW of the SE extremity of Gaziret Shakir, is a crescent-shaped reef, covered at HW. Melana Beacon stands on the N end of Shab el Erq.

Shadwan Channel (27°35'N., 33°50'E.) is entered from N between Jazirat Jubal and Shab Umm Ush, 3 miles SE. It extends 4 miles SSW, then 12 miles SE, and enters the Red Sea between the SE end of Gaziret Shakir and Umm Qamar Island, 9 miles SW.

A small detached reef, about 0.2 mile in diameter and which dries, lies 3.5 miles SSE of the S end of Jazirat Jubal in the fairway of Shadwan Channel. It has been reported that this reef does not exist.

The channel is deep and free from dangers in the fairway, except for the small reef mentioned earlier. As NW winds prevail in this area, vessels of low power may use it with advantage when proceeding N.

Shadwan Channel should be used in daylight only, but many convenient anchorages are available for use by night.

The Gulf of Suez—East Shore

2.18 Ras Misalla (29°49'N., 32°36'E.) is low and sandy. A detached shoal, with a least depth of 5.5m, lies about 1 mile NW of Ras Misalla.

Conry Rock (29°49'N., 32°35'E.), with a least depth of 6.7m, lies about 1.5 miles SW of Ras Misalla. Patches with depths of 6.9m and 9m lie, respectively, 0.5 mile NE and 1.5 miles E of the rock.

The coast between Ras Misalla and Ras Sudr, 14 miles S, is fringed with coral reefs. Vessels are advised to remain outside of the 30m curve if sailing outside of the Separation Lane on this side of the gulf.

Ras Sudr (29°36'N., 32°41'E.) is low, sandy, and bordered by reefs. An 18.3m patch lies about 3.5 miles W of the point, while an airfield marked by masts showing aircraft warning lights is situated on the point.

South Shoal (29°39'N., 32°36'E.), a detached shoal having three heads and a least depth of 10.6m, lies about 5 miles NE of Ras Sudr.

Ras Sudr Oil Terminal (29°35'N., 32°42'E.), an offshore oil terminal, lies about 1.5 miles SE of Ras Sudr. There are several oil tanks, buildings, water tanks, and a small pier on the shore of this bight. Two towers stand about 5 miles ESE of Ras Sudr.

Winds from N prevail throughout the year. South winds are most likely to occur in winter and spring, accompanied by heavy squalls.

The oil berth consists of a stage, secured to mooring buoys, which is connected to the shore by pipelines for oil and water; there is a depth of 7.9m at the berth. Vessels up to 167m long, with a maximum draft of 9.1m, can be accommodated.

The vessel's ETA should be sent, via the agent, 7 days in advance and confirmed 72 hours and 24 hours prior to arrival. The ETA message should include, in addition to the vessel's ETA, the following information:

1. Type and quantity of cargo to be loaded/discharged.
2. Arrival drafts forward and aft.
3. Any other requirements.

Anchorage may be obtained in the bay SE of Ras Sudr, 1 mile offshore, in depths of about 13m.

Gebel Sinn Bishr is a conspicuous, white, cliffy mountain, about 16 miles ENE of Ras Sudr, in a break in the apparently table-topped Gebel el-Tih. The latter is a tract of high comparatively table-topped land, which terminates in bold steep slopes on this side of the peninsula. It extends to the E for nearly two-thirds of the distance across the Sinai Peninsula, in about latitude 29°10'N.

2.19 Ras Matarma (29°27'N., 32°43'E.) lies about 9 miles SSE of Ras Sudr. The point, which is low and sandy, has a drying reef extending about 0.5 mile S. Much discolored water has been observed near this point.

Two towers, the SE one of which is black and conspicuous, stand on the hilly slopes about 6 miles E of Ras Matarma. A flare is charted 8 miles NE of the point.

Qad Malab, with a least depth of 1.2m, extends about 2 miles from shore between Ras Malab and Ras Lagiya (Ras Lagia), about 4 miles NW.

Ras Malab (29°12'N., 32°55'E.), about 18 miles SSE of Ras Matarma, is low and sandy. The white buildings of a gypsum mining company and a black water tower, 9m high, stand close E of the point and shows up well. Gypsum is loaded S of the point. Discolored water has been observed in the vicinity of Ras Malab.

A small pier for use of lighters and local craft is E of the point; there is also a pipeline for loading oil. There are mooring buoys close ESE of the pier.

A pair of beacons, in range 333°, stand close W of the above small pier. A large prominent rock, resembling a sawed-off tree trunk, stands about 1 mile E of the pier.

Vessels should approach this bight with Gebel Hammam Faraun ahead bearing 070°. When the prominent rock mentioned above bears 040°, steer for it on that bearing until the beacons are in range.

Vessels anchor with both anchors down on a SSE heading with their sterns secured to bollards near the root of the pier.

Jebel Thal is sometimes mistaken for Gebel Hammam Faraun. The front beacon of the 333° range is also reported to be inconspicuous.

2.20 Gebel Hamman Farun (29°11'N., 32°59'E.), about 3 miles SE of Ras Malab and close to the coast, has a precipitous bluff on its W side which is conspicuous from SE. A cairn stands on the peak. A short distance S is Jabal Thal, a sharp peak.

The range of hills a little N of Gebel Hamman Farun are white and noticeable, but from there N the mountains are some distance inland with few prominent features.

Between Ras Malab and Ras Abu Zenima, about 13.5 miles SE, the coast is backed by Gebel Hamman Farun and Jabal Thal in its N part.

Extending SE from these peaks and close to the coast is a series of small mountain ranges, mostly of white chalk.

These gradually decrease in elevation and terminate W of the dark **Jabal Samra** (28°59'N., 33°16'E.).

About 10 miles SE of Ras Malab is the W extremity of a tract of low hills, terminating in a scarp 73m high. This range is so close to the coast that the sea washes its base.

Close S is the mouth of a wadi, marked by dark basaltic rocks, which show up well against the surrounding limestone.

2.21 Ras Abu Zenima (29°03'N., 33°06'E.), low and composed of gravel, is backed by a flat sandy plain. It is fringed by reefs, which dry in places, and extends nearly 0.5 mile from shore.

Abu Zanimah (29°02'N., 33°07'E.) (World Port Index No. 48060), an ore-loading port, is entered between Ras Abu Zenima and Cairn Point, about 2 miles ESE. The bay, sheltered from NW and N winds, has general depths of 18.3 to 25.6m.

The bay is backed by a rugged mass of hills which rise to the mountains farther inland; one of these, about 3 miles E of Ras Abu Zenima, is 309m high, white, square-topped, and conspicuous. Gebel Matalla, 296m high, is detached and stands about 2.5 miles NE of Ras Abu Zenima.

Except during S winds, vessels up to 150m long, with a maximum beam of 20.4m and a maximum draft of 7.6m, can lie alongside the head of the ore pier, with bows to the W, using anchors, lines to the shore, and buoys fore and aft to secure to.

Vessels will usually be met by an official of the mining company, who will advise as to mooring or anchoring.

The vessel's ETA should be sent, via the agent, 7 days in advance and confirmed 72 hours and 24 hours prior to arrival. The ETA message should include, in addition to the vessel's ETA, the following information:

1. Type and quantity of cargo to be loaded/discharged.
2. Arrival drafts forward and aft.
3. Any other requirements.

Vessels entering should keep a conspicuous round hill, 48m high, about 0.2 mile NNW of Cairn Point, bearing 082° until the ore pier bears 018°. Course can then be altered for the anchorage. A lighted range, in line bearing 012°, leads to the pier.

Anchorage.—Good anchorage can be taken, in 21.9 to 25.6m, sand and mud. During strong S winds, the anchorage is untenable and landing is often impracticable.

Caution.—From September to May, S winds make the anchorage untenable.

The coast from a position about 4 miles ESE of Cairn Point is backed by a plain about 4 miles wide and extending about 12 miles S. The hills approach the coast at the S end of this plain, and for about 15 miles farther S the coast is low at distances of 1 mile to 4 miles inland. Light-colored hills rise again, about 11 miles S of Jabal Samra, gradually increasing in height, and join Gebel Abu Darba, about 27 miles S. A 491m peak, about 3.5 miles NNE of Gebel Abu Darba, is a good landmark.

2.22 Ras Badran Oil Terminal (Ras Budran) (28°57'N., 33°10'E.) consists of a Single Buoy Mooring (SBM) contained within the prohibited anchorage area.

Winds—Weather.—The climate at the terminal is good. Visibility is usually excellent, with few dust storms or rain showers and infrequent fog.

Winds are predominantly from the NNW at about 20 knots during the summer, but may increase to as much as 45 knots, especially between October and May. Winds are almost insignificant between June and September.

Depths—Limitations.—The SBM can accommodate vessels of 30,000 to 250,000 dwt, with a maximum draft of 18m and a length of 152 to 345m.

A shoal patch, with a depth of 12.6m, was reported to lie 1.5 miles SE of the SBM.

A jetty, 120m long and protected by a breakwater, projects from the shore near Ras Badran, and will accept alongside drafts of 6.5m.

Pilotage.—Pilotage is compulsory and may be obtained about 2.5 miles SSW of the SBM.

Regulations.—Vessels berth during daylight hours only. Vessels may unberth at any time.

Vessels may not berth if wind speeds are greater than 25 knots.

Vessels should send their ETA to SUCO 72 hours, 48 hours, and 24 hours in advance. Vessels should contact the terminal 12 hours and 6 hours prior to arrival on VHF channel 12.

Anchorage.—A waiting anchorage for vessels to berth is to be obtained, in depths of 29 to 51m, good holding ground, within the area indicated on the chart 3.5 miles S of the terminal. Anchorage outside the area is prohibited.

Caution.—Caution should be exercised when approaching the mooring as several oil platforms, connected to the shore by submarine pipelines, lie in the vicinity, within about a 10 mile radius of Ras Badran.

A prohibited anchorage area, best seen on the chart, encloses several offshore structures in the vicinity of Ras Badran.

At **Ras Abu Rudeis** (28°54'N., 33°10'E.), about 3 miles S of Ras Badran, are some conspicuous oil tanks and an airfield.

2.23 Wadi Feiran Terminal (28°45'N., 33°13'E.) (World Port Index No. 48065) is a petroleum-loading terminal consisting of three submarine pipeline berths lying about 9 miles S of Ras Abu Rudeis.

Depths—Limitations.—There are three offshore berths for tankers connected with the shore by submarine pipelines. Vessels are berthed with their anchors down and secured to mooring buoys. Two spar buoys are moored close NW of No. 1 Berth and No. 2 Berth.

No. 1 Berth can accommodate tankers of 105,000 dwt, with a maximum length of 274m and a maximum draft of 16.1m.

No. 2 Berth can accommodate tankers of 50,000 dwt, with a maximum length of 244m and a maximum draft of 12.2m.

No. 3 Berth, used for LPG, can accommodate tankers of 20,000 dwt, with a maximum length of 190m and a maximum draft of 5.2m.

Care is required when berthing during S winds; during periods of strong winds, berthing may be delayed.

Aspect.—Several conspicuous oil tanks stand on shore. An opening in the light-colored hills shows up well against the dark ranges further inland.

Pilotage.—Pilotage is compulsory; berthing and unberthing are normally carried out during daylight hours only. Pilots board about 1 mile SW of No. 1 Berth. The pilots may be contacted on VHF channels 6, 8, and 16.

Regulations.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for regulations pertaining to vessels in Egyptian waters. Mooring and unmooring are permitted in daylight only.

Vessels should radio their ETA 72 hours and 24 hours prior to arrival to “PETMISR CAIRO 92049 UN,” and “COP UN 92449.” Vessels should contact “ABU RUDEIS” on VHF channel 16 or 6 when within range.

Anchorage.—Anchorage is available about 2 miles W to SW of the terminal, in a depth of 31m, sand.

Directions.—Vessels should approach the berths from W, with the tanks bearing not more than 090°, to avoid the shoal water N of the port.

2.24 Ras Sharatib (28°40'N., 33°12'E.) is reported to be low and sandy. A mooring buoy is located about 1.4 miles WSW of the point; a submarine gas pipeline extends E from the mooring buoy to the shore.

From the W side of the gulf, the massive summit of **Jabal Sirbal** (28°39'N., 33°39'E.) and Jabal Umm Shawmar, about 23 miles farther SE, may be seen above the hills near the coast.

Caution.—Belayim Oil Field, lying about 5 miles SW of Ras Sharatib and best seen on the chart, contains shoal water and oil rigs which present a hazard to navigation. It is sur-

rounded by a restricted area in which anchoring and fishing are prohibited.

2.25 El-Belayim (28°34'N., 33°15'E.), a lagoon entered through a 0.9m channel lying about 8 miles SSE of Ras Sharatib, has a maximum depth of 14m in its center. Tidal currents run strongly through the entrance.

Gebel Abu Durba, close SE of the entrance to El-Belayim, has a 449m high rounded summit. Two conspicuous white patches lie near the shore, about 3 miles SE of Gebel Abu Durba; four oil tanks stand on the coast about 2 miles further SE.

Both Gebel Abu Durba and Gebel Abu Huswa, a 677m peak lying 6 miles SE, appear as islands from a distance.

The coast from abreast Gebel Abu Durba is backed by a coastal range for a distance of about 23 miles in a SE direction. This range lies close-to and parallel with the shore and terminates in Jabal Hamman Saiydnā Muse (Gebel Hammam Saidna Musa).

Jabal Musa (Mount Sinai), 2,285m high, about 36 miles E of Gebel Abu Daba, is generally obscured by other mountains, except from a position near **Ras Malab** (29°12'N., 32°55'E.).

Caution.—Many banks and shoal patches lie off this section of coast, some of which lie within the northbound Traffic Separation Lane. All vessels, especially deep-draft vessels, should use the appropriate caution when transiting the fairway from a point about 24 miles S of Marsa Wadi Firan to Madiq Jubal.

2.26 El-Tor Bank (At-Tur Bank) (28°15'N., 33°23'E.), extending in a SE direction from a position centered about 10 miles NE of **Ras Shukheir** (28°08'N., 33°17'E.), has a least charted depth of 7.3m.

A 12.8m patch and a 20.5m patch lie within the Precautionary Area off Ras Shukheir.

Moresby Shoals (28°10'N., 33°27'E.), with a least depth of 5.5m, lies SE of El-Tor Bank.

Felix Jones Patches (28°04'N., 33°36'E.), with a least reported depth of 8m, lie about 10 miles SE of Moresby Shoals.

Caution.—Several oil fields, oil platforms, and other associated structures and dangers are located within a restricted area and a prohibited anchorage area, which encompass most of the dangers listed above. Both areas are best seen on the appropriate chart.

2.27 El Tur Harbor (28°14'N., 33°37'E.), a small fishing and pilgrimage port with an inner and outer harbor, is partially sheltered on its W and SW sides.

A conspicuous white mosque stands at the head of the harbor. A conspicuous 24m HW tower stands on the SE side of the port.

Leading beacons, in range 095°, stand near the shore SE of the boat harbor. These beacons are not visible until almost in range, when they appear in a gap in the trees. Lights, vertically disposed, are shown from these beacons during the pilgrimage season or by request.

Bey Beacon, 11m high, stands on the center of Irq Riyah. A stranded wreck, on a S heading and marked by a light, lies close SW of Bey Beacon. This wreck, which has the appearance of a vessel at anchor, obscures the beacon to vessels approaching from W.

Anchorage.—The harbor does not have enough room for large vessels, and often during the pilgrimage season it is overcrowded with small vessels.

There is anchorage within the harbor, in 10.9m, mud and sand, with Grafton Beacon, located at the end of a reef extending S from the W entrance point of the harbor, bearing 230°, about 0.2 mile.

Anchorage can also be taken, in about 18m, good holding ground, about 0.2 mile S of Grafton Beacon. This anchorage is exposed to NW winds.

The boat harbor is sheltered from all but S winds.

Directions.—Vessels entering by the N channel, which leads N of Irq Riyah in a least depth of 10.9m, should steer on the 095° range to a point about 0.1 mile S of Grafton Beacon. Then haul to the N, keeping the beacon about 0.1 mile distant until E of it, and then proceed to the anchorage. It should be borne in mind that the depths within the harbor shoal abruptly.

Vessels entering by the channel E of Irq Riyah, which has a least depth of 20.1m in the fairway, must rely on Bey Beacon and the coastal reef, as Irq Riyah is barely discernible. Grafton Beacon should be steered for on a bearing of 348°, until about 0.1 mile S, then proceed as directed above.

Caution.—There are several patches, with depths of 10.9 to 18.3m, lying within 4.5 miles W through S of the inner harbor.

Irq Riyah, sheltering the harbor from the SW, is a drying coral reef. Depths less than 9.1m extend about 0.5 mile N and 0.5 mile S, respectively, from the center of the reef.

This reef neither breaks nor shows discoloration, and it should be approached with caution. A 5.5m patch and a 5.8m patch lie about 0.5 mile SSW and 0.5 mile SW, respectively, of the boat harbor.

2.28 The coast between El Tur and Ras Muhammad, at the S end of the Sinai Peninsula (Shibh Gazirat Sina), is backed by a sandy plain, which rises gradually to a height of about 305m at the base of the mountains about 12 miles inland. This plain also extends NW for a considerable distance between the coastal range and the mountains inland.

Qurayn Atut (28°09'N., 33°52'E.), a dark sugarloaf peak about 479m high, lies about 14 miles ESE of El Tur and is a good landmark. Jabal Mazraiya, with a rugged top about 16.5 miles farther SE, is another conspicuous landmark.

This latter peak, when seen from W, has the appearance of an outcrop of rock with three small peaks about midway between the coast and the inland mountain range.

Shaykh Riyah (28°09'N., 33°40'E.), in a position about 5 miles SSE of El Tur, affords sheltered anchorage, in 9.1 to 12.8m, sand. The W side of this inlet is formed by a low sandy point, which projects S from the coast for about 0.4 mile, and is fringed on its W and S sides by a reef.

A detached shoal, with a least depth of 3.9m, lies about 0.5 mile SE of the extremity of the above sandy point. The passage between the detached shoal and the coastal reef E is about 0.3 mile wide, with a least depth of 14.2m.

Caution.—A 7.3m patch lies about 3 miles SW of Shaykh Riyah; it lies near the N end of a bank with depths of 9.1 to 18.3m. Between Shaykh Riyah and Ras Kanisah, about 17.5 miles SE, drying reefs and other submerged dangers extend up to 2.5 miles from the coast.

Oil production platforms, best seen on the chart, are also located off the coast.

2.29 Between the low and sandy **Ras Kanisah** (27°56'N., 33°53'E.) and Ras Muhammad, about 24 miles SE, the coast is bordered by coral reefs which extend, in some cases, about 5.5 miles offshore.

The depths in the vicinity of the dangers are very abrupt and soundings give very little warning of the proximity of reefs.

During daylight, the change in the color of the water from deep blue to bright green is quite apparent.

Poynder Shoal (27°55'N., 33°44'E.), with a depth of 5.5m, lies about 8 miles W of Ras Kanisah.

Caution.—A prohibited anchorage area extends over the whole of the gulf off this section of the coast, and is best seen on the chart.

2.30 Marsat Al Qadi Yihya (27°55'N., 33°54'E.), entered between Ras Kanisah and Ras al Millan, about 4 miles SE, has several shoals in its entrance. It is sheltered on its W side by a reef extending about 1 mile ESE from Ras Kanisah and on its SE side by Shab ad Daqiyiq.

Shab Rayyis, awash at LW, consists of two patches connected by shoal water and lies in the entrance of this bay. The best channel into the bay lies N of Shab Rayyis.

The passage E of Shab Rayyis has several 1.8 to 3.6m patches in it, which render it intricate to traverse.

Mersa Zaraba (27°50'N., 34°00'E.), about 3.5 miles SE of Ras al Millan, is a bight in the coastal reef. The entrance of this bight, with a least depth of 10.9m, lies between two detached 5.5m patches off the SE end of Shab Al Megeeda and a reef about 0.4 mile farther E.

Shab Ali (27°50'N., 33°50'E.), the outermost danger off this part of the coast and separated from the coast by Inner Channel, consists of numerous coral reefs and shoals.

Azov Patch, with a depth of less than 1.8m, lies near the NE end of Shab Ali, in a position about 2 miles SW of Ras Kanisah.

2.31 Shag Rock (27°46'N., 33°53'E.), the southernmost rock of this group, is 1m high. A line of breakers has been reported to extend S of the rocks. A stranded wreck lies close NW of Shag Rock. During thick weather vessels should pass Shab Ali at a safe distance, as depths of about 36m lie within 2.5 miles to the W.

A stranded wreck lies on the W edge of Shab Ali, about 6 miles NW of Shag Rock. This wreck was reported to be quite conspicuous, with its hull and stack plainly visible, and was said to be easily mistaken for a vessel underway.

A dangerous wreck lies in the S entrance of Inner Channel, about 3.5 miles NNE of Shag Rock.

Inner Channel (27°50'N., 33°53'E.) is about 1.5 miles wide and may be safely used by day. A bank, with depths of 12.8 to 18.3m, extends across the channel between Shab Ali and Shab ad Daqiyiq.

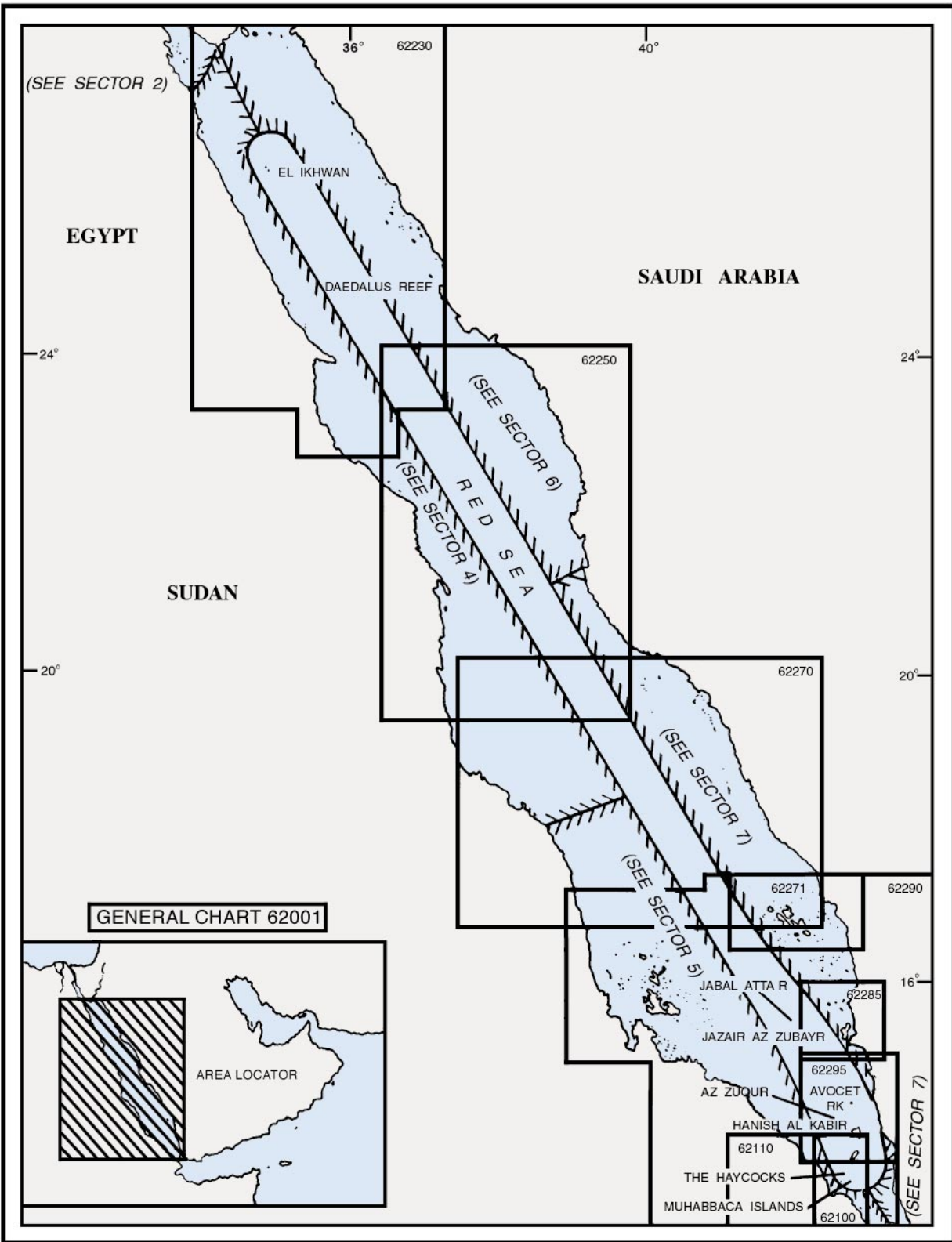
Vessels approaching from the N should take care to avoid Poynder Shoal; a good lookout should be kept for detached rocks, especially in the vicinity of Azov Patch.

An oil field, consisting of several production platforms and a conspicuous flare, lies on the E side of Shab Ali and may best be seen on the chart.

Several lighted beacons have been established in Inner Channel, including Shag Rock and Ras Kanisah. The platforms are also lighted.

Anchorage is prohibited in Inner Channel, but temporary anchorage can be taken off the S end of Shab Ali, near Shag Rock, in 27 to 37m.

2.32 Madiq Gubal (Strait of Jubal) (27°40'N., 34°00'E.) forms the junction between the Gulf of Suez and the Red Sea. It is about 6 miles wide at its narrowest part and is bordered by innumerable shoals and reefs.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 3 — CHART INFORMATION

SECTOR 3

THE RED SEA—CENTRAL PASSAGE

Plan.—This sector describes the principal islands and dangers lying in Central Passage in the Red Sea between Madiq Gubal and Ras Bab al Mandeb. The descriptive sequence is from NNW to SSE.

General Remarks

3.1 Central Passage through the Red Sea from Madiq Gubal as far as Jabal Attair, about 830 miles SSE, is free from dangers, but the direct course passes much closer to the E side of the Red Sea than the W.

It is advisable, therefore, to steer from near Daedalus Reef for a position about midway between the coastal banks, from where a vessel can proceed to Jabal Attair.

Ships using the central track should keep in depths over 183m until about 28 miles from Jabal Zuqar if making for Abu Ali Channel, but if intending to pass W of that island they should not proceed into depths less than 183m until W of the N extremity of Hanish al Kabir, the largest island of the Hanish Islands.

Winds—Weather.—In the Red Sea N of 20°N, the wind is mainly from between NW and N in all months. Over the remainder of the sea such winds are predominant from May to September; from October to April, the wind is mainly from between S and SE.

There is no record of any cyclone having entered the Red Sea, and thunderstorms are infrequent, as is rainfall. It is extremely hot from June to September and the heat, combined with the high humidity in the S part of the Red Sea during these months, makes the climate oppressive.

Tides—Currents.—Currents setting in any direction may be experienced throughout the year in the main shipping track of the Red Sea. The velocity of the majority of currents experienced in any direction does not exceed 1 knot, and only on rare occasions does it exceed 2 knots. Currents in the vicinity of islands near the central passage will be described with their related features.

Mean sea level is about 0.2m higher in January and about 0.2 to 0.3m lower in August and September, but meteorological conditions, barometric pressure, and wind may cause local variations.

Caution.—Unconfirmed reports were received concerning explosions, possibly caused by mines, near ships in the area of Ras Bab al Mandeb. Additionally, a vessel was believed to have struck a mine at position 18°25'N, 40°10'E. Another vessel was reported to have struck a mine in the position 26°48'N, 34°39'E. No further reports have been received concerning mining activities in the Red Sea. The areas concerned are believed to be safe for surface navigation. However, vessels are urged to exercise the appropriate caution.

Cross currents, setting in E or W directions, are not infrequent and are observed both in the middle of the central passage and elsewhere. A good berth should be given to all out-

lying reefs and shoals; this is most important, as the velocity of these currents increases rapidly as the reefs are approached.

Caution is particularly necessary when approaching Madiq Gubal from S, and when proceeding S from the vicinity of the Suakin Archipelago to Jazirat Az Zuqur.

In mid-channel of Madiq Gubal, the velocity of the tidal current is from 1.5 to 2 knots, but within 2 miles of the reefs the direction is uncertain. There appears to be no perceptible tidal current elsewhere until near Ras Bab al Mandeb.

Islands and Dangers in Central Passage

3.2 El-Ikhwan (El Akhawein) (The Brothers) (26°19'N., 34°51'E.), consisting of North Islet and South Islet, are nearly steep-to. They are separated from each other by a channel about 1 mile wide. El-Ikhwan is reported to give a good radar return up to a distance of 15 miles.

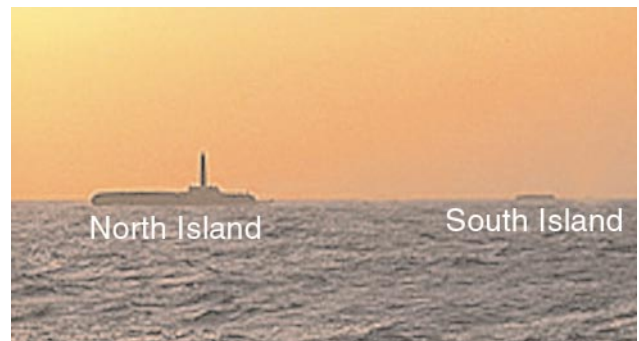
The channel between the islets has depths of about 73 to 344m. Both islets are fringed by reefs. A depth of 5.5m extends about 137m NW from the NW extremity of South Islet.

Abnormal refraction has enabled these islets to be seen from a distance of 100 miles.

On the SW side of North Islet, there is an iron pier, 55m long, which extends to the reef. On the SE extremity of the same islet, there is a bollard to which vessels can secure during N winds, riding by a single line.

A light, with a racon, stands on North Islet.

Tides—Currents.—When passing the islets, especially at night, it is prudent to give them a fairly wide berth, as currents occasionally set W in their vicinity.



El-Ikhwan from NW

3.3 Daedalus Reef (Abu el Kizan) (24°56'N., 35°52'E.) sometimes dries during LW but is always covered at HW. It is steep-to and may be passed on either side.

A light, with an iron pier extending from it, stands on the SW end of the reef. A racon is located at the light.

Daedalus Reef is reported to give a good radar return up to a distance of 14 miles. It is a poor target when bearing 250°.

An area of discolored water was reported to lie approximately 60 miles SSE of Daedalus Reef.

Tides—Currents.—Between Daedalus Reef and El-Ikhwan, a vessel experienced a current setting NE at a velocity of about 0.5 knot.

Caution.—The coral reefs surrounding El-Ikhwan and Daedalus Reef have been declared protected areas. Anchoring on the reefs is prohibited except in an emergency.

3.4 From Daedalus Reef to Jabal Attair, about 660 miles SSE, the central passage is clear of dangers. A direct course between these two places passes much closer to the E shore of the Red Sea, than the W shore.

To keep more nearly in the middle of the passage, it is advisable to steer for a position in 17°00'N, 40°40'E, which is about midway between the banks off-lying each shore, and then proceed to Jabal Attair.

Abnormal magnetic variation has been observed along a line extending from a position 28 miles E of **Elba Reef** (22°00'N., 37°00'E.) to a position about 60 miles N of Elba Reef.

3.5 Jabal Attair (15°33'N., 41°50'E.) has a large central peak which is brown in color. The other peak is conical in shape on some bearings; there is a steep, rocky, yellow bluff on the SE side of the island. Sulphurous jets of steam appear at the summit of the island, but no smoke has been seen in recent years.

From NW and SE, the island appears high and conical, sloping gradually toward the coasts. It is steep-to and a good landmark.

Jabal Attair is reported to give a good radar return up to a distance of 20 miles. It could be mistaken for a ship. A light is situated on the island.

The coastal banks, with less than 183m, lie about 11 miles E and 9 miles W of this island. Navigation is dangerous within the outer edges of these banks. Abnormal magnetic variation has been observed within a distance of 5 miles from the island.

Tides—Currents.—A current setting NW and NNW, at a velocity of about 2 knots, was experienced for 5 days, about 12 to 16 miles N and E of Jabal Attair; a strong SSE wind was blowing at the time.

During December, the currents have been observed to set between Jabal Attair and Jaza'ir az Zubayr in an E direction at a velocity of nearly 1 knot. During May, they have been observed to set between NW and NE at a velocity of from 0.5 to 1 knot. During June, little or no current has been observed in this area.

Anchorage.—From the beginning of May to the end of August, with the prevailing winds from the NW and WNW, anchorage can be taken off the S side of Jabal Attair.

The approach to the best berth is with the light structure bearing about 305° and anchoring, in 29.3m, with the E and W extremities of the island bearing 062° and 273°, respectively.

The nearest danger to this berth has a depth of 5.5m and is about 0.4 mile distant. Discolored green water appears to extend from some distance offshore, with a bottom of white sand, but no depth of less than 10.1m has been found.

There is very little current at this anchorage. Vessels have anchored N and W of the light structure, but it is not advisable, as the depths are considerable.

3.6 Jaza'ir az Zubayr (15°03'N., 42°10'E.) are a group of islands, islets, and rocks extending about 13 miles in a SSE direction. This group is rugged and almost entirely devoid of vegetation, except Saba Island, on which are a few stunted bushes.

Jaza'ir az Zubayr were reported to lie between 1 mile and 2.5 miles SW of their charted positions.

Quoin Islet (15°12'N., 42°04'E.) is of a light brown color. It is not easily distinguishable at night and if passing close to this group, a good lookout should be maintained. Deep water is about 0.2 mile off it. A light is shown from a white square building on the summit.

Haycock Island (15°10'N., 42°07'E.) is rather steep-to. Two patches of 35 and 16.5m lie between this island and Quoin Islet.

Rugged Island, Table Peak Island, Saddle Island, and Low Island all lie on a rocky bank having depths less than 37m.

This bank extends to within about 0.5 mile SW of Haycock Island. A small group of rocks, the highest of which is 25m high, lies a little less than 0.5 mile WNW of the NW side of Saddle Island. A rock, 7.9m high, lies about 0.5 mile E of the S extremity of Low Island.

These islands are fringed by banks, with less than 5.5m over them, which, in places, extend as much as 0.5 mile offshore.

There is a least depth of 9.1m in the fairway between Rugged Island and Table Peak Island and a least depth of 6.4m between the latter island and Saddle Island. The bottom is sand, coral, and shells. On the bank E of Saddle and Low Islands is a least depth of 6.4m.

Saba Island (15°05'N., 42°09'E.) has two prominent hills, both having craters. Two lagoons, connected to the sea, are fringed with mangroves. The island is bordered by a reef which extends nearly 1 mile SSW. Connected Island lies on the S edge of this reef, and Shoe Rock, 5.2m high, is on the SE edge of the reef in a position about 0.5 mile NE of Connected Island. Saba Island is reported to give a good radar return up to a distance of 20 miles.

3.7 Jabal Zubayr (15°04'N., 42°10'E.) has a central hilly range extending from the N extremity of the island to its S end; North Peak, a little over 0.5 mile from the N extremity of the island, is square-shaped.

A 224m conical hill, about 0.3 mile N of the S extremity of the island, is the summit of this range. A stranded wreck is reported to lie close S of the island.

Centre Peak Island, the S island of the Jaza'ir az Zubayr group, is steep-to. Some water tanks stand on the beach of a small bay on its SW side. A 172m hill, the highest on the island, has a disused light structure standing on it, about 0.5 mile N of the S end of Centre Peak Island. Another disused light structure stands at an elevation of 158m on the SE end of the island. A light is shown on the islet.

The channel between Centre Peak Island and Jabal Zubayr is about 0.5 mile wide and has a least depth of 12.8m. A current, caused by local winds, is sometimes strong.

Centre Peak Island is reported to give a good radar return up to a distance of 19 miles.

Tides—Currents.—In the vicinity of Avocet Rock and Ras Mujamilah, about 18 miles NE, little or no current has been

experienced during October, November, and December, although S winds were blowing almost constantly.

During the Northeast Monsoon, there is often a heavy sea from about 15 miles N of Jazair Abu Ali to about 15 miles NW.

Anchorage.—From the beginning of May to the end of August, during the prevailing NW winds, anchorage can be taken, in 21.9m, mud, with the disused light structure near the center of Centre Peak Island bearing 240°, distant about 0.5 mile. During August, vessels should not lie here during the night, as squalls of rain and wind from the SE sometimes occur at sunset.

At other times of the year, with prevailing SSE winds, anchorage can be taken, in 14.6 to 18.3m, in the middle of the channel between Saba Island and Jabal Zubayr.

The best position is with the E extremity of Saba Island bearing 000°, the N extremity of Jabal Zubayr bearing 071°, and Shoe Rock nearly in range with the N extremity of Connected Island.

This channel has a least width of about 0.1 mile in the fairway. With SW winds, which are frequent during the winter, this anchorage is open to wind and sea and is not recommended.

Caution.—Middle Reef, with depths of less than 1.8m, lies in a position about 2 miles E of Low Island. It is narrow and steep-to; the sea breaks over it with any swell.

East Rocks consists of one rock, 1.5m high, and a rock, with less than 1.8m, on which the sea breaks, about 183m farther NW; they lie about 3 miles NE of North Peak on Jabal Zubayr and are steep-to within 183m.

Williamson Shoal, about 1.5 miles SSW of East Rocks, has a least depth of 10.1m. Evans Rock, a pinnacle with a depth of 7.3m, lies about 1.5 miles E of the S extremity of Jabal Zubayr. A small steep-to coral shoal, with a depth of 5.5m, lies about 0.7 mile SW of Evans Rock.

Shark Shoal, about 2.5 miles SE of the SE extremity of Centre Peak Island, has a least depth of 12.8m, coral. There are often reports of tide rips in the vicinity of this shoal.

South Shoal, with a least depth of 25m, lies about 2 miles SSE of the SE extremity of Centre Peak Island.

Penguin Shoal lies about 11 miles to the ESE of the SE extremity of Jabal Zubayr; it is a small, steep-to rocky patch, with a depth of 6.4m.

Caution should be exercised in this vicinity as it has not been closely examined. Similar shoals may be close by. The passage E of Jaza'ir az Zubayr is not recommended.

Avocet Rock (14°22'N., 42°42'E.) is a small steep-to coral patch, with a least depth of 5m.

Jabal Zuqar and the Hanish Islands

3.8 The islands comprising this group are dark brown volcanic hills with rocky eminences of various shapes. Jabal Zuqar and Hanish al Kabir are the principal islands.

Jazair Abu Ali (14°05'N., 42°49'E.) are barren, and being whitish-brown in color, are not easily seen at night. Reefs and rocks border this group as far as 91m offshore.

Jazair Abu Ali are reported to give a good radar return up to a distance of 17 miles. Quoin Island is marked by a light and reported to give a good radar return up to a distance of 10 miles.

An islet, 1.8m high, whose N end lies about 0.1 mile SSW of the W extremity of Quoin Island, has some sunken rocks close off its N and S ends; shoal water extends about 0.1 mile E from its S extremity.

The channel between this islet and the SW side of Quoin Island should not be used. A bank, with a depth of 23m, lies about 3.5 miles NE of Quoin Island.

Pile Island, 87m high, lies about 0.1 mile NE of Quoin Island and is composed of two parts joined by a reef. Pile Island is fringed by rocks and reefs on its N and W sides, is almost steep-to on its E side, and is inaccessible.

Anchorage.—Anchorage, in 16.5m, sand and coral, can be taken between Pile Island and Quoin Island with the light structure on Quoin Island bearing 270°, distant approximately 0.3 mile. This anchorage is considered safe only from the middle of May to the middle of December during the prevailing NNW winds.

Occasional wind and rain squalls from the SE occur in August, and vessels are advised not to remain at the anchorage when they take place. At other times of the year this anchorage is unsafe.

3.9 Qanat Abu Ali (Abu Ali Channel) (14°04'N., 42°48'E.), between the NE side of Jabal Zuqar and the SW side of Quoin Island, is deep and free from dangers in the fairway; it has a navigable width of about 2 miles.

Vessels should keep in the middle of the channel, as tidal currents here are very irregular and occasionally set across it.

At night or in hazy weather, the high land of Jabal Zuqar often has a peculiar distant appearance and East Point, being low with white sand behind it, may then resemble water and not be identified until dangerously close to it.

Vessels from either direction should keep in mind the rocks SW of Quoin Island and the dangers off East Point.

3.10 Jabal Zuqar (Az Zuqar) (14°00'N., 42°45'E.), the highest island in the Red Sea, rises to lofty barren hills, which appear as sharp peaks on some bearings. The N side of the island is bordered by reefs, which extend about 0.5 mile offshore, W of North Point, the low N extremity of the island.

West Point, the W extremity of the island, and all the extremities on the W, S, and E sides of the island, as far N as East Point, its E extremity, can be approached to within 0.5 mile.

Between North Point and East Point, the coast is fringed by reefs which extend about 91m offshore. Each point is low and rocky. A 4.6m patch was reported to lie about 0.2 mile ENE of East Point; a sunken wreck lies in about the same approximate position.

A depth of 17.8m lies about 1 mile E of East Point. Jabal Zuqar is reported to be radar conspicuous.

High Island has a rather conical appearance from N and a flat appearance from SE. Its S extremity lies about 1 mile N of North Point; the island is steep-to within 183m. High Island is reported to give a good radar return up to a distance of 14 miles.

Regulations.—An IMO-adopted Traffic Separation Scheme lies in the waters E of Jabal Zugar and may best be seen on the chart.

3.11 Jazirat Sharq (Shark Island)(13°58'N., 42°42'E.) lies about 2.5 miles SSE of West Point on Jabal Zuqar. A rock, awash, lies close off the NW extremity of the island and a sunken rock lies close off the middle of its E side. The SW side of Jazirat Sharq is fringed by reefs.

Tides—Currents.—Tidal currents around Jabal Zuqar are very irregular, but they appear to set along its coasts. At the anchorage on the N side of the island, it was reported that the flood current sets SW at 2.5 knots and the ebb sets NE.

Anchorage.—An anchorage for small vessels, sheltered from S winds, is in a bay on the NE side of Jabal Zuqar, about 0.3 mile NW of East Point; a swell sets into this anchorage.

There is good shelter from S winds for large vessels, in 20.1m, sand and coral, with the summit of Quoin Island, bearing about 085° and just open of North Point; a charted dark square tomb near the coast, about 1.5 miles WSW of North Point, bearing 187°; and the 624m summit of Jabal Zuqar bearing 166°.

This anchorage is reported to be about 0.5 mile from the coastal reef.

Anchorage can generally be taken off the NW side of Jabal Zuqar, in 12.8 to 18.3m, between about 0.1 to 0.2 mile off the coastal reef, and in 31 to 48m, about 0.5 mile off this same reef.

South Bay, on the SW side of Jabal Zuqar, offers good anchorage between Near Island and the large projection of the SE side of the island. The best berth is in the NW part of the bay, in 14.6m, midway between the N part of Near Island and the coast of Jabal Zuqar, with the N extremity of Near Island bearing 289°.

Anchorage can be taken in the E part of South Bay, in 22m, coral, with a point a little over 0.5 mile ESE of the NE extremity of Near Island in range 294° with the N extremity of Near Island, and the SE entrance point of the bay bearing 191°.

There are two stone huts and a hut for water tanks on the NE shore of South Bay.

A small bay at the S end of Jabal Zuqar offers anchorage, in 9.1 to 11m, sand and coral, about 183m E of the W entrance point.

The reefs fringing the shores of this bay can generally be seen.

3.12 Jazirat Tunkhw (Tongue Island) (13°53'N., 42°43'E.) lies about 2.5 miles WSW of the SW extremity of Jabal Zuqar, with a deep channel, clear of dangers, between them. About 0.2 mile from its S side is a low rock connected by sunken rocks with the SW extremity of the island and enclosing a basin, with a least depth of 11m.

Hanish as Saghir (13°52'N., 42°47'E.) lies about 2 miles SSE of the S extremity of Jabal Zuqar; the channel between them is deep and free from dangers.

The island is hilly and rugged but its summit is not easily distinguished. When approaching from N or S, a peak, 162m high, in the NE part of the island, shows up well and, when seen from SW, resembles a small peak in the act of falling.

A group of rocky islets, lying from about 0.1 mile to about 2 miles NE of the NE extremity of Hanish as Saghir, lies on a shoal with depths less than 18.3m, which connects it with the island and extends about 0.5 mile NNE of the islets.

Low Island lies almost 0.5 mile E of the N part of Hanish as Saghir; a shoal with a least depth of 7.3m, extends about 0.5 mile N from Low Island. On the N part of the shoal is an islet, about 7.6m high.

A rock, 10.6m high, lies about 183m SE of Low Island; Fawn Rock, nearly awash, lies about 0.1 mile ESE of this rock.

A chain of rocks and a narrow islet lies from 91m to about 0.5 mile SSW of the S extremity of Low Island; a 14.6m patch is about 0.2 mile S of the S end of the islet.

A small rocky patch, with a depth of 12.8m, lies about 1.5 miles ESE of the 10.6m high rock; although this was the least depth found during a survey, lesser depths may exist, and Low Island should be given a wide berth. The channel between Hanish as Saghir and Low Island is navigable and has a least depth of 11.0m.

Tides—Currents.—The current in the channel between Hanish as Saghir and Low Island sets S from about HW in Qanat Abu Ali until about 4 hours 30 minutes before the next HW there.

Anchorage.—Anchorage, in 21.9 to 27.4m, sheltered from S winds, can be taken in the channel between Hanish as Saghir and Low Island, with the W extremity of the islet S of Low Island just open W of the W extremity of Low Island and bearing 187°, and the 7.6m islet off the N extremity of Low Island bearing 049°.

In the S part of the channel, anchorage can be taken, in 33 to 37m, with the NE extremity of Hanish as Saghir bearing 347° and the SE extremity of that island bearing 227°.

Anchorage, in 12.8 to 20.1m, sheltered from S winds and sea, can be taken N of Hanish as Saghir with the 162m peak bearing 180° and the semicircular-shaped islet close NE of the N extremity of the island bearing 090°. This anchorage is reported preferable to those in the channel.

3.13 Hanish Al Kabir (13°44'N., 42°44'E.), marked by a light shown from near its SW extremity, is separated from Al Hanish as Saghir by a deep channel free from dangers. It is hilly and the highest peak rises to 407m near the middle of the island; on some bearings this elevation appears as a prominent bluff.

A low strip of sand crosses the island about 3 miles from its SW extremity and, due to the land on both sides of it being high, that part of the island SW of this strip appears, from a distance, on NW and SE bearings, as a separate island.

Hanish al Kabir is reported to give a good radar return up to a distance of 21 miles.

Tides—Currents.—Tidal currents in the vicinity of Hanish al Kabir are rather strong and set N on the flood off the E coast of the island, and set strongly S on the ebb off the SW coast.

Anchorage.—Anchorage, sheltered from N winds, can be taken in a number of places off the E side of Hanish al Kabir, the depths outside the coastal reef being fairly regular. The best anchorage is about 0.5 mile off the coastal reef, in 25.6 to 33m, with the SW extremity of Double Peak Island bearing 135°, and the SE extremity of Hanish al Kabir bearing 238°.

A vessel has anchored, in 18.3m, sand and coral, good holding ground, sheltered from S winds, in a position about 0.5 mile ESE of Peaky Island. Southeast Bay, at the SW end of Hanish al Kabir, affords anchorage, in 33m, sand and coral, about 0.3 mile WSW of the E entrance point.

Regulations.—An IMO-adopted Traffic Separation Scheme lies in the waters W and S of Hanish Al Kabir and may best be seen on the chart.

3.14 Marescaux Rock (13°46'N., 42°42'E.), about 4.5 miles WSW of the N extremity of Hanish al Kabir, has a depth of less than 1.8m; the sea generally breaks on it. This rock has not been examined and its position should be avoided.

Peaky Island (13°47'N., 42°45'E.) is reported to give a good radar return up to a distance of 20 miles.

Haycock Island (13°47'N., 42°47'E.) lies about 0.3 mile NE of the N extremity of Al Hanish al Kabir. From the S it resembles a haycock, but when observed from close E, it appears to be hollowed out like a saucer.

The channel between the two islands has a least depth of 14.6m in the fairway; a rock, with a depth of less than 1.8m, lies about 183m off the SW side of Haycock Island.

Addor Ali Islets, lying about 1 mile E of Haycock Island, attain an elevation of 37m. The islets form a circle, within which is a basin with a small opening from seaward.

3.15 Jazirat Mushayjirah (13°47'N., 42°50'E.), about 1.7 miles SE of Addar Ali Islets, can be approached on its W and S sides to a distance of 0.2 mile, but a reef extends about 91m N and 0.5 mile E from it. The islet is only 7.3m high and not easily seen at night. A bank, with a least depth of 11m, lies about 0.4 mile NNW of this islet.

Tides—Currents.—Off Haycock Island, the tidal current sets SE on the ebb tide. There are tide rips between Haycock Island and Mushajjara Islet.

Depths—Limitations.—The channels between **North Round Island** (13°43'N., 42°47'E.) and Hanish al Kabir, and between North Round Island and Quoin Island, about 0.5 mile E, are clear of dangers, and have depths ranging from 21.9 to 48m.

Chor Rock (13°41'N., 42°45'E.) lies in a position about 2.5 miles SW of North Round Island. It lies on a bank having depths of 3.7 to 18.3m and extending about 1.5 miles E from Hanish al Kabir. Some black rocks lie close NW of Chor Rock.

Round Island, lying 3 miles ESE of Chor Rock, is dark in appearance.

Parkin Rock (13°38'N., 42°49'E.) lies about 2.5 miles SSE of Round Island. Caution is necessary when near this rock as depths in its vicinity are almost uniform and give no warning of its proximity unless it is sighted.

3.16 The Rocky Islands (13°38'N., 42°47'E.) consist of three black rugged islets and some small rocks. They lie near the S end of a bank having depths of 7.3 to 37m and which extends about 1.5 miles SSW from a position about 1.5 miles NNE of the highest islet.

Double Peak Island (13°39'N., 42°45'E.) lies about 1.5 miles S of Chor Rock; it is steep and has two small peaks close together.

A shoal with less than 9.1m, and with two small above-water rocks at its NE edge, extends over 0.5 mile NE from the NE end of the island.

The channels between Double Peak Island and **Mid Islet** (13°39'N., 42°45'E.) and between Mid Islet and Al Mamalih (Suyul Hanish), 0.5 mile S and rugged, are free from dangers and have least depths of 7.3 and 16.5m, respectively.

The channel between Al Mamalih (Suyul Hanish) and Hanish al Kabir is clear and free of dangers, except for the banks on which lie Chor Rock, Pin Rock, and Cust Rock and a reported depth of 16.5m lying in mid-channel between Chor Rock and Double Peak Island.

Sheltered anchorage can be taken in several places off Al Mamalih (Suyul Hanish).

3.17 Ship Rock (13°36'N., 42°43'E.), about 1 mile SW of Al Mamalih (Suyul Hanish), has depths of less than 1.8m, and lies on a shoal with a least depth of 7.3m, the latter extending about 0.3 mile N and S of the rock.

Three Foot Rock, about 2.5 miles SW of Al Mamalih (Suyul Hanish), is 0.9m high and steep-to. Currents of 1.5 knots have been experienced in the vicinity of Three Foot Rock. A depth of 27m was reported about 2 miles ESE of Three Foot Rock.

Pin Rock (13°38'N., 42°42'E.) lies about 3 miles W of the NW extremity of Al Mamalih (Suyul Hanish). Cust Rock is a little over 0.5 mile WNW of Pin Rock and has less than 1.8m.

Pin Rock and Cust Rock lie on a bank with depths of 20.1 to 37m, but there are depths of from 7.3 to 12.8m within 0.2 mile N of Pin Rock.

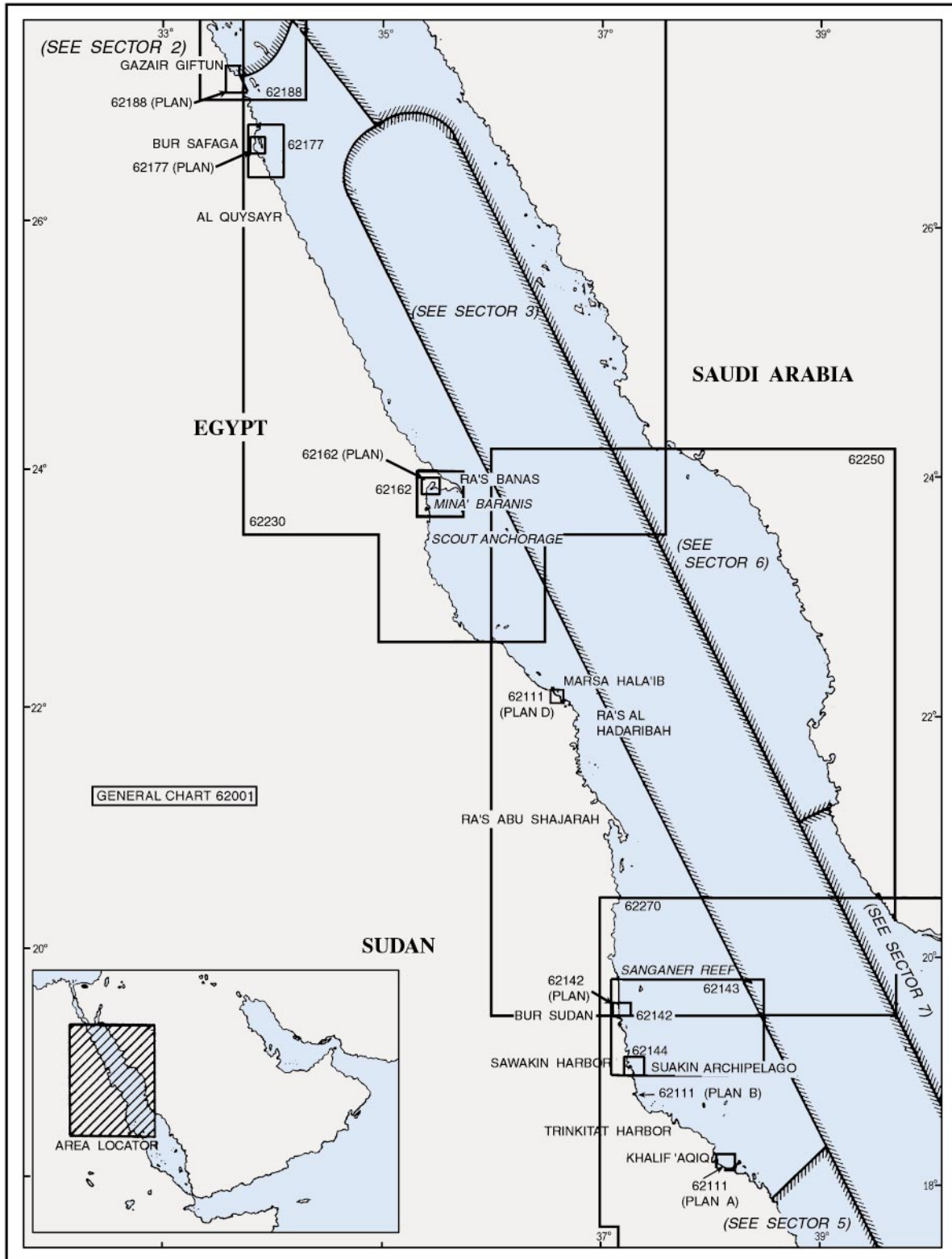
Southwest Rocks (13°39'N., 42°36'E.), about 5 miles W of Cust Rock, comprise a rock, 6.7m high, with an above-water rock and a sunken rock close off its E side; they are steep-to.

3.18 The Haycocks (Scogli Haycocks) (13°32'N., 42°37'E.) consist of three islets. Northeast Haycock lies about 6.5 miles SW of Al Mamalih (Suyul Hanish); Middle Haycock, cone-shaped, lies about 1 mile farther WSW. Southwest Haycock, about 1 mile SW of Middle Haycock, is 52m high.

The **Muhabbaca Islands** (Isole Mohabbacah) (13°24'N., 42°36'E.) are four islets extending 5 to 12 miles S and SSW of The Haycocks. They have a white appearance and at times are difficult to identify. High Islet (Isola Alta), the N islet of the group, lies about 5 miles SSW of Southwest Haycock.

Flat Islet (Isola Piana) lies in a position about 3 miles SW of High Islet and has a large hole at its N end, which shows up on certain bearings. Harbi Island (Isola Harbi) lies about 6 miles ESE of Flat Islet and rises vertically from the sea.

Sayal Island (Isola Saial) lies about 5 miles SSE of Flat Island; it is small and rocky. Depths are considerable in the vicinity of these islets. Depths of 29m and 16.5m were reported 8 and 10 miles E, respectively, of Harbi Island.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 4 — CHART INFORMATION

SECTOR 4

THE RED SEA—WEST SIDE—EGYPT AND SUDAN—GAZAIR GIFTUN TO RAS KASAR

Plan.—This sector describes the W side of the Red Sea between Gazair Giftun and Ras Kasar, including the Sawakin Archipelago. The general sequence of description is N to S.

General Remarks

4.1 A range of mountains extends S at varying distances inland; from Jazirat Safajah, about 25 miles S of the S extremity of **Gazair Giftun** (27°14'N., 33°55'E.), to Ras al Hadaribah, about 200 miles farther SE, this range approaches the coast.

The terrain between the mountains and the sea is low and sandy. This coast is fringed with reefs and there are numerous off-lying reefs.

Inner Channel, sheltered by reefs, is a smooth-water channel useful to smaller vessels; it lies between **Ras Abu Shajarah** (21°04'N., 37°19'E.) and Sawakin Harbor, about 115 miles farther S. Along this stretch of coast the channel is generally 1.5 to 3 miles wide.

Near Ras Abu Shajarah and the Tiflah Islands, about 22 miles S of Ras Abu Shajarah, and Marsa Salak, about 12 miles farther S, Inner Channel narrows to about 1 mile.

From Ras Abu Shajarah to Marsa Salak, the most intricate part of the channel, and again from Marsa Fijjah, 23 miles S of Marsa Salak, to Marsa Darur, 12 miles farther SSE, the depths are mostly moderate. In other parts, this channel is deep.

South of Bur Sudan, the Inner Channel passes inside the extensive shoals and islets of Sawakin Archipelago as far as the vicinity of the Khor Nowarat, about 20 miles NW of Ras Kasar. The two principal entrances of Inner Channel are off Bur Sudan and Sawakin Harbor, respectively.

In most anchorages along this section of coast, it is advisable to moor, and in many places during bad weather it may be prudent to run a stream anchor to or toward the weather beach.

The Central Passage, for all practical purposes, is the only navigable channel used by vessels through the Red Sea and is described in Sector 3.

Vessels bound for ports on the W shore have to break off from the Central Passage and contend with Inner Channel, which is formed partly by small detached reefs and sunken rocks, and partly by islands and extensive reefs.

Inner Channel is connected to the Central Passage by openings in the reefs, some of which, especially those N of 17°N, are of great width.

Directions for approaching these ports will be described in the appropriate sections of this sector. Excessive refraction and mirage are frequent, causing land, lights, and other features to be visible from much greater distances than would normally be expected.

Winds—Weather.—Along this section of the W shore, N winds are prevalent the year round, but are affected by land and sea breezes. These winds are light and variable, with frequent calms during August and September.

From August to October, the weather is generally fine; November to April is the rainy season.

Caution.—Cross currents, setting E or W, are not infrequent, and are observed in all parts of the Red Sea.

Gazair Giftun to Bur Sudan

4.2 Gazair Giftun (Gifatin Islands) (27°13'N., 33°56'E.) is a group of islands, islets, and rocks lying close off the coast.

Gazair Giftun (Giftun el-Kebir), the largest of the Jazair Jiftun group, is hilly in its N and central parts, with a rugged range extending from N and reaching an elevation of 118m near the center of the island; the S part of the island is a plateau, 3 to 6.1m high.

A coral patch, from which a light is shown from the NW point of the patch, lies about 1 mile SSW of the S extremity of the island. Giftun el-Saghir, lying about 1 mile E of the SE extremity of Gazair Giftun, is hilly and 101m high near the middle of its E side. A T-head pier, with a depth of 7.3m at its head, projects a short distance from the SW extremity of the island.

Anchorage.—Anchorage is prohibited in the Gazair Giftun. All waters and reefs in this area are now a marine reserve. There are mooring buoys available throughout the area.

Caution.—Navigation is prohibited, due to moored mines in the area bound by the coast S of Gazair Giftun and lines joining the following positions:

- a. 27°09.4'N, 33°59.6'E.
- b. 27°09.2'N, 33°49.3'E.
- c. 26°58.9'N, 33°55.0'E.

4.3 Shab Abu Rimathi (27°08'N., 33°57'E.), a coral reef, is reported not to be clearly visible.

Umm Agawish el-Saghir (27°09'N., 33°51'E.), a low rocky islet, lies on a reef in the S entrance of Gifatin Channel.

Gaziret Abu Minqar, lying on the reef extending from the W side of Gazair Giftun, is a flat 1.8m high island; it is divided into two parts by a narrow creek bordered with mangroves.

The N part of the island is bare, and its S part has low bushes. Beacons, marking the edge of the coral reef, stand W and SW of the island.

Anchorage.—Good anchorage, sheltered from N winds, can be taken, in 12.8 to 18.3m, close S of the pier at the SW extremity of Giftun el-Saghir.

Franken Point (27°14'N., 33°51'E.), low and sandy, with bare hills NW of it and a flat plain SW, is the W point of the N entrance of El-Ghardaqa Anchorage in Minqar Channel. The point is marked by a light.

4.4 El-Ghardaqa (Hurghada) (27°13'N., 33°51'E.) (World Port Index No. 47990) lies in Minqar Channel between the reef extending W from Gaziret Abu Minqar and the mainland.



El-Ghardaqa

Winds—Weather.—The weather in the N part of the Red Sea is controlled in the summer by the thermal low in Saudi Arabia and the high pressure that ridges over the eastern Mediterranean Sea.

When the thermal low deepens and the high pressure ridge strengthens, the winds funnel through the Gulf of Suez, producing gale force winds and high seas. The funneling effects are exacerbated in the El-Ghardaqa area.

Visibility can be expected to be 4 to 6 miles. However, it will be lower in suspended sand and the heavy haze that forms after the winds die down.

Tides—Currents.—Currents are mainly wind driven and have been reported to reach speeds of up to 4 knots in the approach and up to 2 knots in the anchorage area.

Depths—Limitations.—South Pier, located about 0.2 mile SSW of Franken Point, is 15m long. It can accommodate tankers up to 100m long, with a maximum draft of 7.3m. Vessels berth with an anchor laid SE.

North Pier, about 0.1 mile NNE of South Pier, is in ruins.

Minqar Channel, the N approach, had a least charted depth (2001) of 6m. Giftun Channel, the S approach, has general depths that are less than those in Mionqar Channel. Surveys in both channels are incomplete, with many depths less than charted (2004). Vessels should navigate with caution and consult local authorities for current depth information

Aspect.—Range lights, in line bearing 194°, lead from the N to the port.

Regulations.—Vessels wishing to enter El-Ghardaqa Anchorage should report to the Egyptian authorities at least 24 hours in advance of their time of arrival in the waiting anchorage. The port is open from sunrise to sunset.

Anchorage.—A waiting anchorage, located in the N approach to Minqar Channel, is available. It is centered on position 27°17.5'N, 33°52.2'E, and has charted depths of 10 to 101m, coral bottom.

Anchorage can be taken, in a depth of 25m, about 0.25 mile ESE of Franken Point.

Anchorage can be taken, in 16 to 18.m, on the 194° range with the Harbormaster's Office, located about 0.2 mile SW of Franken Point, bearing 300°. Take care to avoid a wreck, with a least depth of 33m, close N of the anchorage.

A 6m patch lies 0.1 mile E of the anchorage; a 7m depth lies close N of the anchorage. Other pinnacle rocks lie in this area.

This anchorage is sheltered from all but N winds, which raise a considerable sea.

Directions.—Vessels approaching El-Ghardaqa from the N should steer to pass N of Jazirat Umm Qamar until on the 194° range, passing ESE of Shab el Fandadir. Dishet Abu Minqar, in line with a high hill bearing 199.5°, leads to the anchorages.

Caution.—For fixing positions, Gazirat Shakir, the round summit of Jazirat Jubal, and the double peak of **Gebel Ush** (27°30'N., 33°33'E.) will be found more convenient than Juzur Tawilah, which is low and flat. These peaks are described in paragraph 2.16, paragraph 2.15, and paragraph 2.14, respectively.

Dangerous rocks lie about 1.2 miles and 3.2 miles SSE of Umm Qamar Island.

4.5 Merlin Point (27°12'N., 33°51'E.) is a bare coral rock rising in steep ledges to an elevation of 74m; it is the E extremity of Dishet Abu Minqar, a prominent hill. This stretch of coast, which is also the W side of Minqar Channel, forms a sheltered bay. The remains of a pier and some bollards and piles are close S of Merlin Point.

A conspicuous hotel stands 0.2 mile SW of the point. From Merlin Point to Al Qusayr, about 70 miles SSE, the coast is moderately clear of dangers.

Abreast Gaziret Safaga, the off-lying reefs are about 6 miles from the nearest land, but farther S the coast may be approached with little danger, except in the vicinity of **Quei Reefs** (26°24'N., 34°11'E.).

The mountains in the N part of this section slope SE to the coast. Southeast of Jabal Shaib al Banat, 2,184m high, the coastal range gradually decreases in elevation and, in the vicinity of Gaziret Safaga, is from about 213 to 549m high.

Jabal al Maqal, about 15 miles ESE of Jabal Shaib al Banat, is 1,240m high. To the E of this latter mountain the coast, as far as Al Qusayr, about 40 miles SSE of Gaziret Safaga, is low, rising gradually to mountains, 610m high, about 5 miles inland.

Gebel Nuqara, 833m high, and about 14 miles SE of Jabal al Maqal; is the S end of the range of which Jabal Shaib al Banat is the summit.

4.6 Marsa Abu Makhadiq (27°02'N., 33°54'E.) provides anchorage, in 27.4 to 37m, mud. During N winds, anchorage in lesser depths can be taken by carefully approaching the reef fringing the N entrance point, but caution must be exercised as some detached rocks lie close to the reef.

A 12m wooden pier extends from a position about 0.3 mile within the N entrance point of Marsa Abu Makhadiq. There is a reported depth of 6.1m alongside the head of this pier.

Anchorage can be taken, in 11 to 18.3m, sand and coral, S of Saal Hasish, a 3m high islet protecting Marsa Abu Makhadiq on the E, which has a drying reef extending 1.5 miles S, with the islet bearing 008°, distant 1.5 miles.

From a position on the mainland W of the S end of the reef containing Saal Hashish, and Ras Abu Sawmah, about 8 miles SE, the coast is fringed by a steep-to reef. Sharm el Naqa, a break in the coastal reef which extends about 0.2 mile offshore in this vicinity, is entered about 2 miles WNW of the NE extremity of Ras Abu Sawmah; there is a small above-water rock in this cove. It is prohibited to anchor, except in an emer-

gency, on the coral reefs surrounding Sharm el Naqa; they have been declared a protected area.

4.7 Ras Abu Sawmah (Ras Abu Soma) (26°51'N., 34°00'E.), with a 24m summit which is gravel-topped, is a salient headland slightly higher in elevation than the coast from which it projects. The point is marked by a light with racon at its NE extremity.

Geziret Safaga (Jazirat Safajah) (26°45'N., 33°59'E.) is low and sandy. A conspicuous table-topped hill, 26m high, is on its NE extremity. A large fort is situated close to this position. The NE extremity is marked by a light. A directional light with racon is located in the SE part of the island just NE of a conspicuous white house. A ruined beacon stands on the S tip of the island.

Some detached rocks lie about 1 mile S of the S extremity of the island. They are marked on their SE side by Moorewood Lighted Beacon.

4.8 Panorama Reef (26°45'N., 34°05'E.) lies in a position about 5 miles E of Geziret Safaga; it is on a bank with depths less than 200m. The N extremity of the reef is marked by a lighted beacon.

A bank, with a least charted depth of 22m, is about 1 mile S of Panorama Reef. Arpha Bank, with a least depth of 21.9m, lies about 2 miles W of Panorama Reef.

Middle Reef (26°43'N., 34°00'E.), which dries, and over which the sea breaks, lies about 3 miles SSE of Panorama Reef. This danger lies on a bank with depths of 7.3 to 11m; sunken rocks lie close S and 0.5 mile SE, respectively, of Middle Reef. The reef is marked on its W side by a lighted beacon, although it has been reported (2005) that the lighted beacon has been removed.

The SW part of the bank on which these two reefs lie has not been examined.

Fellows Rocks, two submerged rocks with depths of less than 1.8m, lie in the middle of a bank extending about 2 miles WSW of Middle Reef. The rocks are marked by a lighted buoy with a racon.

4.9 Sha'b Shear (26°39'N., 34°06'E.) lies awash, about 3 miles S of Middle Reef, and is the SE of this group of dangers. A boulder which dries to 1.2m stands near the SE extremity of this reef. The S extremity of the reef is marked by a lighted beacon.

Hyndman Reefs (26°39'N., 34°03'E.), awash and drying in places, lie about 4 miles SE of the S extremity of Geziret Safaga; these reefs extend about 2 miles SE. The reef is marked on its N side by a lighted beacon.

Cannon Reef (26°40'N., 33°59'E.), which dries 0.3m and the N extremity of which lies about 3 miles S of the S extremity of Geziret Safaga, projects S to within about 1 mile of the coastal

reef. A deep channel, about 2 miles wide, lies between Hyndman Reefs and Cannon Reef. The use of this channel is discouraged by local authorities.

Spit Reef (26°41'N., 33°58'E.) projects about 3 miles N from the coast to a position about 2 miles SW of the S extremity of Geziret Safaga.

Shoals and sunken rocks extend from the W and NW extremities; shoals with less than 5.5m lie within 0.5 mile of the NW extremity.

A sandy spit, which dries to 0.6m, is on the E side of this reef. The NE extremity of the reef is marked by a lighted beacon.

Bur Safaga (Bur Safajah) (Port Safaga) (26°44'N., 33°56'E.)

World Port Index No. 47980

4.10 Bur Safaga is entered between Morewood Lighted Beacon and the dangers N of Spit Reef. Shelter is afforded from N winds; SE winds cause a swell to set in.

The settlement on the mainland lies about 4 miles NW of the S extremity of Geziret Safaga; the phosphate works and the settlement form a conspicuous group of buildings.

Winds—Weather.—Generally, the winds blow from the N and are light in the morning, but gain in strength during the day, making mooring more difficult. From November to March, strong S winds blow occasionally, lasting approximately 10 days. These cause a rough sea and hinder port operations.

Depths—Limitations.—The fairway into the port was dredged to a depth of 13m passing between two shoal areas; it has been reported (1996) that the fairway has been dredged to 16m, although it has been reported (2002) that the maximum safe entry draft is only 10.36m.

Inside the shoals, the bay has general depths of 26 to 35m, but shoal depths extend up to 1.5 miles off the coast in the NE portion of the harbor.

Elsewhere, shoal depths extend between 20m and 0.5 mile offshore. A 2.1m patch lies about 3 miles SE of the Manager's House, and a 4.9m shoal lies about 3 miles ESE of the same landmark.

Aspect.—The iron framework transporter at the phosphate berth, the white building known as the Manager's House about 0.3 mile W, and a silo about 1 mile NE of the Manager's House, are all conspicuous. An aluminum silo and elevator stand at the general cargo wharf. There is an Egyptian Naval Base situated just N of the Commercial Wharf.

Pilotage.—Pilotage is compulsory. Vessels are not allowed to approach inside the port without a pilot. The pilot boards the vessel abeam of Morewood Lighted Beacon when on the entrance course of 310°.

Bur Safaga Berthing Information					
Berth	Berthing length	Charted depth	Maximum vessel		Usage
			Length	Draft	
No. 1	289m	14.0m	290m	11.0m	Bulk grain. Drafts of up to 12.8m can be handled with prior permission.

Bur Safaga Berthing Information					
Berth	Berthing length	Charted depth	Maximum vessel		Usage
			Length	Draft	
No. 2	415m	10.0m	290m	9.15m	General cargo and passengers.
No. 3	—	10.0m	221m	9.45m	Aluminum.
No. 4	70m	—	70m	8.53m	Ground and rock phosphate.
No. 5	420m	—	—	9.75m	Multi-purpose.
Coal	—	—	115m	8.0m	Coal.
Phosphate	—	8.5m	260m	14.0m	Private facility.

Regulations.—Vessels must send their ETA to the Port Authority 7 days in advance. The ETA must be confirmed 24 hours in advance. After arriving in the waiting area, vessels must contact the pilot station on VHF channel 16 to provide the time of arrival and any other requested information.

Navigation is prohibited outside the approach sector. The approach sector lies between 010° and 050° from Morewood Lighted Beacon.

It is prohibited to approach the port entrance from the S.

Anchorage.—A waiting anchorage 1.5 miles in radius, is available in the approach to Bur Safaga. The anchorage is centered on position 26°46'N, 34°02.7'E and generally contains depths of over 200m.

Arpha Reef is contained within the anchorage limits, which offers a least depth of 22m, bottom quality not stated.

General anchorage is available anywhere in the bay clear of the shoals, in depths of 26 to 35m.

A vessel anchored 1.5 miles off Morewood Lighted Beacon, with the same beacon bearing 350°, good holding ground. This is reported to be the best of the outer anchorages.

Another berth, in depths of 21.9 to 29m, is available with the SW tip of Geziret Safaga bearing 115°, distant 0.7 mile.

Swinging room for large vessels using this berth may be cramped by foul ground best seen on the chart. Anchorage berths are assigned by the Harbormaster.

Directions.—When approaching Bur Safaga, mariners are expected to use caution as the navigational aids have been altered.

Vessels approach from the NE between the charted waiting area and Panorama Reef using the directional light on the S end of Geziret Safaga, although caution is necessary, as this leads over Alpha Bank, with a depth of 22m.

Vessels approach the inner harbor using the buoyed dredged channel and the directional light at the head of the bay. The centerline of the channel and the track to follow is 311°. The dredged channel is marked by four lighted buoys. It has been reported (2005) the two additional lighted buoys, laid close NW of the existing lighted buoys, also mark the dredged channel.

In the outer approaches to Bur Safaga, additional lighted beacons have been established on the following reefs and islands:

1. Middle Reef (26°42.5'N., 34°06.0'E.) (reported removed in 2005).
2. Shih Shear (26°39.4'N., 34°06.5'E.).
3. Hyndman Reefs (26°39.4'N., 34°02.7').

4. Safaga al Bour (26°36.4'N., 34°01.1'E.).

5. NE Geziret Safaga (26°45.7'N., 33°59.6'E.).

6. Fellows Rock vicinity (26°41.7'N., 34°03.9'E.).

Caution.—Mariners are advised that the exact positions of the lighted beacons in Safaga Channel have yet to be confirmed. It has also been reported that the bottom in the vicinity of the phosphate berth has numerous coral heads on which the slack of hawsers or anchor cables may foul.

Vessels entering should try to arrive off Geziret Safaga by sunrise in order to have the sun astern when making the harbor entrance. The wind is then usually calm, but during the evening the breeze is generally offshore, and is occasionally quite strong for periods of as much as 1 hour. It is advisable not to enter at night.

4.11 Wadi Quei (Quei Reefs) (26°24'N., 34°12'E.), lying between 2 and 4 miles offshore, is a group of above and below-water rocks.

Between Bur Safaga and Al Qusayr, the coast is fringed by a steep-to reef which extends up to 0.5 mile offshore.

Hamrawein (26°15'N., 34°12'E.) is a phosphate terminal, with a 67m long quay. Vessels up to 30,000 dwt, with a maximum length of 180m and a maximum draft of 10m, can be accommodated.

Vessels are urged to contact the local authorities before attempting to berth here, as information on this port is scanty.

Al Qusayr (Quseir) (Kosseir) (26°06'N., 34°17'E.)

World Port Index No. 47970

4.12 Al Qusayr is practically an open roadstead consisting of a small bight with the town and the piers in the N part; the bight is open SE. The port is a shipping point for locally-mined phosphate. Except for the head of this bight—where there is a sandy beach, the shores are fringed by reefs extending from 183m to 0.5 mile offshore. The ruins of a fort stand on the higher ground close NW of the town. The port is open from sunrise to sunset.

Winds—Weather.—Winds from N and NW commence daily at about 0500. and increase to force 4 or 5 at about 1100. Winds diminish to calm by evening.

Tides—Currents.—The mean tidal range is 0.5m; the spring tidal range is 0.5m.

Depths—Limitations.—Southwest of the phosphate-loading terminal are depths of 1.8m, which shoal rapidly toward the

shore; elsewhere the depths are greater. The dimensions of the berths, rather than the fairways leading to them, limit the size of vessels accommodated. Vessels do not berth alongside the 82m pier, but moor to the available buoys. The maximum depth at berth is 8.8m.

Aspect.—The most prominent objects from seaward are the radio masts, 37m high, close N of the town and the loading transporter on the phosphate pier from which a reported light is shown. Four cylindrical tanks stand near the radio masts.

Conspicuous objects when approaching the port are a building 55m high, standing about 0.2 mile NW of the transporter, and the phosphate works and conveyor belt, about 1 mile NNW of the transporter.

Pilotage.—Pilotage is compulsory. A vessel can obtain a pilot by displaying the “S” flag of the International Code of Signals. The pilot boards 2 miles from the port and remains on board during the vessels stay.

Regulations.—Vessels should send their ETA at the port at least 24 hours in advance, confirming 2 hours prior to arrival.

Anchorage.—Anchorage can be taken, in 9.1 to 33m, on the bank extending E from the coastal reef. Caution must be used in selecting an anchorage, as the edges of the bank are abrupt and could be missed. A depth of 25.6m will be found on the inner bank, with the loading transporter bearing 280°. There is an anchorage close to the reef, with the transporter bearing about 220°, about 1 mile distant, with moderate holding ground of sand and coral. This anchorage cannot be used at night. Should the anchorages here become untenable, good anchorage can be taken at Bur Safaga.

Directions.—The approach from seaward is made via the approach sector, best seen on the chart. A waiting anchorage, 1.5 miles in radius, centered on position 26°07'N, 34°19'E and encompassing the anchorages, is available.

Caution.—The best time to approach the port is during the morning because of a glare that makes the port difficult to distinguish when the sun is W of the meridian.

4.13 Gabel Abu Tiyur (25°44'N., 34°17'E.), 23 miles S of Al Qusayr, rises to a height of 1,027m and is a prominent mark. On S bearings, the mountain appears to have several peaks; on WSW bearings it appears flattened. On NW bearings, the N summits appear rounded and the S summits gradually appear as peaks.

From Gebel Umm Shaddad, a 730m high peak about 5 miles SE of Gebel Abu Tiyur, a range, with three well-defined peaks, extends about 12 miles S to Gebel Umm Naga.

Between Al Qusayr and Jazirat Wadi Jimal, 97 miles SSE, the coast is fringed in places by a reef; numerous dangers lie up to 8 miles offshore.

Marsa Toronbi (25°42'N., 34°35'E.), a small bay lying 32 miles SSE of Al Qusayr, with a stone T-headed pier, provides anchorage, in 14.6m. Slight shelter from NW winds is afforded by Ras Toronbi, its low N entrance point.

There is a rock in the bight, and 1 mile and 2 miles N of Ras Toronbi there are two small shoals close inshore. Depths of 21.9 to 29m lie on the bank extending about 3 miles E from them.

Ras Toronbi is reported to give a good radar return up to a distance of 18 miles. Marsa Mubarak, in a position about 11 miles SSE of Marsa Toronbi, is reported to be composed of

two arms, with the ruins of some houses on the shore of the S arm.

Marsa Abu Dabbab (25°20'N., 34°45'E.) is about 0.2 mile wide. The off-lying dangers S and E of this cove necessitate an approach from the N at a safe distance from the coastal reef. Good anchorage, in 29 to 46m, sheltered from W winds, can be taken in the cove.

Elphinstone Reef (25°19'N., 34°52'E.), 7 miles E of Marsa Abu Dabbab, has a depth of less than 1.8m and is steep-to.

4.14 Ras Samadai (25°01'N., 34°55'E.) projects slightly from the coast and is 47m high. A bank, with depths of 18.3 to 23.8m, lies about 3 miles N of Ras Samadai and about 2 miles offshore; some rocks, with depths less than 1.8m, lie on this bank.

Anchorage.—Anchorage can be taken, in 18.3 to 33m, sheltered from NW winds, on the S side of the above-mentioned bank.

Marsa Iundaba (25°00'N., 34°55'E.), about 3 miles S of Ras Samadai, is sheltered from N by a low point with a small reef projecting from it. About 3 miles ENE of Marsa Iundaba is a small reef, which lies on a bank with depths of 12.8 to 37m. A dangerous rock, with a depth of less than 1.8m, lies about 2 miles SSW of this bank.

Anchorage.—Anchorage can be taken on the bank S of the above reef, and also in Marsa Iundaba, in about 18.3m, close inshore, clear of the reefs and sunken rocks.

Ras Dirra (24°53'N., 34°58'E.), about 7 miles SSE of Ras Samadai, is low. On the low hills to the S are two great rectangular blocks and some ruins. Reefs extend parallel and close to the coast here.

There are several off-lying detached reefs, dangerous to navigation, between Ras Dirra and Ras Urayir (Ras Urah), about 10 miles SE. The detached reefs are steep-to and lie, in some instances, as far as 6 miles offshore. In this locality, the shore should be approached with caution within a distance of 10 miles.

Jazirat Wadi Jimal (24°40'N., 35°10'E.), about 6 miles SE of Ras Urayir, is low and rocky. Foul ground is charted between it and the shore, while a foul patch, an off-lying danger, is charted 5 miles E of the island.

Several other dangers lie hereabouts, and may best be seen on the chart.

From SE, the NE end of the island appears as a bluff and the SW end appears low, with several small hills near it. From S, both ends appear low, with the summit in the middle.

Anchorage.—Anchorage can be taken, in 14.6 to 18.3m, sand and rock, on the bank extending SE from Jazirat Wadi Jimal, with its summit bearing about N. Caution is necessary to avoid the rocks on this bank.

4.15 Sharm Luli (24°37'N., 35°09'E.), about 4 miles SW of the SE extremity of Jazirat Wadi Jimal, is entered through an opening in the coastal reef, about 91m wide and 27.4m deep. The head of this cove is shallow, and the shore is flat and sandy.

Anchorage, in about 14.6m, sand and mud, is available to small vessels in this cove. A chain of hills, about 1 mile inland, parallels the shore and rises to an elevation of about 150m.

At about half the height of this chain and under a flat-topped hill is a large white patch, which makes an excellent landmark from the direction of Jazirat Wadi Jimal.

Caution.—The prevailing wind sets across the entrance of Sharm Luli, necessitating a certain amount of speed to pass through safely. However, there is little space available in the anchorage for taking way off the ship.

Two landing places on the NW shore of the cove are each marked by a pair of cairns, 1.3m high, and when in range indicate a safe line of approach to the beach; however, these cairns may not be visible.

Gebel Hamata (Jabal Hamatah) (24°12'N., 35°00'E.), 1,910m high, is conspicuous and, although surrounded by other high mountains, towers above them. Gebel Abu Gurdi stands about 12 miles SSE of Gebel Hamata and appears on most bearings as a rather flat cone, surrounded by lower mountains.

Ras Honkorab (Ras Hunkurah) (24°33'N., 35°09'E.), about 4 miles SSE of Sharm Luli, is low; it rises to a conspicuous sugarloaf hill, 154m high, about 2 miles inland.

Anchorage can be taken close S of the point, in 18.3m, sheltered from NW winds. From Ras Honkorab to Ras Banas, 53 miles SE, numerous islands, reefs, drying reefs, and dangers with less than 2m over them lie up to 9 miles off the coast.

4.16 Ras Banas (23°54'N., 35°47'E.) is the SE extremity of a promontory. The hills of the promontory are sharply divided into two parts by color difference. The white limestone hills which reach an elevation of 188m form a sinuous plateau through the length of the promontory; the darker hills consist of a mass, about 274m high, which stands near the junction of the promontory and the coast, and another mass, 191m high, near its S side about 7 miles from the extremity.

There is a ridge of moderately high hills which extends from 5 to 12 miles W and NW from Ras Banas; they slope to the low sandy ground at the E part of the promontory.

From Ras Banas to Ras Abu Darah, about 75 miles SSE, the coast is low and rocky and recedes to form Foul Bay. Mina Baranis (Port Berenice) lies in the NW part of this bay; S of this anchorage the bay is encumbered with reefs and sunken rocks.

The whole coast is foul and unapproachable, except in the vicinity of Mina Baranis and Scout Anchorage, about 34 miles SSW of Ras Banas.

A mountain range, with numerous peaks, stands about 6 to 10 miles inland near the central part of Foul Bay; a sandy plain extends from the base of these mountains to the coast.

There are three main parts of this range, of which the N part is known collectively as Gebel el Farayid and whose highest peak, 1,366m high, stands about 31 miles SW of Ras Banas; from N it has the appearance of an open hand, with the E peaks resembling the fingers and the W peak the thumb.

About 3 miles SW of the highest peak of Gebel el Farayid is a flat-topped mountain with steep sides, 1,259m high.

Two miles farther S is a group of peaks, the highest of which is El Meibar (The Bodkin), sharp, conspicuous, and 1,230m high; it is so narrow it resembles a column.

4.17 Gebel Fareyid (Southern Peak) (23°18'N., 35°23'E.), the S of the three main parts of the range, is a small peaked range with the two main peaks close together, about 11.5 miles S of El Meibar; the highest summit is 612m. To the S of this range as far as Ras Abu Darah, the low and rocky coast contains no peculiar or conspicuous features.

Geziret Zabargad (St. Johns Island) (23°37'N., 36°12'E.) is the highest and E island along this stretch of coast, and also rises to a sharp peak. This barren island is bordered by steep-to coral reefs from 91m to 0.4 mile wide which render the island inaccessible, except for a small boat passage through the reef on its NE side; the summit of the island, bearing 225°, leads through this passage.

It was reported that there was a stone jetty at the inshore end of the boat passage. Rocky Island, about 3 miles SE of Geziret Zabargad, is small, steep, and rocky; a cross stood on its summit.

A dangerous reef has been reported to lie 5 miles E of the island. It is prohibited to anchor, except in an emergency, on the coral reefs surrounding Geziret Zabargad; they have been declared a protected area.

Geziret Zabargad and Rocky Island were reported to lie about 2 miles farther E than charted.

Geziret Mukawwa (23°50'N., 35°49'E.) is 34m high at its S end and appears as an inclined plane on SW bearings. This coral island is fringed by a steep-to coral reef which extends about 1 mile NW from its N extremity. Horseshoe Reef, in a position about 1 mile SW of Geziret Mukawwa, is awash, and extends about 3 miles SSE.

A bank, with depths of 21.9 to 46m, extends nearly 1.5 miles from the SW side. The bank has two rocks on it, each with a depth of less than 1.8m. The S edge of the reef is awash and steep-to with the exception of a rock, with a depth of 1.8m, off the NE corner.

Cygnat Rock, the position of which is doubtful, lies about 7 miles W of Ras Banas and 1 mile offshore. It is a small coral patch, with a depth of less than 1.8m, and irregular depths in its vicinity. When El Meibar is only slightly open NE of the peaks of Gebel el Farayid immediately N, a sharp look-out should be kept for Cygnat Rock, over which the sea does not break.

Philadelphus Point (23°56'N., 35°36'E.), 3m high, on the S side of the promontory of which Ras Banas is the extremity, is in a position about 11 miles W of the extremity; it is yellow, cliffy and somewhat indefinite, but rises to a well-defined double summit, 188m high, about 1 mile N. There is a small cairn on the W summit.

There is a channel, about 2 miles wide, between Philadelphus Point and the reefs and rocks extending from the coast S of Mina Baranis.

4.18 Mina Baranis (Port Berenice) (23°55'N., 35°30'E.) lies in the NW part of Foul Bay. The shore consists of a low sandy plain which rises gradually to the hills about 5 miles inland; it is dotted with hillocks of drift sand. The best landing is at a small concrete jetty, with a depth of 4.6m alongside. Landing can also be effected on the N side of North Cove.

The outer harbor lies S and W of the sandspit that protects the inner harbor. Inner harbor is almost landlocked, and available only to small vessels with local knowledge.

Two beacons, in range 318°, stand just N of the entrance of North Cove. The beacons are inconspicuous and the range should be used with caution.

Anchorage.—A vessel can anchor, in 25.6m, mud, sand, and coral, with the extremity of the sandspit bearing 099°, distant about 1 mile. Strong N winds are prevalent during the day, rendering the sea troublesome for boats.

Anchorage can be taken in, 12.8 to 16.5m, sand and coral, with the SW extremity of the sandspit bearing about 304°, about 1 mile distant. It is prohibited to anchor, except in an emergency, on the coral reefs surrounding Geziret Zabargad; they have been declared a protected area

At the head of the outer harbor there is anchorage, in 11 to 12.8m, off the entrance of North Cove, which is generally smooth with the prevailing winds.

Directions.—The best channel for a vessel entering this port is Middle Channel, between the S extremity of Geziret Mukawwa and the NE extremity of Horseshoe Reef. Steering for the 188m double summit near Philadelphus Point, bearing about 304°, leads in about mid-channel between this island and the reef.

When the S end of Geziret Mukawwa bears 090°, keep it astern on that bearing until the double summit near Philadelphus Point bears 321°, then steer for it. This course leads about 1 mile S of the reefs extending S from the W side of Ras Banas. Range lights leading 314° can then be picked up to help steer clear of shoals lying SW of Cygnet Rock until a position 0.8 mile S of Philadelphus Point is reached. At this point, the next set of range lights can be found leading 270° towards anchorages located SE of Mina Baranis' outer harbor.

The channel described above is the better one, but if it is desired to use South Channel between Horseshoe Reef and White Rock, a vessel should steer with the summit of Geziret Zabarad bearing 113°, astern, until the line of bearing for the range lights W of Philadelphus Point are acquired, and then proceed as previously directed for Middle Channel.

Caution.—The beacons just N of North Cove in range 316° lead between the dangers to the anchorage in the N part of the outer harbor. The least charted depth on the range line is reported to be 7.6m. The channel is about 68m wide.

4.19 Scout Anchorage (23°26'N., 35°34'E.) provides good shelter during N winds, in 14.6 to 18.3m, sand, coral, and shell. Bodkin Reef, narrow and about 2 miles from shore, forms the N side of this anchorage. The sea breaks over this reef. Vessels anchor with El Meibar bearing about 282°, 11 miles distant.

There are many detached rocky heads S of the W half of Bodkin Reef, and there is foul ground W of it. A sunken rock lies about 1 mile ESE of the reef

Geziret Mureir (23°11'N., 35°44'E.) is low, sand, and lies near the middle of a labyrinth of reefs extending NW and SE.

Hassa Lagoon (22°59'N., 35°42'E.) lies about 12 miles S of Geziret Mureir. It has depths of 1.8 to 3.6m; landing can be affected at the extremity of a sandspit which forms its N entrance point, where there is a least depth of 0.9m.

The lagoon is entered through a narrow gap in the coastal reef about 3 miles N of a large mangrove in the lagoon entrance.

Marsa Shab (22°50'N., 35°46'E.) is an extensive inlet nearly blocked by the coastal reef. Two small islets stand on the

fringing reef close S of the entrance and a conspicuous tree is reported to stand in the entrance.

A small, conspicuous, black conical hill, 122m high, stands about 8 miles WSW of the entrance; this hill should not be confused with another hill which has a dark, flat top and stands about 8 miles NW and about the same distance inland.

Adequate anchorage for small vessels with local knowledge is obtainable outside Marsa Shab.

4.20 Ras Abu Darah (22°41'N., 36°06'E.), lying about 19 miles ESE of the entrance of Marsa Shab, is the S entrance point of Foul Bay. The point is low and covered with bushes.

The coastline in the vicinity of Ras Abu Darah was reported to lie about 2 miles farther E than charted.

Jabal Gash Amir (22°16'N., 36°14'E.), 724m high, about 27 miles SSE of Ras Abu Darah, is an isolated mass of sharp peaks, rising abruptly from a sandy plain. From about 8 miles E of Jabal Gash Amir, a range extends about 30 miles SSE and parallel with the coast.

This range rises to considerable elevations from the coastal plain and is visible from a long distance in clear weather, but is often obscured by mist for weeks at a time, the moisture producing luxuriant vegetation right up to the summits of the mountains.

Jabal Elba, the N summit of this range, stands about 9 miles ESE of Jabal Gash Amir; it is a mass of light-colored peaks with rugged hills of darker rocks on its S and W sides. Jabal Shendidai stands about 10 miles SSE of Jabal Elba and has a prominent summit.

4.21 Jabal Asoteriba (21°52'N., 36°30'E.) stands in a position about 12 miles SSE of Jabal Shendidai and has a greenish appearance because of its vegetation.

Jabal Hadarba (22°01'N., 36°40'E.) is a small range of hills with many peaks.

Ras Jazriyal (22°17'N., 36°35'E.) is a coral cliff of moderate elevation. The passage between it and the off-lying islands is unsurveyed, but is reported to be narrow and shallow.

Jazirat ad Dibiyah (22°25'N., 36°30'E.), small and low, is bordered by extensive reefs. A small coral islet, about 1m high, lies about 2 miles NNE of Jazirat ad Dibiyah. Two low sandy islands, known as Jazirat Halaib al Kabirah, lie on a coral reef extending 7 miles N from Ras Jazriyal.

The channel between the SW extremity of the S island and the coast SW has not been surveyed; it is encumbered with a sandspit that dries and connects the point to the SE.

The channel between the S side of Jazirat Halaib al Kabirah and the coast S is called Marsa Halaib. There is a moderately high coral cliff on the coast close W of Marsa Halaib.

Marsa Halaib (22°15'N., 36°38'E.), sheltered and lying between Jazirat Halaib al Kabirah and the coast close E of Ras Jazriyal, is formed by a reef extending about 1 mile S from Sea Point, the SE extremity of Jazirat Halaib al Kabirah and a barrier reef extending about 3 miles NW from the mainland.

The latter reef overlaps the former, forming an entrance channel which has a least width of 122m and a least depth of 20m in the fairway. A 6m high white fort, with two flagstaffs, stands in the center of the village located near the shore about 2 miles S of Jaziret Halaib al Kabirah.

The entrance channel between the reefs, about 1 mile SSW of Sea Point, is marked by several beacons. Four of these beacons mark the N end of the barrier reef in the vicinity of Northwest Rock. It is prohibited to anchor, except in an emergency, on the coral reefs surrounding Marsa Halaib; they have been declared a protected area.

4.22 Sandy Islet (22°15'N., 36°40'E.), 1m high, and numerous drying coral patches lie on the reef extending S from Sea Point. A rock, 1m high, lies on the E edge of this reef about 1 mile ESE of Sea Point.

Northwest Rock, awash, lies about 91m NNW of the beacon on the W side of the entrance of the harbor.

A spit, on which are some rocks with depths of less than 1.8m, extends about 1 mile N from Northwest Rock; a 5m shoal lies 0.4 mile N of the same rock.

The shores of this harbor, except in front of the village, are bordered by reefs, which extend as far as 0.3 mile offshore, and there are many detached shoals.

Anchorage.—A vessel anchored, in 31m, with the fort bearing 214°, about 0.3 mile distant. Temporary anchorage can be taken off the entrance of the harbor, in 17.3m, with the fort bearing about 225° and Sandy Islet bearing 336°.

Directions.—Vessels should enter Marsa Halaib before noon, when the sun is in a favorable position.

Course should be set to pass about 1 mile N of the large reef about 7 miles E of the entrance; this reef, over which the sea always breaks, has several drying rocks on it and can be seen for several miles.

The fort in the village, in range 253° with a round-topped hill, leads about 1 mile N of this reef and about 0.4 mile N of a shoal, with a least depth of 5.5m, lying about 4 miles E of the fort.

The reef extending S from Sea Point should be kept close aboard as it is more easily seen than the barrier reef, which overlaps to the W.

After passing through the N part of the entrance channel, a turn of about 150° is necessary, in a somewhat restricted space, if a vessel is proceeding to S.

Care is necessary in rounding Northwest Rock in order to avoid the shoals N.

On leaving, it is more difficult, as the ship is then turning from approximately head-on to the prevailing wind into the narrowest part of the channel, when the wind is on the quarter; in the middle of the turn, the wind is on the beam and a setting down toward the reef should be guarded against.

A coral and stone pier, with an iron pile, wood-covered extension, projects from the shore ENE of the fort to the edge of the coastal reef.

In the past, the extension of this pier was in need of repair and boats are advised to come alongside with caution until the proper depths can be determined; the previous depth was reported to be 1.5m alongside the outer extremity of the extension.

4.23 Ras Hadariba (22°04'N., 36°52'E.) is formed of quicksand and fringed by reefs. Detached shoals, with less than 2m over them, lie within 3 miles of this stretch of coast. Ras Hadariba is reported to give a good radar return up to a distance of 17 miles.

It is reported that the coast in the vicinity of Ras Hadariba lies about 2 miles farther E than charted.

To the S of Ras Hadariba, the coast is fronted by numerous dangers, the approximate positions of which can best be seen on the chart. Many of the reefs are several miles in extent; one lies 12 miles from the coast. The outermost reefs are reported to lie farther S than charted.

Anchorage.—Along this part of the coast there are several indentations, most of which afford anchorage; if caution is exercised, temporary anchorage can be taken near many of the off-lying reefs.

4.24 Marsa Umbeila (22°00'N., 36°50'E.), entered about 6 miles SSW of Ras Hadariba, is a small cove affording anchorage for a vessel using a short scope of chain. A vessel can anchor, in 10m, mud, with the stern swung toward the head of the cove in 4.6m, coral rocks.

Marsa al Marub (Khor el Marob) (21°50'N., 36°50'E.) is reported to lie 2 miles S of its charted position. It is also reported to be much smaller than charted and to have only one arm; this bay is impractical for use by vessels over 61m in length.

It was reported that the inlet charted in the latitude of Marsa al Marub was large, but did not have the charted S branch. The inlet was reported to provide good anchorage for vessels up to 30m in length.

Marsa Gwilaib (21°46'N., 36°52'E.) lies about 4 miles S of Marsa al Marub and has been reported to lie about 2 miles S of its charted position. The entrance is narrow and fringed with reefs, which extend about 0.3 mile ESE from its N and S entrance points.

There is anchorage for small vessels, in 12.8 to 14.6m, mud and sand, about 0.4 mile from the head of the cove; anchorage, in 18.3m, can be taken in the N bight, a little less than 0.5 mile within the entrance.

Marsa Abu Asal (21°43'N., 36°52'E.), in a position about 2 miles SSE of Marsa Gwilaib, is larger than those inlets described above.

The N entrance point is low and sandy, with the coastal reef extending about 0.3 mile off. The S entrance point is a coral rock, 1.8m high, with the coastal reef extending about 0.3 mile off.

There are depths of 24 to 59m in the entrance, decreasing to 18.5m at the head of the inlet, where it opens into three bights. There is sufficient swinging room for a vessel to anchor in a central position.

4.25 Marsa Abu Imamah (21°30'N., 36°57'E.), about 37 miles S of Ras Hadariba, is about 2 miles long. It is a flat-topped hill of a low range extending parallel with the coast and terminating, about 10 miles SSE, in small straggling hillcocks close S of Marsa Shinab. The coastal reef extends about 1 mile E from the entrance points. The entrance is visible only in good light. The entrance channel is about 0.2 mile wide, narrowing to about 183m in the fairway between the entrance points, with depths of 21.9 to 27.4m.

A beacon, 4m high with a cone topmark, point up, stands near the E extremity of the reef off the N entrance point. From the entrance points, the channel deviates from a W to a SW direction.

Middle Shoal, with a least depth of 0.3m, coral, lies in mid-channel about 1 mile SW of the S entrance point of Marsa Abu Imamah. The shoal is about 183m in extent and has a channel about 37m wide between it and the reef to N, and another channel about 91m wide between it and the reef to S.

Anchorage.—The most convenient anchorage is NNE of Middle Shoal, E of the entrance of the N bay, in 21.9m. The inner anchorage, S of Middle Shoal, has depths of 14.6 to 18.3m, mud and coral, good holding ground, and can be approached on either side of this shoal.

Directions.—Jabal Abu Imamah is a good landmark for a vessel approaching the inlet. There are two conical hills, about 152 to 198m high, standing W of the head of the inlet; these hills, in range about 250°, lead toward the entrance.

Vessels should keep to the N of the channel between the entrance point and the sandspit on the NE side of the entrance of the N bay, about 1 mile within the entrance, as the reefs on that side are steep-to.

4.26 Marsa Halaka (21°25'N., 37°00'E.), entered about 5 miles SSE of Marsa Abu Imamah, has a least width of 60m between the reefs, but widens to about 183m further in.

Small vessels can anchor in this inlet, but there is no swinging room until 1.5 miles within the entrance.

There are depths of 32.9m in the entrance and about 20m within.

Shab Halaka lies NE of the entrance to Marsa Halaka. The sea generally breaks over this reef; a sunken rock with a depth of less than 1.8m, lies about 2 miles NW of its W extremity.

Khawr Shinab (21°21'N., 37°03'E.) lies about 5 miles SSE of Marsa Halaka. The coastal reef extends about 1 mile E from the entrance points; the coastal reef on the N side of the entrance, which is about 183m wide, is more easily seen than that on the S side, as some parts of it are above water. There are depths of 27.4m in the entrance.

The inlet terminates in three small bights; the shores of the inlet are fringed with reefs and the fairway has a least width of about 91m. Depths shoal to 12.8 to 18.3m near the head of the inlet. A shoal, with a depth of 3.7m, and a reef, which dries, lie in the entrances of the N and S bights, respectively.

The best anchorage appears to be well up in the inlet. A hill, with a projection from its S and highest edge, stands near the head of Marsa Shinab; this hill is sometimes difficult to distinguish because of the high land to the W.

A reef, about 2 miles in extent, lies about 5 miles NE of Haycock, and about 3 miles from shore. A sunken rock lies about 3 miles ENE of the S extremity of this reef. The sea seldom breaks on this rock and it is difficult to see, even from aloft.

There is deep water between and around the reef and the sunken rock.

Haycock (21°19'N., 37°02'E.), about 2 miles S of Marsa Shinab, is the next to last peak of the low range extending SSE from Jabal Abu Imamah. Jabal Shinab, 1,375m high and notched at its summit, stands about 22 miles W of Haycock.

Directions.—A vessel should approach the inlet when the sun is in the E as the reefs ahead can barely be made out when the sun is in the W. The hill near the head of the inlet in range 259° with Jabal Shinab, leads from seaward towards the entrance, passing between the reefs on either hand.

4.27 Ras Abu Shajarah (Ras Abu Shagrab) (21°04'N., 37°19'E.), the SE extremity of a peninsula, is low and sandy. The peninsula rises to an elevation of 39m about 3 miles SW of Ras Abu Shajarah. From a distance NE, the S part of this peninsula has the appearance of an island, but the absence of off-lying islets should prevent it from being mistaken for Mukawwar, about 9 miles farther S. On closing the land the low coast of the peninsula will be visible from aloft.

Between Ras Abu Shajarah and Marsa Salak, about 37 miles SSW, the coast is indented by Khalij Dunqunab, and is fronted by numerous islets and dangers up to 16 miles offshore. A mountain range, the N extremity of which lies 25 miles WSW of Ras Abu Shajarah, extends 34 miles S and is a good landmark.

Jabal Erba (20°50'N., 36°52'E.), 12 miles from its N extremity, rises to an elevation of 2,217m. On the N part of this range are two small rugged peaks, the N of which is visible from a great extent of coast. There is a small peak with a flat summit close N of Jabal Erba.

4.28 Dabadib (20°39'N., 37°07'E.), a hill, about 17.5 miles SE of Jabal Erba and about 5 miles inland, is a good landmark. It lies at the S end of a range of hills which extends parallel with the coast to a short distance N of Muhammad Qawl, about 15.5 miles N. Between this range and the coast is a sandy plain, with some scrub in places, rising gradually to an elevation of about 30.5m at the foot of the hills.

Khalij Dunqunab (Dunqunab Bay) (21°03'N., 37°12'E.) is a large area indenting the coast for 15 miles between the mainland and Ras Abu Shajarah. The entrance to the bay, which lies SW of **Ras al Keedan** (21°00'N., 37°15'E.), is encumbered with islets and dangers, but the bay provides good anchorage, in depths of 13 to 40m.

Abu Gosha (20°57'N., 37°13'E.), an above-water rock, about 2.4m high and covered with bushes, lies on a reef in the entrance of the bay, in a position about 3 miles SW of Ras al Keedan. Sararat, an islet 1.8m high, lies about 2 miles WSW of Abu Gosha, on a reef extending about 1 mile ENE from it.

A line of reefs and low islets extends about 4 miles SE from Sararat; a chain of reefs and rocks extends W from Sararat to the coast. Sararat and another low islet, about 2 miles SE, are covered with low thick shrubs.

4.29 Abington Reef (20°54'N., 37°27'E.) is an above-water coral reef. Strong W currents have been experienced in the vicinity of this reef. The reef is marked by a light.

Angarosh, a sandy islet, 1.5m high, lies on a reef about 2 miles SSW of Abington Reef.

Shambaya Island (20°52'N., 37°24'E.), about 1m high, lies near the SW end of a reef extending about 3 miles NW. Close NE of this reef and separated from it by a channel about 0.1 mile wide is another reef which extends parallel.

A detached coral head, about 1 mile S of Shambaya Island, is marked by an iron rail, about 1m high. The SE entrance of the channel between the reefs is marked by pairs of beacons.

The **Mayetib Islands** (20°48'N., 37°20'E.) consist of two islets on the E side of an extensive reef. These islets lie on the SW side of a deep channel leading NW and joining with a channel leading to Khalij Dunqunab, about 3 miles N of Mukawwar.

The larger islet, which lies on the SE side of the reef, is 42m high and covered with small trees and shrubs; its SE side is barren and precipitous. The smaller islet, about 1 mile NW of the larger islet, is 1.8m high. On the NE side of this channel, there are numerous coral patches lying W of Shambaya Island.

The W and SW patches, lying about 6 miles WNW and 4 miles W, respectively, of Shambaya Island, are each marked by an iron rail, 1m high. This channel should be used only under favorable light conditions.

4.30 Mukawwar (20°48'N., 37°16'E.), 94m high, is a tableland of rocky sandstone, with steep cliffs apparently eroded by heavy rains. It has a sterile appearance, with only rock and barren sands, except near its S extremity, where there are some mangroves. This island is fringed with a reef, the N part of which is extensive, but which has not been examined.

Gad Mesharifa, an islet 1.2m high, lies at the NW extremity of this reef, about 4 miles NW of Mukawwar. A beacon stands about 183m W of this islet. The NE extremity of this reef is marked by Beacon No. 1, about 3 miles E of Gad Mesharifa.

An iron rail, 1m high, marks a detached coral head about 0.3 mile ENE of Beacon No. 1.

These dangers lie on the S side of the channel leading W to Rawaya Anchorage from a position about 3 miles N of Mukawwar. A 5.5m patch lies about 2 miles WSW of Gad Mesharifa.

On the N side of this channel is Mesharifa, an islet about 1.8m high, lying about 1 mile NNW of Gad Mesharifa and at the SW extremity of the reef extending S from Ras al Keedan. A beacon stands about 183m SE of Mesharifa.

The channel between Gad Mesharifa and Mesharifa, swept to a depth of 4.5m, has a least depth of 4m about 0.2 mile N of Gad Mesharifa. Strong W currents have been experienced in the vicinity of Mesharifa.

4.31 Rawaya Anchorage (20°54'N., 37°12'E.), the outer anchorage for Muhammad Qawl, is of considerable extent and lies S of the chain of reefs and rocks extending W from Sararat, and W of the line of reefs and islets extending SE from the same islet.

There are depths of 7.3 to 48m in the anchorage, but patches of 4.5 and 5.5m lie on the N and E sides of the anchorage; shoal patches lie as far as 1 mile from the W side. A good berth in Rawaya Anchorage is in 12.8m, sand, good holding ground, with the fort at Muhammad Qawl bearing 251° and Gad Mesharifa bearing 124°, about 8 miles SW of Ras al Keedan. There is a custom house and a conspicuous fort in the village. A pier, with a depth of 1.2m at its head, extends across the coastal reef in front of the village.

Anchorage, in 12.3m, can be taken about 0.2 mile SE of the head of the pier. This anchorage was reported to be unsuitable for a prolonged stay because of the restricted swinging room.

Three pairs of range beacons lead through the reefs and shoals fronting the anchorage off Muhammad Qawl, in a least depth of 8.2m. The S and principal approach to the anchorages W and NW of Mukawwar leads S of the Mayetib Islands and S and W of Mukawwar.

Qita el Banna (20°41'N., 37°24'E.), a steep-to patch which dries 0.6m, lies on the S side of this passage. A small rocky

patch, which dries 0.6m, lies about 3 miles SW of the larger Mayetib Island. It is marked by a beacon. A rock, awash, and a 2.7m patch lie about 0.2 mile and 0.3 mile N, respectively, of this rocky patch.

Merlin Rock, with a depth of less than 1.8m, lies about 3 miles ESE of the S end of Mukawwar. A beacon marks the S end of a rocky spit extending about 1 mile SSW from the S end of Mukawwar. A sandy patch, which sometimes dries, lies near the S end of this spit.

Anchorage.—Anchorage can be taken by small vessels, in 21.9m, mud, about 1 mile SE of the S end of Mukawwar. It may also be taken off the W side of Mukawwar in suitable depths.

4.32 Powell Rock (20°42'N., 37°15'E.), with a depth of 2.7m, lies about 3 miles SSW of the S end of Mukawwar. Numerous shoals lie on the S side of this passage between Powell Rock and Merlin Rock.

Brandon Rock (20°45'N., 37°12'E.), with patches of 3.6 and 5.5m, lies about 4 miles WNW of the S end of Mukawwar. The sea sometimes breaks over this rock.

Directions.—Vessels should approach this passage with the high land of Mukawwar bearing 258°, until Angarosh bears 348°, distant 3.5 miles. Then steer 245° for Dabadib, which leads between the dangers on either side. A stranded wreck lies on the coastal reef about 6 miles ENE of Dabadib.

The sandy patch near the S end of the rocky spit extending SSW from the S end of Mukawwar usually shows well with the sun behind the observer.

When the W extremity of Mukawwar bears 006°, vessels should steer NNW, passing E of Brandon Rock. Care is necessary to avoid the 5.5m patch WSW of Gad Mesharifa.

Local knowledge is required for the channels and anchorages described above.

4.33 Juzur Tala (Tiflah Islands) (20°38'N., 37°15'E.), three in number, lie about 7 miles S of the S extremity of Mukawwar Island. The E island is 3.3m high and the middle one is 1.5m high; all three are covered with bushes. They are surrounded by reefs and sunken rocks, over which the sea sometimes breaks; the two outer reefs, with depths of less than 1.8m, lie about 6 miles ESE and SSE, respectively, of the E island.

Marsa Salak (20°27'N., 37°11'E.), small and almost landlocked, lies on the W side of a sandspit which projects about 2 miles SW. The entrance lies between the extremity of the sandspit and some sunken rocks S; the discolored water over the rocks is visible in clear weather.

An iron beacon stands on a sunken rocky patch about 1 mile SE of the extremity of the sandspit.

Anchorage.—Anchorage can be taken, in 16m, mud, surrounded by patches of sunken rocks. It is doubtful whether the sunken rocks in the entrance afford much protection from strong S winds.

Directions.—Vessels enter the bight through the channel W of the beacon, and pass along the coastal reef; this channel is about 0.3 mile wide and has a least known depth of 10.9m.

Vessels should then pass close around the extremity of the sand spit and into the bay. The entrance is intricate, and the eye is the only guide.

4.34 From Marsa Salak to Bur Sudan, about 51 miles S, the coast is indented by numerous inlets, some of which provide anchorage.

Jebel Melangweib (20°29'N., 36°48'E.), about 22 miles WSW of Marsa Salek, is 1,664m high and bears some resemblance to a chimney.

Jebel Oda (20°20'N., 36°38'E.), about 12 miles SW of Jebel Melangweib, is 2,259m high. When seen from off Marsa Salak, its summit is just visible above the N edge of a dip in Jebel Saghum, which is about 335m high, and stands about 17 miles ESE of Jebel Melangweib.

Jebel Oda is round and elongated when seen from off Marsa Arakiyai and Marsa Aweitir. It has the appearance of a cone with a sharp peak, while off Port Sudan it appears to have a rugged peak.

Jabal Gumaderiba (20°05'N., 36°43'E.) is a sharp rocky peak whose appearance does not alter much from seaward, although there is a shoulder on its S side. Between the coastal reef and the numerous off-lying dangers, some of which have not been surveyed, lies the Inner Channel.

There are depths of 26 to 44m in the narrow part of the channel, which is generally deep elsewhere. The Inner Channel is useful to small coastal craft as the water is smooth, but local knowledge is required.

4.35 Jebel Bawati (19°50'N., 36°50'E.), a range with six summits, extends about 16 miles SSE from Jebel Gumaderiba and stands about 23 miles inland. Between Jebel Bawati and the coast is another group of ranges, much lower in elevation.

From this group, a wide plain, flat and level in appearance, slopes gently to the shore which, in this area, has an elevation of about 0.6 or 0.9m.

Close off the coastal reef, about 6 miles SSE of Marsa Salak and 1.5 miles offshore, there are three shoal patches close together. Under normal conditions they show up well, with one or two coral heads usually being visible, and can be left on either hand.

A concrete beacon marks the reef about 6 miles SSE of Marsa Salak. A similar beacon marks another reef on the E side of the channel, about 5 miles SSE of the above-mentioned beacon.

Anchorage can be taken at Marsa Salak and S of it, or in the vicinity of the off-lying reefs.

Caution.—In cloudy weather, it is sometimes difficult to make out sunken rocks and patches; it is then advisable to anchor.

4.36 Marsa Aweitir (20°10'N., 37°12'E.) is a gap in the coastal reef. It is about 0.3 mile in extent with depths of 48m, mud, in mid-channel, shoaling to 14.6m near the reefs.

A small vessel may moor, head and stern, in 37m, with one anchor as close to the N reef as possible, using a short scope of cable.

There is a conspicuous tree reported in the vicinity of this cove. About 2 miles S there are some disused salt works.

Two beacons stand on the W edge of a reef, in a position about 6 miles SSW and 8 miles S, respectively, of the beacon on the S extremity of **Shab Suadi** (20°10'N., 37°17'E.).

A beacon stands on a detached reef on the E side of the Inner Channel, about 13 miles SSE of the beacon on the S extremity of Shab Suadi.

Shib Rumi (19°56'N., 37°25'E.), about 13 miles SE of the beacon on the S extremity of Shab Suadi, rises abruptly from depths of 366 to 732m. It is always visible, and the sea breaks on its outer edge. A beacon stands near the S extremity of Shib Rumi. Strong W currents have been observed in the vicinity of Shib Rumi.

From a position about 4 miles SW of Shib Rumi, a chain of small broken reefs, the S of which are known as Le Mercier Shoals, extends about 9 miles SW; they are marked at their N end by a framework beacon, standing about 11 miles SSW of the beacon on Shab Rumi, and at their S end by a concrete beacon, standing about 3 miles SW of the N beacon.

4.37 Marsa Fijja (Marsa Fijab) (20°02'N., 37°12'E.) is entered through a break in the coastal reef. The entrance is narrowed to about 91m by an islet lying on the edge of the coastal reef.

The N side of the entrance channel is marked by three concrete beacons, each 4m high, standing about 0.6 mile ESE, about 1 mile E, and close S of the islet.

The inlet decreases in width N to a muddy creek at its head; it is encumbered with reefs and shoals, on which are many islets, which reduced the anchorage area to such an extent as to be suitable for small craft only.

Anchorage can be taken in the entrance channel, in about 21.9m, sheltered from all but S winds.

Marsa Arus (20°00'N., 37°11'E.), the entrance of which is about 91m wide, lies about 2 miles S of the entrance of Marsa Fijja; this inlet is available only for boats.

A tower, visible from seaward, is square-topped and 5m high; it stands in a position about 3 miles SW of the head of this inlet.

The shore between the S entrance point of Marsa Arus and the entrance of Marsa Darur, about 10 miles SSE, is about 1m high, with ridges of coral that are slightly higher. It is backed by a sandy plain, which rises gradually to the base of the hills and mountains several miles inland.

Marsa Darur (19°50'N., 37°16'E.), at the mouth of the largest valley in this region, is entered through a break in the coastal reef, about 137m wide. A stone pier, in ruins, at the NE extremity of the W islet, affords landing for boats. A conspicuous white house stands on the mainland, about 2 miles WSW of the entrance.

Anchorage.—Anchorage in an area about 0.1 mile in extent, in 9.1 to 12.3m, can be taken outside and S of the entrance, between a detached reef and the coastal reef; there is little swinging room here, and it is well to have a stern anchor to the reef to SW as a precaution at night against squalls off the land, which are not unusual.

Vessels can anchor, in 7.3 to 18.3m, N of the detached reef and about 1 mile NE of the entrance; it is particularly exposed to N winds.

Directions.—From seaward, the position of the E islet is marked by the previously-mentioned conspicuous white house. The house bearing 249° leads to the front entrance of the inlet. The SE extremity of the reef on the N side of the entrance is marked by small boulders, but the S entrance point is difficult to see, particularly in calm weather.

Approaches to Bur Sudan

4.38 From seaward, the mountains from a position S of Jabal Erba to a position abreast Port Sudan are suitable, in clear weather, for bearings at a distance of about 40 miles from the port.

Jebel Tagwiai (19°55'N., 37°03'E.), in a position about 14 miles E of the N part of Jebel Bawati, has two summits, 369m high, which have nearly the same appearance; they are in range when bearing 257°. Conspicuous is a long hog-backed range, 741m high, about 11 miles SW of Jebel Tagwiai, and which shows up as a single peak from Bur Sudan.

Jebel Asoteriba (19°34'N., 36°55'E.), a poorly-defined summit, 1,365m high, is a good mark when not obscured by clouds.

Sanganeb Reef (19°45'N., 37°27'E.) is the easternmost danger in the N approach to Port Sudan. It is a steep-to atoll on which the sea generally breaks. The depths around it exceed 549m. The remains of a disused light structure stand close W of the existing light.

The light structure is reported to give a good radar return up to a distance of 20 miles.

Tides—Currents.—Currents of considerable strength have been experienced in the vicinity of Sanganeb Reef. Northerly and W currents have been reported throughout the year, particularly during the summer, and contrary currents have been reported, chiefly during the winter months. Lights are shown from near the S and E extremities of **Wingate Reefs** (19°38'N., 37°18'E.).

The S light is reported to be sometimes hard to distinguish as the lights of the port are much brighter. A beacon stands 1 mile NNE of the S light structure. This beacon bearing 036° indicates the NW limit of Wingate Reefs.

The sunken wreck Umbria lies 1 mile N of Wingate Reefs South Light.

Due to the existence of explosives in the wreck, vessels are advised not to enter the cautionary area surrounding and SW of the wreck. Strong W currents have been experienced in the vicinity of Wingate Reefs.

Anchorage.—Anchorage, in 27.4 to 46m, white clay and mud, can be taken in the lagoon enclosed by the reef. It is entered through an opening about 0.2 mile wide, about 1 mile N of the SW extremity of the reef. The entrance is marked on its S side by a concrete beacon.

Two concrete range beacons stand on the reef on the E side of the lagoon, about 1 mile NNE of the light structure, and lead through the center of the channel on a bearing of 107°.

Vessels entering should pass about 137m N of the reef on the S side of the entrance, which shows clearly, and after passing over a narrow ridge with depths of 9.1 to 14.6m, should anchor in the middle of the lagoon. The N end of the lagoon is foul. A

beacon stands about 183m S of the N extremity of the reef; a second beacon stands about 21.5 miles N of the light structure

Bur Sudan (Port Sudan) (19°36'N., 37°14'E.)

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4.39 Bur Sudan is an excellent natural harbor consisting of a deep, sheltered inlet which indents the coast nearly perpendicularly, then branches off into two narrow arms. In the past few years, this port has fallen into a state of disrepair.

This inlet is, for the greater part, bordered by reefs, which are visible, but it is free from dangers in the fairway. Port Sudan harbor is bounded by imaginary lines, as follows:

1. From Wingate Reefs East Lighted Beacon in a 312° direction to the coast
2. From Wingate Reefs East Lighted Beacon in a 159° direction for 9.5 miles, then in a 180° direction for 3 miles, then in a 270° direction to the coast

This includes the coastal area from close N of Marsa Gwiyai to about 10 miles SSE of Bur Sudan.

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Winds—Weather.—Prevailing NE winds from October to June generally allow safe anchorage and boat work in the harbor. Short sharp rain squalls from October to January are accompanied by winds which are seldom of sufficient velocity to cause much uneasiness.

Between July and September, squalls blowing from SE through W, however, may reach gale force. These may occur without warning or with slight warning by the approach of dust clouds from W; they are known locally as Haboobs.

Visibility decreases to less than 46m because of the dust and blowing sand; temperatures may rise to as high as 52°C. The squalls are of 30 minutes duration, and vessels should not be lying to their own anchors during their occurrence.

Tides—Currents.—Tides at Port Sudan are hardly perceptible, the mean range of tide being only 0.3m.

There is a seasonal variation of about 1m in the local water level because of changes in barometric pressure.

The highest level is reported to take place in the winter months. The set of currents in the Red Sea is extremely variable and affected by several factors.

The velocity of currents increases rapidly in the vicinity of off-lying reefs; these should be given a wide berth.

While some swell enters the harbor at Bur Sudan at times, it is not serious and the port is relatively sheltered from all directions.

Bur Sudan Berthing Information

Berth	Length	Minimum depth	Maximum vessel		Remarks
			Length	Draft	
1-5	825m	8.5m	182m	8.7m	General cargo and molasses.
5A	152m	9.4m	—	—	General cargo and molasses.

Bur Sudan Berthing Information					
Berth	Length	Minimum depth	Maximum vessel		Remarks
			Length	Draft	
6-7	366m	10.7m	182m	10.6m	General cargo and edible oil.
8-9	366m	10.7m	182m	10.6m	General cargo and edible oil.
11	98m	8.5m	153m	8.7m	Cement.
15	199m	10.7m	198m	10.6m	General cargo and molasses.
16	128m	10.7m	182m	10.3m	Petroleum products and ro-ro vessels.
17-18 (including extension)	422m	12.6m	275m	11.5m	Petroleum products and containers.

Depths—Limitations.—The harbor will accept vessels up to 275m in length and with drafts up to 11.3m. Fifteen berths are available throughout the harbor, with alongside depths ranging from 8.6 to 12.2m; in winter, alongside depths may increase. Berths 17-18 have been extended W; the area N of the extension has been dredged (2002) to a depth of 12m.

Green Terminal, E of Port Sudan, has been extended. A new terminal added to handle vehicles and general cargo has a total length of 548m, with an alongside depth of 14.2m.

El Khair Oil Terminal (19°35'N., 37°15'E.) is a new port (2003) located S of Port Sudan. It has a total length of 310m, with an alongside depth of 14.6m.

Aspect.—The coast is regular in the vicinity of Port Sudan, the land in the vicinity of the port being a plain with a few elevations and clumps of bushes. The land gradually rises to the foothills about 7 miles inland. The sea area of the port presents a completely different aspect, being complicated by elements of the great coral reef system of the Red Sea.

The barrier reef fronting the coast is broken by a 6 mile wide gap of open water in the vicinity of the port, with depths exceeding 594m. This gap provides access to the port, as well as the Inner Channel paralleling the coast inside the reefs.

Port Sudan Light is shown from a stone tower with a white band, 22m high, standing on the edge of the coastal reef 1.2 miles SE of the harbor entrance.

Three visible wrecks are reported to lie 1 mile S, 1.5 miles S, and 3.5 miles SSE, respectively, of Port Sudan Light. The S wreck was reported to appear as a vessel at anchor.

Several conspicuous oil tanks and a grain silo stand on the S side of the harbor entrance. Three 65m high radio towers stand about 1 mile NW of the silo. Two conspicuous water towers stand on the harbor's E shore, about 1 mile N of the harbor entrance.

Pilotage.—Pilotage is compulsory for all vessels as, once within the reefs, it is almost impossible to do any close maneuvering. The pilot boards about 1 mile E of the harbor entrance.

Pilotage is available 24 hours for vessels up to 198m in length. Pilotage is available during daylight hours only for vessels greater than 198m in length. Pilots will proceed out to all merchant vessels sighted approaching by day and night, whether signaled for or not.

Pilots can be reached on VHF channel 14 and vessels are advised to maintain a listening watch on VHF channel 14 to enable them to receive any instructions from port control. The pilot office can also be contacted by e-mail, as follows:

pilots.portsudan@gnpoc.com

When the port is full, vessels may be directed to proceed, during daylight only and after the pilot has boarded, to Towartit Reef Anchorage. It was reported that vessels may be directed to an alternative anchorage N of Silayet.

Vessels arriving by night, and not wishing to enter the harbor before daylight, should not approach within 20 miles until such time as is necessary to make the pilot boarding area by the time desired at their normal speed.

Regulations.—The port is under the control of the Port Superintendent of the Sudan Government Railways. The Port Manager regulates the berthing of vessels and the loading, unloading, and storage of explosives. A copy of the harbor regulations should be obtained. The port office is at the N end of Main Quay. Main engines should not be put out of action without permission from the Port Manager.

Special regulations are in effect for vessels carrying petroleum, a copy of which should also be obtained. Vessels carrying petroleum should, on approaching the harbor, display a red flag by day and a red light, at the masthead, at night.

Tugs, whether free or having tows, shall at all times make way for deep-draft vessels in any part of the harbor or entrance. Vessels leaving the port have the right of way over vessels entering.

Vessels over 15 years old are required to produce a Seaworthy Certificate, which must include a statement that cargo handling equipment is capable of handling all cargo embarked.

The vessel's ETA should be sent 24 hours in advance, including the following information:

1. Vessel's name.
2. Call sign.
3. Nationality.
4. Dimensions.
5. Destination.
6. Services required.

Vessels approaching the harbor are requested to maintain a listening watch, while at anchor and until the pilot has boarded,



Bur Sudan Harbor

on VHF channel 14 to receive instructions and to request pilot service from Port Control before reaching 2 miles from the harbor. This listening watch should also be maintained by departing vessels from 2 hours before departure until clear of the harbor.

Vessels departing or shifting berths should obtain permission from Port Control, on VHF channel 14, prior to departing the berth.

Anchorage.—In addition to the Main Quay berths, there are four anchorages in the inner harbor, with ample water and reasonable holding ground, where vessels may load and discharge by means of pontoons (but not between July and August 31).

Anchorage may be obtained on soft coral and mud about 0.4 mile within the harbor entrance. Lights in line bearing 314.5° are occasionally shown, with the front near Hotel Jetty and the rear from government offices 183m NW, to indicate the anchor berth. Anchorages are allocated by the port authorities.

During certain seasons of the year, June to September, it may be advisable to keep engines on short notice.

Steel mooring posts are situated on the NW shore of the harbor, to which the sterns of vessels can be secured after anchoring. There are also mooring buoys in the harbor.

The anchorage areas in general have good holding ground, except in the N part, where it is reported to be poor.

Vessels should avoid anchoring in an area S of a line drawn due E from Berth 16, due to the presence of submarine cables.

Anchorage is prohibited in an area on the W side of the harbor, best seen on the chart.

Directions.—It is reported that during certain periods, the land in the vicinity of the port cannot be seen from seaward of the reefs; therefore, the coast should not be approached too closely until a definite landfall has been made.

It is advisable to make the harbor before noon, taking into consideration the sun's glare and the contour of the land.

Currents are irregular in the port's approaches and should be watched for.

The best approach from seaward is S of Sanganeb Reef; from E; the best time to make Sanganeb Reef is just before dawn, as the light structure is difficult to pick up with the afternoon sun, and, at times, no landmarks are visible.

Vessels from N should pass about 2 miles S of Sanganeb Reef Light and steer to a position about 2 miles SE of Wingate

Reefs South Light, and then alter course about 1 mile S of the same light.

From S, Hindi Gider Light should be made and passed to the N at a distance of 8 miles or so, to ensure clearing North Jumnah Shoal, which is marked by a light. Then set a course for the pilot boarding area as described above.

The channel through the harbor is well-marked by lighted beacons and a lighted range, although it has been reported that the range may be difficult to distinguish.

4.40 Bashayer Oil Terminal (19°24'N., 37°19'E.), a tanker crude oil-loading facility, is approached from N of Towartit Reef.

Winds—Weather.—The prevailing winds are from the N; these winds may have gusts up to 35 knots in winter, but tend to be variable and light to moderate at other times. Without the N winds, there is a tendency for winds to veer towards the shore in the middle of the morning.

In summer, offshore winds are normally the strongest; gusts up to 60 knots can occur.

Tides—Currents.—The tides are usually diurnal, with a mean spring range of about 1.4m.

Currents in the area set mainly S and run parallel to the coast, rarely exceeding 1 knot.

Depths—Limitations.—The controlling depth in the approach channel is 50m.

There is a depth of 54m at the terminal. Vessels up to 300,000 dwt can be accommodated.

Pilotage.—Pilotage, which is compulsory and available during daylight hours only, should be requested from the Port Sudan Port Authority. The pilot boards, as follows:

1. Channel pilot—About 1 mile E of Port Sudan Light, in position 19°35.5'N, 37°16.0'E.
2. SBM pilot—3 miles N of the SBM. This pilot boarding position is the handover point with the channel pilot.

The pilot boarding time is usually between 0600 and 0700, depending on the time of year.

The Pilot Office and the pilot vessel can be contacted on VHF channel 10 and by e-mail, as follows:

pilots.portsudan@gnpoc.com

Regulations.—The vessel's ETA must be sent to the terminal, via the agent, 72 hours, 48 hours, 24 hours, and 12 hours in advance. The ETA should be reconfirmed if it changes by more than 2 hours.

Berthing is permitted during daylight hours only. Unberthing may be done at night at the discretion of the mooring master.

Vessels older than 20 years old will not be accepted for loading at the terminal.

Upon arrival off Port Sudan, vessels are required to contact the Port Sudan Signal Station on VHF channel 14 to obtain the pilot boarding time, if available, together with any further instructions.

The Marine Supervisor of the facility can be contacted on VHF channel 10, when a vessel is loading at the SPM, and by e-mail, as follows:

omarine.portsudan@gnpoc.com

Anchorage.—Anchorage is not recommended off the terminal.

Caution.—A restricted area, with a radius of 1 mile, surrounds the terminal. Navigation in this area is only allowed with a pilot on board.

4.41 Sawakin Harbor (19°08'N., 37°21'E.) lies about 30 miles SSE of Bur Sudan. The intervening low coast consists of a raised coral reef intersected by dry water courses. A flat sandy plain rises gently to the mountains and is covered by small shrubs and coarse grass which spring up during the season of winter rains.

During the winter, the mountains are frequently hidden for long periods by haze or clouds, but some of the hills between them and the coast usually remain clearly defined.

To the S of Sawakin Harbor, the coastal plain begins to widen and extends inland as much as 40 miles. A chimney, the position of which is approximate, stands about 3 miles S of the entrance of Port Sudan and about 1 mile inland; a flare is shown close E of the chimney.

A large oil refinery stands about 3 miles S of the entrance of Port Sudan and about 1 mile inland.

Jebel Hadaraweb is a group of irregular hills, about 10 miles inland, midway between Bur Sudan and Sawakin Harbor. The central peak of the group is 490m high and a good mark.

Another peak, 500m high, 1.5 miles SW of the central peak, appears as a blunt cone from the S.

Jebel Waratab (19°07'N., 37°11'E.), 627m high, is the highest and most prominent conical hill in this vicinity; its summit forms two small knobs. From a distance, it appears as a truncated cone, except on SW bearings, when it appears almost sharp.

Jebel Gararat, 618m high and about 2 miles W of Jebel Waratab, is rounded with a long sawtoothed shoulder. On SW bearings, a conspicuous shining white patch is frequently visible below this peak.

Jebel Hamob Adarob (North Saddle), about 4 miles SW of Jebel Waratab, and Jebel Hamob Hadal (South Saddle), about 3 miles farther S, are two saddle-shaped hills which are quite conspicuous. Jebel Hamob Adarob is frequently difficult to see

because of its color, and Jebel Hamob Hadal loses its shape when bearing N of 278°.

A small wedge-shaped hill, 252m high, lying about 4 miles NE of Jebel Hamob Adarob, is a good mark. Extensive reefs, at the N end of which is North Towartit Reef, extend about 23 miles SSE from a position about 7 miles SE of the entrance of Port Sudan.

These reefs are separated from the coast by a continuation of the Inner Channel. The E edge of these reefs extends SE and then S for about 15 miles to Heyman Reef and then 3 miles farther S to Williamson Shoals. Both of these dangers seldom break.

To the S of Williamson Shoals, no dangers have been found seaward of the reefs. However, vessels should not attempt to pass W of a line extending from these shoals to the S extremity of the reefs.

These reefs, except those at the S end, show in a moderate breeze.

4.42 North Towartit Reef (19°32'N., 37°20'E.) is marked at its N extremity by a 9m high beacon. Wrecks, which are radar conspicuous, are stranded on the reef, about 0.3 mile and 0.95 mile SE, respectively, of the beacon.

Another beacon stands on the E edge of the reef, about 3 miles SE of the N end of North Towartit Reef. A conspicuous wreck, which appears as a ship at anchor and gives a good radar return, is charted about 2 miles ESE of this beacon.

North Towartit Reef Anchorage lies between 1 mile and 2.5 miles S of the N end of North Towartit Reef. In it are a number of reefs and sunken rocks, some of which are marked by lighted and unlighted beacons.

Anchorage.—Anchorage can be taken, in 68 to 75m, mud and shell, SSE of the 27.4m bank midway between the N and E lighted beacons. Vessels with local knowledge may obtain anchorage elsewhere, but in most areas the bottom is uneven and in some places it is not surveyed.

4.43 The E side of the Inner Channel is marked by two beacons, each 3m high, on reefs about 4 miles and 14 miles, respectively, SSE of North Towartit Reef.

Anchorage.—Two anchorages are located 1 mile NNE, and 2.5 miles NE of **Shib Ata** (19°16'N., 37°20'E.), but require local knowledge, as the channels leading to them are not marked.

The W side of the Inner Channel is fringed by a coral reef nearly 0.5 mile wide at **Towartit Elbow** (19°29'N., 37°18'E.), and is clearly visible to Sawakin Harbor, except off Hadaraweb and Shab Damath, about 7 miles and 15 miles SSE, respectively, of Towartit Elbow.

4.44 Marsa Amid (19°25'N., 37°18'E.) is a break in the coastal reef about 4 miles S of Towartit Elbow. It is marked by a conspicuous islet, covered with bushes, lying inside the coastal reef about 1 mile N of Marsa Amid. Hadaraweb Spit lies about 4 miles S of Marsa Amid and extends 0.5 mile offshore.

Marsa Ata (19°17'N., 37°19'E.) is marked by a fairly conspicuous wooded islet, off which the depths are irregular for about 0.2 mile.

Shab Damath (19°14'N., 37°20'E.), in a position about 4 miles S of Marsa Ata, is a S projection of the coastal reef about 1 mile in length; the sea does not always break. A concrete beacon stands about 1 mile N of the S end of this reef.

Marsa Kuwayy (Marsa Kuwai) (19°13'N., 37°20'E.), about 1 mile wide, lies between Shab Damath and the main part of the coastal reef.

The depths are irregular, but sufficient room is available to shelter medium-sized vessels in the S part. The S extremity of Shab Damath does not show well.

A 3.2m patch lies about 0.3 mile W of the S end of Shab Damath. From a position approximately 2 miles S of Shib Ata, Towartit Reefs continue S for 6.5 miles. The area within these reefs is unsurveyed.

A beacon, 6m in height, stands on Al Mansuriyah, about 3 miles S of Shab Ata, towards the NW edge of those dangers. Fikheeb lies 3.5 miles SE of this beacon, with reefs extending 1.5 miles further S.

4.45 Sawakin Harbor (19°08'N., 37°21'E.) is a narrow inlet in the low coastal plain, extending SW to Quarantine Island, where it divides into two arms. Sawakin, in ruins years ago, was of little importance except as a pilgrimage quarantine station and a limited amount of coastwise trade.

The port is under the control of the Port Authority, Port Sudan.

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Winds—Weather.—The prevailing winds are either land and sea breezes, or winds which approximately parallel the coast, inclining off the land at night, and from seaward in the forenoon.

In spring and summer the sea breezes generally set in about 0900 and subside suddenly at about 1700, but outside the harbor they continue until later.

In winter the, wind almost always varies between N and NE during the day, with some strength, generally lulling but not falling to a calm at night.

During November, December, and January, sharp squalls from the mountains, accompanied by rain, occur occasionally.

During these months and until March, the climate is equable and pleasant, never very hot in the day and always cool at night. Sandstorms are experienced during summer.

When fresh land squalls blow, sand fills the air from some 50 miles seaward, rendering objects invisible at more than 0.5 mile.

During the winter months, when the high mountain ranges are generally hidden by clouds, the N wind sweeping along the plain between the mountains and the sea carries with it a cloud of reddish dust, which dims or entirely obscures the view of the lower and nearer peaks.

The heat is very great during June through September, the thermometer rising in sandstorms to 46°C onboard ship, and to several degrees higher in the town. Precautions must be taken against sunstroke.

Tides—Currents.—In Sawakin Harbor, the tides are diurnal. The mean winter level is 0.3m higher than the mean summer sea level.

Depths—Limitations.—The port is approached through a channel, best seen on the chart, entered between Lighted Beacon No. 1 and Lighted Beacon No. 5. There is a minimum depth along the centerline of 12.8m.

Osman Digna, the new port, is located E of Condenser Island. Vessels with a maximum draft of 12.2m can be accommodated. Berth information is given in the accompanying table.

Sawakin Harbor—Berth Information			
Berth	Length	Depth alongside	Remarks
No. 1	156m	9.0m	General cargo and ro-ro.
No. 2	130m	9.0m	General cargo and ro-ro.
No. 3	106m	9.0m	General cargo and ro-ro.
No. 4	67m	6.0m	Service craft.
No. 5	103m	9.0m	Livestock export. Has been reported (2005) to be designated as Berth No. 11.
No. 6	90m	9.0m	LPG export. Has been reported (2005) to be designated as Berth No. 13.
No. 7	45m	8.0m	Asphalt export. Has been reported (2005) to be designated as Berth No. 12.

Aspect.—Jebel Waratab and the 252m hill to the SSE are good marks for approaching the harbor. The most conspicuous objects visible from seaward are a wooden tower located close SW of Graham Point, the SE entrance point of the harbor; a stranded wreck lying close SE of Condenser Island (Quarantine Island), about 1 mile SW of Graham Point; and the white chimney of the abandoned cotton works on the shore about 1 mile S of Condenser Island.

The shores of the harbor, which are almost entirely bordered with reefs, are about 2m high and of a rocky appearance. These reefs dry from May to August, but are covered in December. The channel is reported to be marked by lighted beacons.

Pilotage.—Pilotage is available 24 hours. The pilot boards about 2.2 miles ENE of Lighted Beacon No. 1. The pilot may be contacted on VHF channel 16.

Anchorage.—Anchorage is prohibited within an area about 0.4 mile NE of Condenser Island due to the existence of a fresh water pipeline, the ends of which are marked by beacons.

The recommended anchorage is in a designated area best seen on the chart.

Caution.—Dependence should not be placed on the beacons marking the approach to Sawakin Harbor, as they may be missing.

The Sawakin Archipelago

4.46 The Sawakin Archipelago is an extensive group of islets, reefs, and shoals lying off the W shore of the Red Sea and fronting the coast for a distance of about 80 miles SE of Sawakin Harbor.

The group extends in a general SE direction from North Jumna Shoal, in latitude 19°27'N, to Darrakah, in latitude 18°21'N. Some of these dangers lie as far as 40 miles from the mainland and may best be seen on the chart; there is an Inner Channel between these dangers and the coastal reef.

Tides—Currents.—During June, strong W and SW currents have been experienced near the NE end of the Sawakin Archipelago, but generally only when close to the islets and not W of Hindi Gider and Masamirit.

During July and August, SW and SSW currents have been observed, which commenced at about 1400 daily and continued until after midnight. They often attain a velocity of 0.5 knot. Northeast sets were occasionally experienced after a SW wind, but were of short duration and erratic in direction.

Hindi Gider (19°23'N., 37°55'E.) is narrow, 4.5m high, and covered with bushes. The islet is surrounded by a steep-to reef, which extends 0.2 mile from its N side. The islet is marked by a beacon and a light. The light structure on Hindi Gider is reported to give a good radar return up to a distance of 14 miles.

4.47 Peshwa (19°23'N., 38°00'E.), a reef on which the sea generally breaks, lies about 5 miles E of Hindi Gider; a rock, the position of which is doubtful, was reported to lie midway between Peshwa and Hindi Gider. The reef is reported to lie about 1 mile SE of its charted position.

Owen Reef (19°21'N., 38°03'E.), 7.5 miles ESE of Hindi Gider, is only visible under good conditions.

North Jumna Shoal (Shab Jibna) (19°27'N., 37°44'E.), awash and steep-to, lies about 11 miles WNW of Hindi Gider. The sea breaks on this reef, and in a calm a few coral heads show above water. A beacon stands on the SW side of the shoal.

Logan Reef (19°22'N., 37°50'E.) and **Keary Reef** (19°18'N., 37°50'E.) break in a moderate swell and are visible under normal conditions.

Shib Anbar (19°17'N., 37°42'E.), the N extremity of which lies about 12 miles SW of Hindi Gider, extends about 5 miles S. The sea generally breaks on the N end of the reef, which has several gaps in it. At the S end of the N section of the reef is a 0.9m rock. A stranded wreck lies near the S extremity of the reef.

The N extremity of **Shab Mubyat** (Meera Reefs) (19°12'N., 37°42'E.) is nearly awash. A circular reef, which shows light green, lies about 1 mile SE of Shab Mubyat.

Shib Qusayr (19°11'N., 37°37'E.) has a few coral heads above water, on which the sea always breaks. It is reported to be 0.5 mile WNW of its charted position. A beacon, 6m high, stands on the SW end of Shab Qusayr.

4.48 Masamirit (18°50'N., 38°46'E.) is a low, bushy, and steep-to island composed of sand and coral. Masamirit is reported to give a good radar return up to a distance of 11 miles.

The numerous islets, reefs, and shoals lying in the vicinity and SW of a line drawn between Hindi Gider and Masamirit are best seen on the charts.

Barra Musa Saghir (19°03'N., 38°12'E.), in a position about 26 miles SE of Hindi Gider and one of the above islets lying SW of a line drawn between Hindi Gider and Masamirit, is reported to give a good radar return up to a distance of 19 miles.

Dawn Ash Shaykh (Dom esh Sheikh) (18°37'N., 38°52'E.), the E islet of the Sawakin Archipelago, is low, thickly covered with bush, and fringed by a reef.

Gharb Miyun (18°30'N., 38°51'E.) is an islet fringed by a reef. The islet was reported to lie about 1 mile NE of its charted position.

Miyun, an islet fringed by a reef, lies about 2 miles WSW of Gharb Miyun. The islet was also reported to lie about 1 mile E of its charted position.

Derraka (Darraka) (18°27'N., 38°45'E.) is a small islet about 4 miles WSW of Miyun. It is fringed by a reef, which appears to extend on its NW side toward a detached reef that breaks and lies 1 mile off the islet. Derraka was reported to lie about 1 mile E of its charted position.

Darrakah (Dahret Abid Islet) (18°21'N., 38°48'E.), the S of the Sawakin Archipelago, is low, and composed of sand and coral. It was reported that a reef extends about 1 mile E from it.

Aqrab, Karb, and Abu Marinah (18°26'N., 38°31'E.) are a group of six sand and coral islets on which the sea breaks when there is any swell. They lie on a coral reef, on which lie some pinnacle rocks, with deep water between them. Aqrab makes up the three N islets, Karb the two S islets, and Abu Marinah the E islet.

4.49 The coast S of Sawakin Harbor is backed by a sandy plain, which rises gradually to the inland ranges, with some hills near the coast rising abruptly.

From a point about 30 miles S of Sawakin Harbor, abreast the E turn of the coast, the mountain ranges incline away from the shore and are fronted by a wide expanse of plain. The coast S of Sawakin Harbor is frequently obscured by dust and mirage.

The Inner Channel to the S of Sawakin Harbor leads between the W side of the Sawakin Archipelago and the coastal reef to a position about 9 miles E of **Trinkitat Harbor** (18°41'N., 37°45'E.). The passage trends generally S for about 14 miles, then turns E for about 11 miles and then trends generally SE for about 22 miles.

Tides—Currents.—In the approach to Sawakin Harbor from the S through the Inner Channel, the currents are extremely variable and sometimes strong. The approach should be timed so as to have daylight while in the vicinity of the islands and shoals.

Between December and April, little current was experienced, and the velocity seldom exceeded 0.5 knot. A fairly constant set to W and NW has been observed at this season; this is probably influenced by the S winds prevailing in the S part of the Red Sea.

4.50 Kad Eitwid Reefs (Qad Eitwid) (19°03'N., 37°27'E.), on the E side of the Inner Channel, consists of some islets and numerous reefs and shoals, over some of which the sea breaks.

There is no known navigable passage through this extensive group.

The area between a line joining Kad Eitwid Reefs and a point about 10 miles NE, and S of Burns Reef and Cunningham Shoal has been only partially examined. Numerous reefs lie in this area and it would be dangerous to attempt to pass through it.

Kad Eitwid Islet (19°00'N., 37°29'E.), 2.4m high, with some coarse grass on it, lies on the E side of Kad Eitwid Reefs, about 11 miles SSE of the entrance of Sawakin Harbor.

Another sandy islet, 1.8m high, with some coarse grass, lies about 4 miles SW of Kad Eitwid Sand.

A 7.3m patch lies about 2 miles N of the latter islet, narrowing the Inner Channel at that point to about 1 mile. A reef, on which the sea generally breaks, lies at the SE end of Kad Eitwid Reefs, about 4 miles S of Kad Eitwid Sand.

A spit with depths of less than 18.3m extends about 1 mile S from this reef. A 9.1m patch lies about 2 miles S of the reef. An iron beacon, 5m high, stands on the above reef.

4.51 Eitwid (19°01'N., 37°33'E.), an islet 2.7m high, is sandy, fringed by a reef, and covered with bushes on its NE side. It is visible in the S approach to Sawakin Harbor and makes a good mark.

Vessels should not attempt to pass between Eitwid and the reef at the SE end of Kad Eitwid Reefs.

The W side of the Inner Channel, formed by a coastal reef, which extends up to 1.7 miles offshore and dries in summer, is fronted by several long islets covered with mangroves and scrub.

The islets are not usually seen, except from aloft, the coastline being apparently unbroken.

The coastal reef is usually visible and is broken in several places, forming natural boat harbors. Two beacons, 3m high, stand on the edge of the coastal reef about 5 miles and 9 miles S, respectively, of the entrance of Sawakin Harbor. Another beacon, 5m high, stands on the reef 13 miles S of Sawakin Harbor.

4.52 Marsa Shaykh Ibrahim (18°53'N., 37°25'E.) is a good anchorage entered through a break in the coastal reef, 183m wide. The entrance points were marked by beacons. The coastal reef dries in patches on either side of the entrance. On the NW side of this bight are high mangroves, while the SW side is a low sandy plain with scrub.

Anchorage can be taken, in 7.3 to 11m, good holding ground. A 4.5m patch, the position of which is approximate, lies about 1 mile ESE of the entrance of Marsa Shaykh Ibrahim.

Marsa Shaykh Sad (18°50'N., 37°25'E.), entered about 3 miles S of Marsa Shaykh Ibrahim, extends W for about 1 mile and then N for about 2 miles. There are no good landing places as the depths shoal gradually, and boats ground about 46m from shore.

The entrance is obstructed by three detached shoals, which can be seen under favorable circumstances. The outer shoal is a coral head, with a depth of 1.8m, and is not easily seen. It can be avoided by keeping close to the steep-to coastal reef on the N side of the entrance, which dries in places and is clearly visible. The two inner shoals lie W and SW of the outer shoal.

Good sheltered anchorage can be taken just inside the entrance. Farther in there is less swinging room, and a stern anchor is necessary. A beacon, 4m high, marks the edge of the coastal reef about 1 mile N of the entrance of Marsa Shaykh Sad.

A beacon, 4.3m high, marks the edge of the reef on the N entrance of the bight. Vessels approaching Marsa Shaykh Sad from N should keep the coastal reef abeam avoiding projections. The area E of this bight has not been examined and discolored water has been observed.

4.53 Shib ash Shubuk (Shab ul Shubuk) (18°49'N., 37°33'E.), a large shoal of which little is known, fills the bight in the coast between Marsa Shaykh Sad and Marsa Maqdam, about 17 miles ESE. The reef is intersected by narrow channels and studded with numerous low sandy islets, some of which have bushes on them.

The N edge of the reef is broken and should be given a wide berth, but the NE edge is usually visible. When a vessel passes outside of Shib ash Shubuk, the shore between Marsa Shaykh Sad and Marsa Maqdam is not visible. The SE extremity of the reef is marked by a beacon.

Corner Reef (Jinniya) (18°53'N., 37°36'E.) is marked by a beacon, 3m high. The sea generally breaks on this reef, and in calms it is usually visible.

Green Reef (Dhanab al Qirsh) (18°56'N., 37°44'E.) is awash on its W and N side, but its SE side is sunken. There are two coral heads off its W side.

Two Islets (Haronayeet), a reef about 2 miles SE of Green Reef, consists of two parts, with an islet on each part, separated by a very narrow channel.

The NE and larger islet, which is a good mark, is 4m high, with some stunted bushes and the SW islet is 2m high.

Kad Hogit (18°49'N., 37°43'E.) is a partly sunken reef lying on the SW side of the Inner Channel. The E part of the reef is usually visible, but the W part is seldom seen unless there is a swell breaking. A beacon marks a coral patch near the center of Kad Hogit.

Anchorage.—Anchorage, sheltered from all but SE winds, can be taken, in 18m, mud, with the beacon on Kad Hogit bearing 018°, distant 0.5 mile.

4.54 Marsa Maqdam (18°43'N., 37°42'E.) lies S of the SE end of Shib ash Shubuk. The NW side of this bight rises close S of its NW entrance point to an elevation of 3.0 to 4.5m and is covered with shrub. The coastal reef extends about 1 mile N from this point and detached reefs lie within 1 mile NE and E of the point.

There is a passage, less than 0.5 mile wide and leading into the channel within Shib ash Shubuk, close N of the NE detached reef, which is marked by a beacon. The SE entrance point of Marsa Maqdam is low and backed by conspicuous sand hills rising from 6.1 to 13.1m in height.

Three islets, 1.5m to 2.1m high, lie on detached patches within 1 mile N of this point. There are several detached patches, with depths of 2.1 to 5.5m, lying within 0.5 mile E of the islets.

Rambler Shoal, with a least depth of 5.5m, and Fairway Patch, with a least depth of 7.9m, lie E of the above islets,

about 2 miles ENE and 2.5 miles E, respectively, of the SE entrance point of Marsa Maqdam.

Anchorage.—Anchorage can be taken, in 11 to 14.6m, sand and mud, in the N and NW parts of Marsa Maqdam, under the lee of the extremity of Shab Ul Shubuk. The SW part of the bight affords good anchorage, in 9.1m, sand, but during E winds this anchorage is somewhat exposed to the swell.

4.55 Trinkitat Harbor (18°41'N., 37°45'E.) is a small harbor formerly with depths of 6.1 to 7.9m. It is no longer advisable for even shallow draft vessels to use the harbor. The shores of the harbor are low and sandy and the entrance is not easily distinguished. A sandy plain, flooded at times, extends some distance inland from the harbor.

There is a shallow lagoon S of the harbor, entered through a narrow opening on the SE side of the harbor. A steep-to reef, which is awash and always visible, lies about 1 mile E of the N entrance point of the harbor.

A beacon marks the N end of the reef. The bank extending about 0.1 mile SE from the N entrance of the harbor has depths of 3 to 4.9m; the spit extending about 0.3 mile N from the S entrance has depths of 3 to 5.2m. A rock, near the middle of this spit, breaks in an E swell.

Another rock, about 183m S, also breaks. A shoal, with a least depth of 5.8m, lies about 0.3 mile NNE of the S entrance point of the harbor.

A beacon stands on the W side of the harbor. A flagstaff stands 0.5 mile S of the beacon.

Winds—Weather.—From November to April, the winds are mainly N, with some from the NE, especially during the daytime. In April, they begin to veer through E towards S, and from June to September, they are mainly S.

Sandstorms are said to be frequent and severe in the Trinkitat and Tokar District during the latter season; during and after these storms, visibility on the coast and at sea is likely to be much reduced by sand or dust haze.

There is no dust haze with N and E winds, and only occasional and very slight dust with winds from E to SE. Southeast winds can usually be forecast by an increase in the humidity of the atmosphere; it is said that a swell sets in from SE from 12 to 24 hours before the shift of winds occur.

Strong N winds are occasionally preceded by a swell from that direction, but, as the islets and reefs of the Sawakin Archipelago act as a breakwater, a marked swell does not always accompany a strong N wind.

Anchorage.—Good anchorage is obtainable, in a depth of about 11m, outside of the harbor.

4.56 To the SE of Trinkitat Harbor, the coast is low and barren, with salt water marshes, and in places is covered with low bushes. There are a few low sand hills on the coast about 12 miles from Trinkitat Harbor.

Jebel Tagdera (18°14'N., 38°07'E.), an isolated double hill, 122m high, is easily identified. It is the N of the coastal hills in this vicinity.

Jebel Debranka, 198m high, is a large rounded mass with a smooth summit, in a position about 5 miles SE of Jebel Tagdera.

Quoin Hill (18°08'N., 38°16'E.), 111m high, stands on the low coastal plain. It has two distinct conical peaks and bears little resemblance to a quoin.

4.57 Jebel Chelhinde (17°59'N., 38°16'E.), 634m high, is a conspicuous peak with a rounded summit. It seldom stands out clearly, but is unmistakable. Sugarloaf (Jebel Dirtet) are two conical hills, 253m high, about 6 miles NE of Jebel Chelhinde.

Winds—Weather.—The mountains in the neighborhood of Khor Nowarat appear to receive a lot of rain and are frequently hidden in clouds or by sandstorms.

The latter are of common occurrence and may last from 1 day to possibly 4 days. Strong E and S winds, which at times reach force 8, are almost invariably preceded by a thick atmosphere; the hills disappear from view, and it is usually very humid. These winds often set in quickly, and attain a considerable force in a few minutes. If, however, the signs of their approach and the barometer are watched, there is usually ample warning.

Under these conditions, the barometer tends to fall and the daily 1000 local time rise almost disappears. As a rule, the strength of the wind abates toward evening. These winds, known locally as Haboobs, are very hot and usually accompanied by sandstorms. Clearing hills and dry weather are the precursors of fine weather with light N breezes.

Qita Teronbo (18°39'N., 37°48'E.) is a sunken rocky patch, steep-to on its NE side, lying close off the coast. This rocky patch is separated from the coast by a passage about 1 mile wide and with a depth of 6.4m. Anchorage can be taken here in an emergency.

4.58 Ras Asis (18°25'N., 38°09'E.), the N extremity of the Gulf of Aqiq, is low and sandy, with a rocky spit extending about 1 mile E from it. A beacon stands on the E extremity of Ras Asis.

Ras Shakal (Ras Shekub) (18°18'N., 38°17'E.) is an island, 4.5m high, with a narrow channel between it and the mainland.

Two small islets and some coral reef lie to the NE of the island. It is advisable to round the cape at a distance of 4 miles, or in a depth of not less than 55m.

A white masonry beacon stands on the N extremity of the reef, about 1 mile N of Ras Shakal. The beacon has been reported to be difficult to distinguish.

Several dangers extend across the E side of the gulf from Ras Shakal toward Ras Asis, leaving an entrance between the N danger and Ras Asis about 3 miles in width. The Amarat Islands, lying 2 to 4 miles W of Ras Shakal, are two low, sandy islets on a coral reef.

A 7.3m shoal extends 1.5 miles NNE from the E end of the E island; a detached rock with a depth of less than 1.8m lies midway between these islets and the peninsula.

Diamond Shoal, with a least depth of 3.9m, lies NNW of e Amarat Islands; a shoal, with a depth of less than 1.8m, lies about 1 mile farther NNW.

Aqiq (18°14'N., 38°14'E.), a small village on the S side of the gulf, consists of barracks and huts. Three low coral islets fringed by reefs lie from 0.5 mile to 1.5 miles N of the village.

Anchorage can be taken E of the inner islet, in 7.8 to 12.8m, mud and coral.

4.59 Khor Nowarat (18°15'N., 38°20'E.) is a sheltered inlet providing excellent anchorage throughout, in depths of 5.5 to 10.1m. The shores of the bay are low and sandy, in places covered with scrub and mangroves, and fringed with reefs. Parts of the shore are subject to inundation.

There is a chain of islets across the entrance of the inlet which completely shelters the bay and partially obstructs the approach. There are depths of 7.3 to 11m, mud, N of Ibn Abbas Island, and 5.5 to 8.7m SW of the island.

Directions.—The entrance of Khor Nowarat is difficult to distinguish from a distance, but if Jabal Direct can be identified, it leads toward the entrance.

The black rocks on the NW end of Hagar Islet, which are visible about 5 miles distant, should be approached on a 190° bearing.

When the beacon W of Ras Istahi bears 230°, vessels shall steer for that. When clearing the shoals ESE of Guban Island, gradually change course to 132°, bringing the beacon N of Ras Shakal in range astern with the sand spit extending SW from the extremity of Guban Island. This leads to a position off the entrance of the harbor and W of the middle islet of Hagar Islets. Anchorage can be taken here, in 12.8m, sand, or vessels may proceed through the entrance.

Vessels proceeding to the inner anchorages should round Ras Istahi, giving a good berth to the spit extending from it, and then steer SW to clear the shoal W of the 3.3m islet off the NW end of Farrajin Island.

4.60 Ras Istahi (18°16'N., 38°19'E.), the E end of the peninsula separating the Gulf of Aqiq from Khor Nowarat, is the NW entrance point of Khor Nowarat. The point is fringed by a reef, and there is a 5.5m patch about 0.4 mile ESE of the point. A beacon stands on a small sand hill, 4.6m high, about 1 mile W of Ras Istahi.

Obstructing the approach to the entrance of Khor Nowarat are Guban Island, the Hagar Islets, and Farrajin Island.

Guban Island, about 7m high, is separated from the head of the peninsula by a passage about 1 mile wide, but it has patches with depths of 4.1 to 11m obstructing it. Shoal patches, with depths of 5.5 to 10.1m, lie from about 0.2 to 0.4 mile ESE and SE of Guban Island.

The Hagar Islets, which lie from about 1 mile N to 1.5 miles E of Ras Istahi, consist of three low sandy islets lying on an extensive coral reef. These islets are sparsely covered with some grass and shrub. The middle islet is 3.9m high, and the NW islet is 3.6m high. Conspicuous black rocks, 0.9m high, stand near the NW edge of the reef surrounding Hagar Islets.

Farrajin Island (18°14'N., 38°21'E.), 4.5m high, is connected by shoals, with depths of less than 5.5m, to the SE en-

trance point of Khor Nowarat. An islet, 3.3m high, lies at the NW end of the reef extending NW from the NW end of Farrajin Island.

A detached shoal, with a depth of less than 1.8m, lies about 0.1 mile W of this 3.3m islet. A spit, with depths of less than 3m, extends about 0.3 mile N from the islet.

Ibn Abbas Island (18°13'N., 38°19'E.), in the middle of the inlet, is a coral plateau about 4.5 to 6.1m high. The E part of the island is wooded and the W part is sandy. All but the SW side is fringed with reef, and there are coral patches between the E end of the island and Farrajin Island.

A conspicuous 2.7m islet, that is fringed with reef, lies midway between Ibn Abbas Island and the NW end of Farrajin Island.

4.61 The coast SE of Khor Nowarat is very broken to Ras Kasar. It is recommended that vessels approaching the coast in this vicinity first make Darrakah.

Jazirat er Rih (18°11'N., 38°28'E.), an irregularly-shaped peninsula, is low and sandy on its E part. It should not be approached from E because of the off-lying dangers. On its W part are some trees and vegetation, and the coral rock ruins of an ancient town. The highest part of the peninsula is a mound of rocks which is visible from Ras Abid.

To the W of Jazirat er Rih is a bay with depths of 5.5 to 7.3m. Vessels entering the bay should pass N of Jazirat er Rih and between its W extremity and the coast.

The bar in the entrance, with a depth of 3.6m, is a continuation of the coastal reef. A tortuous channel leads SW and S of the peninsula.

4.62 Ras Abid (18°09'N., 38°30'E.), about 2 miles SE of Jazirat er Rih, is a small island, and not a point as implied; its highest part is on its E side. A beacon stands on an island, about 2 miles SE of Ras Abid.

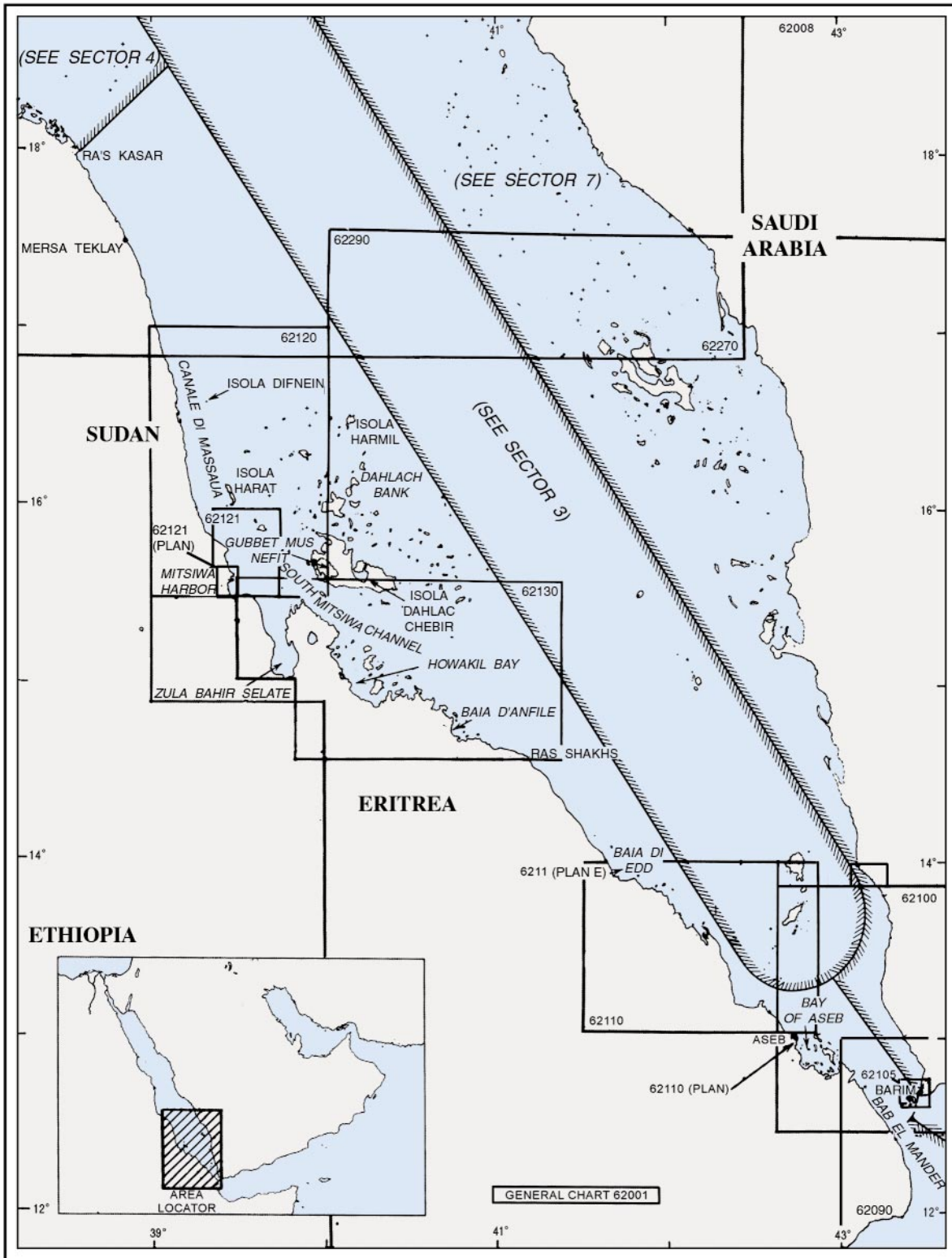
A rocky islet, 1.8m high, lies between Ras Abid and Ras Abu Yabis. The islet is a good mark; NW of it is a low bushy island. Between Ras Abid and Ras Kas, 10 miles SSE, the coast is low and fringed by a rocky bank.

Ras Abu Yabis (18°07'N., 38°32'E.) lies 3.5 miles SSE of Ras Abid. It is the NW extremity of a projection that is low and bushy, with small white sand hills.

A bay, which appears to be shoal, lies on the W side of Ras Abu Yabis. To the S of this cape and near the coast are some conspicuous mountains.

A bank, with a least depth of 27m, was reported to lie about 5 miles E of Ras Abid. A sunken rock, about 6 miles E of Ras Abu Yabis, lies at the S end of a bank with depths of 23.8 and 25.6m. The rock has been unsuccessfully searched for and its position is doubtful.

Ras Kasar (18°02'N., 38°35'E.), about 7 miles SSE of Ras Abu Yabis, is described in paragraph 5.2.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 5 — CHART INFORMATION

SECTOR 5

THE RED SEA—WEST SIDE—SUDAN AND ERITREA—RAS KASAR TO RAS SIYAN

Plan.—This sector describes the W side of the Red Sea between Ras Kasar and Ras Siyan, on the W side of Bab el Mandeb. The general descriptive sequence is SE from Ras Kasar.

General Remarks

5.1 The coast is in general a low-appearing arid plain, rising gradually to the interior plateau. The mountains, some of which attain an elevation of 3,048m, form an escarpment to the plateau and have a peculiarly abrupt and precipitous appearance. No rivers of any importance flow into the Red Sea.

Between Ras Kasar and Mitsiwa Harbor, the plain, with scattered isolated hills, ranging from about 43 to 244m high, varies in width from about 10 to 20 miles. Southeast of Mitsiwa Harbor, the plain is from about 1 to 10 miles wide.

The coast between Ras Sciaks and **Ras Terma** (13°14'N., 42°33'E.) is backed by ranges of high volcanic mountains sloping to the sea. Southeast of Ras Terma, on the W side of the N approach to Bab el Mandeb, the general aspect of the land is high, rugged, mountainous toward the interior, and barren toward the coast. The mountains descend in successive lower ranges toward the coast.

The Inner Channel on this side of the Red Sea continues S as Canale di Massaua, which lies W and SW of the islands and shoals of Dahlach Bank.

Caution.—Unconfirmed reports were received concerning underwater explosions, possibly caused by mines, near ships in the area of Bab el Mandeb.

Additionally, a vessel was believed to have struck a mine at 18°25'N, 40°10'E. Another vessel was reported to have struck a mine in position 26°48'N, 34°39'E.

No further reports have been received concerning mining activities in the Red Sea, and the areas concerned are believed to be safe for surface navigation. However, vessels are urged to exercise the appropriate caution.

Gulf of Aden Voluntary Reporting System.—A voluntary reporting system in support of Operation Enduring Freedom has been established to support surveillance and anti-terrorist operations in the Gulf of Aden and its approaches. For further information, see Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean, Indian Ocean—Navigational Information.

Ras Kasar to Mitsiwa Channel

5.2 Ras Kasar (18°02'N., 38°35'E.) is low, with sparse vegetation, and is not easily identified from a distance. The rocky bank here extends about 2 miles offshore. Between Ras Kasar and Taclai, the N entrance to Mitsiwa Channel, about 34 miles SSE, the coast is fringed with a reef; depths of less than 30m extend up to 15 miles from the coast.

There are few easily identifiable landmarks along this stretch of coast. About 5 miles inland from a position 7.5 miles SSE of

Ras Kasar is a series of low hills; farther inland are mountains, a few of which are sharp enough to be clearly defined.

Middit (17°47'N., 38°36'E.) has two peaks and shows up well from a distance. Abghendabu, about 8 miles SSE of Middit, has a prominent tomb on its S ridge.

Monte Noret (Nohrat), about 6 miles farther SSE, is 106m high at its S end. This rugged ridge of hills rises toward its S end, where it terminates in a bluff.

Scenat (17°31'N., 38°46'E.) lies about 6 miles SSE of Monte Noret. From a distance, Scenat, resembling a fort, appears isolated, and is easily identified.

Tepsa (17°26'N., 38°47'E.), separated from Scenat by land sloping to the coast, has a white color. At sunrise it has the appearance of a white mass with dark rocky hills at either end, but with the sun behind the group, three conspicuous peaks are visible at its S end.

About midway between Scenat and Tepsa, there is an isolated dune, which is a good mark from seaward.

Baki stands about 6 miles SE of Tepsa. A beacon stands on its N shoulder. Several of the hills in the vicinity of Baki have cairns on their peaks, but the beacon on Baki is unmistakable.

West of Canale di Massaua, the character of the Abyssinian Mountains is the same. Flat tablelands prevail, their axis running N and S, but here and there sharp peaks break the line and are good marks when they can be identified.

For the most part, a broad sandy plain rises gradually from the coast to the base of these ranges, where it attains an elevation of about 305m. The plain is dotted with small hills, generally conical in shape, the elevations of which are dwarfed in appearance by the mountains inland and by the almost imperceptible slope of the plain. This should be borne in mind when attempting to identify these hills from the chart.

5.3 Mersa Berisse (18°00'N., 38°35'E.), on the S side of Ras Kasar, is about 2 miles wide. The coast in the vicinity is low, sandy, and backed by high land; a village is on the shore of this bight. The coastal reef extends about 1 mile from the shore in places, and the sea breaks on it. There are depths of 5.5 to 9.1m off this reef, where dhows anchor.

Hasmet (17°44'N., 38°44'E.), about 19 miles SE of Ras Kasar, is a small bight in the coastal reef, where boats anchor.

The shore in the vicinity is low, swampy, and backed by high land.

Samadrisat (17°36'N., 38°49'E.), about 9 miles SSE of Hasmet, is a low projecting point, which is easily distinguished from other parts of this coast by high trees; they front the coast for about 1 mile, there being no other for 20 miles in either direction.

Taclai (17°31'N., 38°52'E.) has a conspicuous one-story brick building with a small tower, about 14.9m high, in the center.

The tower is painted in black and white squares. Around this building are several small houses, and a little farther inland are

two small buildings and some huts. The brick building and tower were reported to be in ruins.

A small, sheltered boat harbor, about 2 miles N of Taclai, is formed by two partially-ruined moles. A few huts and two masonry buildings stand a little S of the harbor. Near the extremity of one of the moles is a beacon.

The coast from Taclai to Mitsiwa Harbor is described beginning in paragraph 5.9.

Mitsiwa Channel

5.4 Mitsiwa Channel is the passage between the coast and Dahlak Bank; the bank is described beginning in paragraph 5.5. The width in the fairway varies from 2.5 to 14 miles, and the depth ranges from 18.3 to 128m, with occasional shoal patches. It is divided into North Mitsiwa Channel and South Mitsiwa Channel, about 210 miles long.

The channels afford a safe and convenient passage, which may be navigated day or night. The passage is lighted, but caution is necessary, as the islands are low, steep-to, and not easily seen.

Winds—Weather.—In North Mitsiwa Channel, the prevailing N winds are stronger during the day than at night. They blow somewhat from the land during the early morning and veer to the NE during the day.

A low barometer is commonly followed about 2 days afterward by a N wind, which sometimes sets in suddenly and rather fresh, while at other times it sets in gradually; in both cases, it is preceded by light clouds. The barometer rises and remains high as long as the winds last.

When S winds prevail throughout the channel, they generally blow strongly from the SE by day, while at night they veer toward the NW and become lighter. The wind from the SW is remarkably dry, but when it shifts to the S or SE, the wet bulb thermometer quickly rises several degrees. The barometer gives no warning of the approach of strong S winds, but falls as soon as the wind commences. These winds seldom last more than 4 days.

In South Mitsiwa Channel, S winds prevail and cause considerable swell, which is experienced S of and near **Isola Sciumma** (15°32'N., 40°00'E.). The remarks as to the shifting of the wind in the N passage also apply here.

Frequently, the wind is SE and fresh to the S of Isola Sciumma, while off Isola Difnein and **Isola Harat** (16°05'N., 39°28'E.), the wind is from the N. Off Mitsiwa, the sea breeze is generally from E.

Tides—Currents.—The direction of the currents is extremely variable. In January and February, the SE winds in the middle of the Red Sea are strongest and cause a S surface current along the shore of the channel. This set is much influenced, however, by the local winds in the channel and by the tidal currents.

In South Mitsiwa Channel, during January and February, S currents have been observed to prevail against S winds, but in March and April, the current sets usually to the N. However, the current seems to be governed to a great extent by the local winds.

During April of one year, after 5 days of continuous SE winds, the current was found to be setting NW off Ras Kasar at a velocity of 1.5 knots.

In North Mitsiwa Channel, the tidal currents set S during the rising tide and N during the falling tide; they are often very regular. At other times, the S current does not cease but is only checked by the N current.

In South Mitsiwa Channel, the tidal currents are weak and variable; they appear to meet in The Narrows, in the vicinity of Isola Sciumma.

Anchorage.—Anchorage can be taken nearly anywhere along the W shore of North Mitsiwa Channel. In most places, there is no shelter from SE winds. The holding ground is generally good, and, except in South Mitsiwa Channel, the space is too confined for much sea to get up.

Dahlak Bank

5.5 Dahlak Bank (16°00'N., 40°00'E.), a vast area consisting of islets, islands, rocks, reefs, and shoals, obstructs the offshore approaches to the coast in this part.

The dangers on Dahlak Bank extend from Saunders Reef in latitude 17°12'N, to and including Seven Fathoms Bank in latitude 14°52'N, a distance of about 182 miles in a SE direction; these dangers are best seen on the chart.

In general, the depths on this bank are less than 73m, the outer edge of the bank being steep-to and at one point lying 78 miles from the coast.

The islands on this bank are fringed by reefs; they lie between the parallels of 16°37'N and 15°23'N, with the N island being Isola Difnein, and the S island being Isola Bullissar. The channels between these islands are of moderate depth and interspersed with many shoal patches.

For about 50 miles S of **Isola Entaentor** (16°20'N., 40°14'E.), the dangers are almost continuous; no channel exists across this part of the bank to the W shore.

Caution.—Dahlak Bank is composed principally of sand and coral, with occasional patches of mud. From the nature of the bottom, there is a great probability that uncharted shoal patches exist; due caution should therefore be exercised when navigating in this area. If large in extent, the coral reefs are sometimes visible, but those of sand cannot be distinguished from the light-colored water prevalent on the banks.

In most parts of the Red Sea, the reefs are steep-to and can easily be distinguished by the difference in color of the water, as they nearly always show white.

Mariners are advised to proceed with particular caution when navigating in the reef area anywhere E of North Mitsiwa Channel. The area is inadequately surveyed and uncharted shoals may exist.

5.6 Saunders Reef (17°11'N., 39°24'E.), the N danger on Dahlak, is a 3.5m coral patch on which the sea has been seen to break.

Fawn Reef (Secca Fawn) (16°59'N., 39°35'E.), lying 16.5 miles SE of Saunders Reef, has a depth of 5m. Other banks, with depths of as little as 5m, lie within 9 miles of Fawn Reef.

Gannet Bank (16°59'N., 39°13'E.), with a least depth of 6.7m, lies 16 miles SW of Saunders Reef. The position of this bank is not always indicated by discolored water, but when the current is setting, swell and ripples are apparent.

Isola Harmil (16°31'N., 40°10'E.), the N island on Dahlak Bank, is low, wooded, and irregular in shape. A projection of a reef extends about 1 mile SE from the SE end of the island.

Isola Seil Harmil, lying on the extremity of this projection, is marked by a beacon.

Several isolated shoals, with depths of as little as 5.8m, lie between 14 miles N and 20 miles SSE of Isola Harmil. Soundings are reported to give little warning of their proximity.

Isola Difnein (16°37'N., 39°20'E.), the NW island on Dahlak Bank, is covered with mangroves. Parts of the coasts of the island are fringed by reefs. There is a water tank on its SW point. The island is marked by a light. Isola Difnein is reported to give a good radar return up to a distance of 13 miles.

Caution.—Caution is necessary on that part of Dahlak Bank lying N and E of Isola Difnein. This area has been only partially surveyed, and there are many indications of shoal patches not yet charted.

5.7 Secca Duo Braccia (16°37'N., 39°29'E.), with a least depth of 3.7m, lies on an 18.3m bank about 9 miles E of Isola Difnein, and can usually be seen. A detached 5.5m shoal lies close W of the middle of Secca Duo Braccia.

A current was observed setting W in the channel, W of Isola Difnein and in the vicinity of Secca Duo Braccia, at a velocity of 1 knot. Between Difnein and the coast, a NW current, up to 2 knots, was experienced when the wind was from E to SE.

Isola Asbab (16°26'N., 40°05'E.), about 4 miles WSW of the SW extremity of Isola Harmil, is low and bushy. It is fringed with sunken rocks on its E and SE sides. A beacon stands on Isola Asbab.

Isola Entesile (16°30'N., 39°19'E.), about 7 miles S of Isola Difnein, is small, 6.1m high, and covered with dense bush. It is fringed by reef; a bank with depths less than 5.5m extends about 1 mile N from the islet. A shoal, with a least depth of 6.4m, lies close S of the islet. Anchorage can be taken NW of Isola Entesile, in 22m, coral, but the depths increase rapidly.

Isola Entaentor (16°20'N., 40°14'E.) is low, bushy, and fringed by a reef, with a beacon standing on the N part of the island. Anchorage can be obtained, in 18m, about 1 mile W of the beacon.

Between Isola Entaentor and the N side of Dehalak Deset, about 29 miles SSW, is a line of islands and islets, all lying on a shallow bank, on which are many rocks. These islands, which may best be seen on the chart, are low and composed of sand and coral.

Many other dangers lie from 18 miles NE of Isola Entaentor to 70 miles SE of Ras Scioche, the SE extremity of Dehalak Deset, and may best be seen on the chart.

5.8 Isola Hucale (16°20'N., 40°05'E.), low and bushy, lies about 9 miles W of Isola Entaentor. Isola Seil Anber, small, wooded, and 9m high, is about 5 miles W of Isola Hucale.

Isola Isratu (16°20'N., 39°53'E.), one of the highest islands on Dahlak Bank, has several small peaked hills. A peninsula, terminating in Ras Haral, extends about 2 miles S from the SE end of the island. A beacon stands on the E extremity of Isola Isratu. A beacon stands on Ras Haral. The SW end of the peninsula close W of Ras Haral is marked by a beacon. Another beacon stands on a hill on the SW side of the island.

Isola Seil Adasi (16°20'N., 39°56'E.) is marked by a beacon.

Isola Enta-idell (16°08'N., 39°51'E.) is sandy and rocky. A beacon stands on the W side of the island.

Isola Adbara Chebir (16°00'N., 39°50'E.) is marked by a beacon. Isola Dehel, 6.1m high and flat, lies about 11 miles WSW of Isola Adbara Chebir. Near the NW side of the island is a village with a white square mosque. About 0.5 mile SE of this village is a grove of tall palms.

Isola Dur Gaam (15°47'N., 39°45'E.), wooded and fringed by a reef, lies in a position 8.5 miles SE of Isola Dehel. A beacon stands on Isola Dur Gaam.

Isola Dur Ghella, 2 miles E of Isola Dur Gaam, is a narrow, wooded island. A beacon stands on the S extremity of Isola Dur Ghella.

Taclai to Mitsiwa

5.9 Taclai (17°31'N., 38°52'E.) has been previously described in paragraph 5.3. Beacons, 3m high, stand near the coast, about 10 miles and 12.5 miles SSE of Taclai; the latter beacon is reported partly in ruins, but is still visible.

Kavet (Cavet) (16°58'N., 39°03'E.) is 34 miles SSE of Taclai. A conspicuous wreck lies on the shore approximately 4.5 miles NNW of Kavet.

Victoria Peak (16°52'N., 38°32'E.), dome-shaped and 2,256m high, lies at the N end of a flat range and, when visible, is the most easily-identified mark for the entrance of the N passage. This peak appears the same from all directions and is the highest mountain in the vicinity.

The Paps, about 26 miles ESE of Victoria Peak and 11 miles inland, is a double-peak hill. On some bearings, it appears as three peaks, and with the smaller hills near, it may often be seen when the higher peaks are obscured. The Paps rises about 183m above the surrounding plain.

Termab (16°39'N., 38°40'E.), 132m high and on which there is a white cone, stands 17 miles SE of the Paps.

Handellai (Kandellai) (16°37'N., 39°10'E.), an islet on the coastal reef 22 miles SSE of Kavet, is covered with mangroves and not easily identified until close. The coast in this vicinity consists of mangrove swamp; the coastal reef here extends 2 miles offshore.

5.10 Mersa Gulbub (16°25'N., 39°11'E.), lying about 11 miles S of Handellai, is a small indentation in the coast. A plantation, with an airfield close S of it, is situated near the shore; otherwise the coast for several miles on each side is completely barren.

Ras Kuba (16°20'N., 39°12'E.) lies 5.5 miles SSE of Mersa Gulbub. The intervening coast is sandy, with several off-lying shoals. The coast from Ras Kuba to Ras Arb, about 36 miles further SSE, is also sandy.

Melahat (16°02'N., 39°15'E.), 18 miles S of Ras Kuba, and its locality are backed by swamps, beyond which are ranges of low, barren sand hills. Salt works stand near the coast, about 7 miles SSE of Melahat. They are generally well lighted at night and provide a good mark.

Isola Harat (16°06'N., 39°28'E.) presents a uniformly flat outline. The N part of the island is 10.6m high; the S part is 9.1m high, with a few bushes, some huts, and a beacon.

Isola Sceic El Abu, low and sandy, lies on the S side of the reef that extends W from the S side of Isola Harat. The islet is marked by a light.

Secche Harat, extending about 9 miles NNW from the N extremity of Isola Harat, has depths less than 11m and is generally visible.

A series of small banks, with a least depth of 9.1m, extends about 6 miles farther NNW.

Seil Badira, a small islet 4.5m high, lies on Secche Harat, in a position about 2 miles N of Isola Harat.

A detached shoal, with a least depth of 10.1m, principally sand, lies about 11 miles NNW of the N end of Isola Harat; this shoal shows distinctly.

Anchorage can be taken, in 14.6m, about 2 miles NW of the SW end of Isola Harat, clear of the dangers off the W side of the island.

Ras Arb (15°48'N., 39°26'E.) is reported to be low, rounded and sandy. The coastal bank extends about 1 miles E from the point; large masses of floating weeds have been observed in this vicinity. Ras Arb is reported to give a good radar return up to a distance of 27 miles.

Secca Oreste, with a least depth of 7m, sand and coral, lies about 3 miles E of Ras Arb.

Emberemi Tomb is about 5 miles SSW of Ras Arb and about 1 mile inland. It has a domed roof and is conspicuous from N. In clear weather it can usually be seen from a distance, and even in hazy weather it can usually be distinguished.

5.11 Jebel Karamburra (15°43'N., 39°08'E.) is a rounded summit, about 2 miles from NW end of a range of hills, which are about 8 miles long. When the higher mountains are visible, the hills of this range appear insignificant, but they often show well when the former are obscured.

Jebel Karamburra, being nearly detached from the range and of a bold rounded form, makes a good mark under such circumstances.

Ras Dogon (15°38'N., 39°29'E.), the N entrance point to Mitsiwa Harbor, lies about 9 miles SSE of Ras Arb.

Directions.—If arriving from the N and bound through North Mitsiwa Channel, pass about 10 miles E of **Dawn ash Shaykh** (18°37'N., 38°50'E.) and then make good a course of 188° for Taclai.

When about 5 miles off the coast on the latter track, alter course to the SSE, keeping from 3 to 5 miles offshore. It may be well to keep a little closer inshore in the vicinity of latitude 17°07'N, to avoid the patches on the E side of the channel.

It should be borne in mind that the reefs close off the mainland do not always show, and that the reefs on the E side of the channel are steep-to.

From a position 4 miles E of **Ras Arb** (15°48'N., 39°27'E.), steer to pass 2 miles NE of Isolotto Madote and 7.5 miles NNE of Ras Gurma. Mount Faraon is a good landmark.

From this position, steer to pass 5.5 miles NNE of Punta Shab Shakis, taking care to avoid a small coral bank 7.5 miles NNE of the point. If heading N in this channel, follow the directions in an inverse order.

Caution.—The area between the S end of the Suwakim Archipelago and Isola Difnein has not been closely examined, except for a distance of about 10 miles offshore from Ras Kasar to the S.

The general prevalence of thick haze in winter often renders the approach from the NE to the N passage by the aid of shore marks difficult, and sometimes impossible.

As a rule, when the haze is thickest, the sky is clear, and astronomical observations can be obtained.

When clouds prevail, usually with N winds, the land is comparatively clear, although the highest peak may be capped.

A landfall should be made near Kavet, if possible, shortly before daylight, because of the difficulty in distinguishing the disused light structure in hazy weather.

Mitsiwa Harbor (Massaua) (Massawa) (15°37'N., 39°28'E.)

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5.12 Mitsiwa Harbor is separated by several islands, connected to the shore by causeways, and peninsulas into three main sections.

The bays are grouped as Dachilia (Khor Daklyat); Seno Cherar and Seno T'walet Ye Bahir Weshmet (Gherar Bay and Taulud Bay); and Hirghigo Bahir Selate (South Anchorage). Fringing reefs and shoal patches encumber most of the water areas of the port.

Winds—Weather.—Land and sea breezes prevail throughout the year. The sea breezes blow from the NE and are always stronger than the land breezes. Strong SE winds raise a swell and the connecting causeways are sometimes flooded.

In summer, when the sea breezes are usually light, there are many days of calm with very high temperatures. During this season, sudden squalls, forewarned by dense curtains of sand, come down from the hills. Vessels intending to remain should moor with care. These squalls are rare in winter.

In the winter, W winds prevail in the morning, SE winds prevail in the afternoon, and S winds prevail in the evening. In the summer, N winds prevail in the morning, NE winds prevail in the afternoon, and E winds prevail in the evening.

Heat and humidity are serious problems. Temperatures reach their highest during June through September, when they are accompanied by the greatest humidity. The climate of Mitsiwa is intensely hot but generally not unhealthy; fever appears to be prevalent from the end of April to the early part of May.

Tides—Currents.—Tides here are semidiurnal, with a mean range of 0.7m. The spring range is 0.9m.

Depths—Limitations.—The 20m curve lies close off the entrances to Dachilia and the Commercial Harbor. Seaward of this line lie depths of 30m and over, while inshore, fringing reefs extend up to 0.3 mile offshore. Depths off the entrance to the South Anchorage range from 11 to 26m, but fringing reefs and shoal patches are present.

The port can accommodate vessels up to 27,000 dwt, with a maximum draft of 9.6m.

Mobil Oil Terminal (Oil Pier) (Marine Pier) extends NNW then NW from the S entrance point of Dachilia. Tankers berth stern-to. Berthing and unberthing can be done only during daylight hours.

The AGIP Oil Terminal extends from the W shore of Hirghigo Bahir Selate, to which vessels usually tie up stern-first and med-moor.



Mitsiwa Harbor

Additional berthing information is given in the accompanying table.

Aspect.—When seen from a distance, the light structure on the E end of the island of Mitsiwa is conspicuous. Other good landmarks are the water tower, about 0.2 mile W of the E end of the island of Mitsiwa; the Governor’s Palace, a white building with a damaged dome, on the N end of the island of Taulud; and Sheikh Said, a sandy island covered with mangroves, S of the island of Mitsiwa. A rough stone breakwater extends about 0.2 mile SSE from the SW extremity of Mitsiwa.

A naval signal station, 33m high and painted blue, stands close SE of the radar tower, near the root of the N breakwater. A conspicuous chimney stands about 1 mile NNW of the N extremity of the mole in Dachilia.

Pilotage.—Pilotage is compulsory for vessels over 200 grt. The pilot boards about 1 mile E of the harbor entrance. Pilots board from a white launch with the letter “P” painted in black on the vessel’s sides. The pilots can be contacted on VHF channel 12, 14, or 16.

Vessels should pass their ETA to the pilot through the vessel’s agent at least 72 hours in advance, confirming or amending it 48 hours and 24 hours before arrival.

The port authority can be contacted by e-mail, as follows:

massport@tse.com.er



Mitsiwa Harbor—Governor’s Palace

Regulations.—Only one vessel may maneuver in the harbor at a time.

Vessels are required to maintain enough members of the crew aboard to enable the vessel to be moved at any time.

The vessels engines shall not be shut down completely without the harbormaster’s permission.

Mitsiwa Harbor—Berth Information				
Berth	Length	Depth alongside	Maximum draft	Remarks
Commercial Pier				
No. 1	176m	4.0-6.0m	5.0m	General cargo and containers.
No. 2	150m	6.3-8.0m	7.5m	General cargo and ro-ro vessels.
No. 3	137m	8.4-8.8m	8.7m	General cargo.

Mitsiwa Harbor—Berth Information				
Berth	Length	Depth alongside	Maximum draft	Remarks
No. 4	137m	7.9-8.0m	8.4m	General cargo.
No. 5	137m	8.0-8.2m	12.0m	General cargo.
No. 6	210m	12.0m	12.0m	General cargo and containers. Can also be used for explosives with prior permission.
Other Facilities				
AGIP Oil Terminal	185m	9.0m	9.0m	Oil tankers.
Mobil Oil Terminal	176m	—	8.6m	Oil tankers.
Salt Berth	—	9.6m	8.8m	Extends 110m SSE from the Gherar Peninsula. Vessels normally drop anchor before berthing.
Cement Berth	—	—	5.4m	Cement.

Mitsiwa Harbor Traffic Signals		
Day signal	Night signal	Meaning
One black ball or one black triangle	One red light	A vessel is entering, leaving, or maneuvering in the port. When this signal is shown, no other vessel may enter or leave the port.
Flag Z	Two red lights over one white light, vertically disposed	A vessel approaching the port is 15 miles distant from N.
	Two white lights over one red light, vertically disposed	A vessel approaching the port is 15 miles distant from S.
Pennant No. 2	Two red lights, vertically disposed	A vessel approaching the port is 10 miles distant from N.
	Two white lights, vertically disposed	A vessel approaching the port is 10 miles distant from S.
Flag O	One red light over one white light, vertically disposed	A vessel approaching the port is 5 miles distant from N.
	One white light over one red light, vertically disposed	A vessel approaching the port is 5 miles distant from S.

Signals.—The port signal station is in Mitsiwa about 0.2 mile W of Ras Mudur. Traffic signals, consisting of lights at night and flags of the International Code of Signals by day, are shown from the signal station. The signals and their meaning are given in the accompanying table.

Vessels bound for Mitsiwa Harbor should establish radio communication with the Mitsiwa Radio Station.

Anchorage.—If advised to anchor out by the signal station, anchorage is available about 1.75 miles ESE of the S breakwater, in 38m, mud.

Anchorage can be taken, with the permission of the port manager, in the harbor N of the island of Mitsiwa, in 10.9 to 16.4m, mud, good holding ground, but with little swinging

room. The entrance range is a good mark for anchoring and vessels may haul their sterns into the main quay.

In Dachilia, anchorage can be taken, in 10.9m, mud, in its outer part, or in lesser depths in the NW part. Anchorage is prohibited in the area as shown on the chart E of the entrance of Dachilia. It is also prohibited in the area between the islands of Mitsiwa and Sheikh Said.

In the South Anchorage, which is entered S of **Sheik Said Island** (15°36'N., 39°29'E.), vessels can take anchorage, in 11.9m, about 0.3 mile WSW of the S end of the island of Taulud. It is encumbered by reefs extending from the shore and by isolated shoals.

Caution.—Many war-damaged buildings may not be useful for navigational reference.

A wreck, best seen on the chart, lies in the entrance to Seno Twalet Ye Bahir Weshmet and has a least depth of 10.7m. A dangerous wreck lies sunk in a position about 0.8 mile W of the S end of the island of Taulud.

A concrete column, about 2m in diameter and sometimes showing 1m above water, stands on the S side of the fairway, in a position about 1 mile S of the S end of the island of Taulud.

Navigational aids are unreliable. They may be missing, unlit, or out of position.

Mitsiwa to Aseb

5.13 Hargigo Bahir Selate (15°33'N., 39°30'E.) is entered between Sheikh Said and Ras Nauret, a point marked by a beacon about 5 miles SE. The AGIP Oil Terminal, located on the W side of the bay, as been described in paragraph 5.12. The coast in the vicinity of the bay is low, rising gradually to the base of the coastal hills. Archico, a village on the W shore of the bay, has several white houses, a conspicuous minaret, and a pier.

Ras Amas (15°32'N., 39°35'E.), a coral point lying about 1 mile ESE of Ras Nauret, is low and rounded. A 4.9m shoal, marked by discolored water, lies about 2 miles E of Ras Amas.

Zula Bahir Selate (15°30'N., 39°40'E.) is entered between Ras Amas and Ras Corali, the N extremity of Penisola di Buri. Deep water is generally found near the shore, though in places reefs extend about 1 mile offshore.

Monte Ghedem (15°25'N., 39°33'E.), on the W side of the gulf about 6 miles S of Ras Amas, is prominent and in clear weather can be seen from N of Isola Harat. This landmark, an isolated wooded mountain mass, is irregular in shape and rounded. The summit consists of a small pyramidal peak with several small peaks of nearly the same elevation.

Isola Dissei (15°28'N., 39°45'E.) is volcanic, with a series of conical peaks, the summit of which is Monte Dissei, in its S part. A beacon stands on the summit of Monte Dissei. A reef extends 4.5 miles N from Isola Dissei, almost connecting with the reef fringing Isolotto Madote, which is described in paragraph 5.16.

Monte Aleita, in a position about 13 miles SSW of Ras Corali, when seen in range with Isola Dissei appears wedge-shaped, the bluff being to the NW.

Anchorage.—Anchorage can be taken off the entrance of a small inlet on the SE side of Isola Dissei. A good berth is in 12.8m, sand, with the N part of the inlet bearing 290° and Monte Dissei bearing 218°.

Care should be taken in approaching this anchorage, as the depths decrease rapidly. A shoal with depths of 0.9 to 4.5m and some rocks at its SE end lies about 0.3 mile ENE of Monte Dissei and about 0.1 mile offshore.

5.14 Isola Ota (15°30'N., 39°49'E.), small and flat-topped, lies about 3 miles W of Ras Corali, at the N end of a drying reef extending S to the coast.

Canale di Dissei (15°30'N., 39°48'E.), lying between Isola Ota and Penisola di Buri on the E and Isolotto Madote and Isola Dissei on the W, is generally deep, though several shoals and rocks lie in it.

Seil, an islet, 17m high and fringed by a reef, lies in mid-channel, about 2 miles E of Monte Dissei; Seil can be passed on either side.

Two white rocks, 3.9m high and fringed by a reef, lie about 1 mile SSE of the S end of Isola Dissei; a 3.2m patch lies midway between them.

About 1 mile ESE of these rocks are two more white rocks, 4.5m high, also fringed by a reef. Indore Rocks, a group of coral heads with less than 1.8m, lie about 0.3 mile E of the latter two rocks.

It was reported that even in a favorable light, these coral heads cannot be seen from aloft. Vessels proceeding through the S entrance of Canale di Dissei should keep to the E side of the passage, where the coastal reef is steep-to and extends about 0.2 mile offshore.

5.15 Ras Makato (Ras Malcatto) (15°15'N., 39°43'E.) lies 18 miles SSE of Ras Amas. The intervening land rises gently from the coast to Monte Ghedem and other high land. The village of Zula lies 2.5 miles W of the point.

The ancient Greek ruins of Adulis lie 0.7 mile NW of the village. A pier stands close S of Ras Makato.

Anchorage can be taken, in about 20.1m, about 1 mile off Ras Makato.

Arafali (15°05'N., 39°45'E.), a village at the head of Zula Bahir Selate, consists of a collection of mud huts. There are three conspicuous extinct craters about 1 mile S of the village.

Vessels can take anchorage close off Arafali, in 9.1 to 37m, mud, W of a shoal with a least depth of 3m extending NE from the village.

Dolphin Cove (Seno de Dolphin) (15°08'N., 39°50'E.), a small bight in the coastal reef, has general depths of 6.4 to 14.9m. The shore of the bight is low and flat, but about 1 mile inland the land rises to a rocky ridge 150m high.

Two beacons, in range 084°, lead through the entrance to the anchorage, in 12.8m, sand and mud, good holding ground.

Melita Bay (Baia di Melita) (15°15'N., 39°49'E.), entered E of Ras Nasiracurra, is nearly filled with reefs; the shore consists of mangrove swamp, backed by a grassy plain about 6.1m high. A beacon, 3m high, stands on the edge of the plain in the NE part of the bay. A 4.5m shoal extends about 1 mile S from Ras Nasiracurra. Several detached patches, with depths of 6.7 to 11.9m, lie 0.5 mile SSE through E of the same point.

Anchorage.—Anchorage, sheltered from all except S or SW winds, can be obtained in the entrance of Melita Bay, in about 18.3m, sand and coral.

5.16 Isolotto Madote (15°35'N., 39°46'E.), on the SW side of the fairway leading to The Narrows, is 2.4m high and sandy. The islet lies on the W side of a reef. The S edge of this reef is nearly connected to the reef extending N from Isola Dissei. The islet is marked by a light.

Secca Mugiunia (15°36'N., 39°43'E.), about 3 miles NW of Isolotto Madote, is a rocky patch that is partially awash and generally visible.

Anchorage.—Anchorage can be taken, in 18.3 to 27.4m, about 1 mile NW of Isolotto Madote; the depths increase rapidly farther out. Anchorage, in 16.5 to 20.1m, is also available 0.5 to 1 mile NE of Secca Mugiunia.

The Narrows (15°33'N., 39°57'E.), lying between the N part of Penisola di Buri and the SW side of Dehalak Deset, consists of three deep channels, divided by Isolotti Assarka and Isola Shumma.

The reefs fringing the mainland and islands are steep-to and visible; the land on either side consists of coral cliffs, about 1.8m high, which are well-defined.

The main channel, between Isolotti Assarka and Isola Shumma, is 2.5 miles wide, with 58 to 75m in the fairway, and passes NE of the 10.1m shoal about 2 miles ESE of Isolotti Assarka.

Isolotti Assarka (15°32'N., 39°55'E.), two small islets about 1 mile apart, lie on the SW side of the main channel. The NW islet is 6.1m high and mostly bordered by low cliffs. A bank, with a least depth of 3.9m, extends about 1 mile from the SE end of the NW islet.

The SE islet is 4.5m high and sandy; a drying reef extends about 1 mile SE from it. A bank, with a least depth of 8.5m, extends S from the SE islet. The NW islet is marked by a light.

Isola Shumma (15°32'N., 40°00'E.), on the NE side of The Narrows, is 15m high, marked by a light, and bordered by reefs extending as far as 0.5 mile from its NE and SW sides.

5.17 Port Smyth (15°32'N., 39°59'E.), an opening in the coastal reef on the SW side of Isola Shumma, affords anchorage, in 5.8 to 7.6m, sand and weed, good holding ground.

The entrance, about 110m wide and with a least depth of 6.7m, lies between the edge of the reef on the SE side and a 1.8m patch on the NW side.

A beacon, 2.4m high, marks the edge of the reef on the SE side of the entrance; another beacon, 2.4m high, marks the 1.8m patch on the NW side of the entrance.

A rocky patch, nearly awash, marked by a pole beacon surmounted by a cylinder, lies about 0.1 mile NE of the SE entrance point.

Two buoys, about 46m apart, lie near the edge of the reef on the NW side of the entrance.

Two beacons, in range about 056°, stand at the head of Port Smyth and lead in through the entrance.

The front beacon is a white stone pyramid, while the rear beacon is a stone pyramid that is painted in black and white bands.

A vessel should enter this port on the range line until the beacon on the rocky patch about 0.1 mile within the entrance bears about 100°, then alter course N and anchor as convenient. It is prudent to have a boat ahead when entering. A pier extends from the shore, close SE of the front range beacon.

The NE coast of Penisola di Buri is low, and, in places, reefs extend as far as 0.5 mile offshore. Monte Dule, a conical hill rising to a height of 218m, stands about 10 miles SSE of Ras Corali. This landmark is the summit of a range of hills extending NW.

Monte Dule forms a good landmark, but must not be mistaken for Monte Dissei on Isola Dissei; the latter has a similar appearance from N, but is only half its height.

Isola Delemme (15°30'N., 39°54'E.), 7.6m high and partially wooded, lies on the edge of the coastal reef, close E of Ras Corali. During S winds, there is fair anchorage, in 18.3 to 27.4m, mud, NW of Isola Delemme. Strong SE winds send a

troublesome swell into this anchorage. Landing is difficult at times.

Isolotto Umm Namus, small and with conspicuous white sand patches on the N and S sides, lies in a position about 10 miles SE of Isola Delemme.

Sheltered anchorage can be taken between the coast and Isolotto Umm Namus according to the direction of the wind; it should be taken nearer the islet, both for shelter and to avoid the 6.9m patches off the coast.

Fawn Shoal (15°23'N., 40°10'E.), with a depth of 8.7m, lies about 5 miles E of Isolotto Umm Namus. Discolored water has been reported about 2 miles NE of the shoal. A well head, with a depth of 14.6m, lies about 2 miles E of Fawn Shoal.

Isola Dehalak Deset (15°37'N., 39°58'E.), the largest island on Dahlak Bank, is generally low.

Monte Im Ium (15°43'N., 40°02'E.), a conspicuous wedge-shaped mound when seen from SW, stands on the NE shore of Gubbet Mus Nefit. A beacon stands on Monte Im Ium.

Ras Malcomma (15°37'N., 39°58'E.), the SW extremity of Isola Dehalak Deset, has a drying reef extending about 2 miles W. Seil Baius, a small black islet, stands on this reef.

Isolotto Enteara, 1.8m high and sandy, lies at the W end of a bank, with depths less than 18.3m extending about 5 miles WNW from Ras Malcomma. Its beach shows in the sun.

A channel, nearly 0.5 mile wide, lies between the reef fringing Isolotto Enteara and the coastal reef extending W and NW from Ras Malcomma.

Vessels may anchor in this channel, but it should be approached with caution.

5.18 Gubbet Mus Nefit (Sogra) (15°41'N., 40°00'E.), a large bay on the W side of Isola Dehalak Deset, is deep, but vessels can anchor close to the shore. Nokra Deset divides the entrance of the bay into two channels.

The channel S of the island is about 0.1 mile in width and has depths of 10.1 to 25.6m, which increase rapidly both inside and outside the channel. The channel N of the island is suitable for boats only.

Nokra Deset (15°43'N., 39°56'E.) is interspersed with small valleys, low patches of grass, and a few palms. On the S side of the island there is a village; on the NE shore of the island there are two inconspicuous lime kilns.

A reef, nearly awash, extends about 1 mile SSE from the N shore of the bay, close within the entrance, E of Isola Nokra Deset. A small islet lies on the W edge of the middle of this reef.

Tides—Currents.—Tidal currents in the entrance of the bay attain a velocity of 1 to 3 knots. Vessels should enter or leave when the current is setting in the opposite direction to which the vessel is proceeding, and about 15 minutes before the time of HW or LW, when the tidal currents do not have a velocity of more than 1 knot.

Aspect.—Two beacons, in range 031°, lead through the first reach of the main channel S of Nokra Deset. The front beacon, a white pyramid, stands close offshore S of the village on the S side of the island; the rear beacon, a black pyramid, stands about 1 mile NNE of the front beacon.

Another rear beacon, a white pyramid with a black stripe, stands about 0.1 mile W of the above front beacon. These two

beacons in range 276° lead through the second reach of the main channel.

A beacon stands on the SE edge of a reef close off the SW extremity of Nokra Deset.

A buoy marks the SE entrance of the channel, and is moored about 0.3 mile SE of the SW extremity of Nokra Deset.

A beacon stands on Isola Dehalak Deset, about 0.2 mile ESE of **Ras Bulul** (15°42'N., 39°57'E.).

A beacon stands on the small islet lying on the reef which extends SSE from the N shore of the bay E of Nokra Deset.

A beacon stands on a rock, awash, on the above reef, about 0.3 mile SSE of the small islet.

A beacon stands on Nokra Deset, also in a position about 1 mile NW of the island's SE extremity. Another beacon stands on a point about 2 miles NE of the same point.

Anchorage.—Anchorage can be taken, in 9.1 to 14.6m, sand, in the channel E of Nokra Deset about 1 mile N of the island's SE extremity.

Anchorage can also be taken, in 18.3m, sand, in the outer part of an inlet on the SW side of Gubbet Mus Nefit and about 2 miles SE of the entrance of the bay.

One can anchor in an inlet about 4 miles farther SE, in 12.8 to 20.1m, sand.

Penisola di Buri to Ras Shakhs

5.19 Howakil Bay (15°10'N., 40°15'E.) is a extensive bay lying between Ras Lamma Tacaïto, the SW extremity of the N coast of Penisola di Buri, and Andeba Ye Midir Zerf Chaf, about 31 miles ESE. The bay is encumbered with islands and reefs.

There are several good anchorages under the lee of the outer islands, but great caution is necessary in approaching them.

There are numerous mountains and hills inland in this vicinity, some are in ranges while others are isolated volcanic cones.

In very clear weather, the Ethiopian mountains may be seen rising in successive ranges to an elevation of about 3,050m.

Andeba Ye Midir Zerf Chaf (Ras Andadda) (15°02'N., 40°32'E.) is the N extremity of a promontory, on which rise two double-peaked hills.

Beach Hill, a conspicuous double-peaked hill, rises close within **Ras Herbe** (15°00'N., 40°34'E.).

It can be seen for a distance of 18 miles and has the appearance of an island, the land around being very low. Other volcanic hills rise from the plain behind Beach Hill, but they are not quite as conspicuous.

Secca Muhammad (15°09'N., 40°44'E.), 13 miles NE of Ras Herbe, has a least depth of 3.6m, coral, and is visible from some distance. A 15.5m coral patch lies about 5 miles SSE of Secca Muhammad.

Abu el Cosu (15°18'N., 40°34'E.), about 13 miles NW of Secca Muhammad, is a steep-to coral reef that shows well. A large portion of this reef dries.

Ras Gormal (14°58'N., 40°38'E.), 4.9m high and connected to the coast by a low neck of sand, has the appearance of an island from close inshore.

Ras Manrec (14°54'N., 40°43'E.) is a peninsula presenting a broad face seaward. This peninsula is connected to the coast by a low neck of sand, and backed by a mangrove swamp.

Several shoals of 9.6 to 11.4m lie close within the 20m curve along this part of the coast.

Anchorage.—During fine weather, anchorage can be taken, in places, from 1.5 to 3 miles off this part of the coast, in 14.6 to 25.6m.

5.20 Anfile Bay (Baia d'Anfile) (14°45'N., 40°50'E.), encumbered with many islands and shoals in depths less than 11m, is entered between **Isola Midir** (14°52'N., 40°45'E.) and **Ras Anfile**, about 11 miles SE. The land backing the shore is a vast plain dotted with small hills.

Monte Faraon, about 4 miles SW of Isola Midir, consists of three black cones, the S and highest of which rises to 130m. The N is 128m high and the third cone is lower and truncated. These cones are very conspicuous on a clear day.

Isolotti Barm-al-Agi lie on a bank with a least depth of 2.7m, which lies in the entrance of Anfile Bay, E of Isola Midir. The outer islet, 5.8m high, is flat and bare; the inner islet, which is the larger of the two, is 10m high with some bushes on it.

A shoal spit extends about 1 mile W from the W end of the outer islet; a 5m patch lies about 2 miles SE of the same islet. Shoals and reefs surround the inner islet and extend as far as 0.5 mile SW from it.

Anchorage.—During S winds, good anchorage can be taken, in 12.8 to 14.6m, sand and mud, about 1 mile N of the inner islet of Isolotti Barm-al-Agi.

Anchorage can also be taken, in 16.5m, mud, and about 1 mile S of the same islet. Derebsasa Deset (Isola Grabsus), about 1 mile N of Ras Anfile, is 7.6m high and covered with bushes. A beacon stands on the W part of the island.

A shoal spit extends about 1 mile SW from the W end of the island and terminates in a rock, awash.

Anchorage can be taken, in 11.9 to 14.6m, sand, about 1 mile N of the W end of the island.

5.21 Ras Anfile (14°43'N., 40°53'E.) is coral and fringed by a reef; on SSW bearings it has the appearance of an island.

The coast between Ras Anfile and Ras Shakha, about 18 miles ESE, is low and sandy, with several small indentations, but shows as an unbroken line. Several shoals, with depths less than 6.9m, lie as far as 2.5 miles off this part of the coast.

Ras Anrata (14°42'N., 40°57'E.) is low and has the appearance of an island close to the shore.

The village of Tio, consisting of several conspicuous buildings, stands on this point. The shore lights in vicinity of Ras Anrata are reported to be visible for a distance of 8 miles.

Punta Shab Shakhs (14°39'N., 41°07'E.) is low and sandy. Shab Shakhs, with depths less than 2m, extends about 3 miles N from Punta Shab Shakhs. This shallow spit does not show well and, with depths of 18.3 to 27.4m close off, offers little warning of its proximity.

The light structure on Punta Shab Shakhs is reported to give a good radar return in comparison to the surrounding coastline.

Anchorage can be taken, in 14.6m, about 5 miles NW of Punta Shab Shakhs.

Ras Shakhs (14°38'N., 41°12'E.) is low and sandy. Between the point and the base of the mountains is a broad flat plain, which renders the low point inconspicuous. Under some conditions, this point is dangerous to approach, as it cannot be seen until close-to.

South Mitsiwa Channel is entered N of Ras Shakhs. Caution is advised as several shoal patches lie within the entrance, and are best seen on the chart. See paragraph 5.4 for information on weather and currents.

Ras Shakhs to Ras Terma

5.22 The coast between Ras Shakhs and **Ras Terma** (13°14'N., 42°33'E.) is backed by ranges of high volcanic mountains sloping to the sea. Monte Anrata stands at the W end of a hilly range, about 12 miles WSW of Ras Shakhs. It has the appearance of a round summit on the E side of a flat ridge. This hilly range extends E for about 10 miles and terminates in Monte Ghedele.

Some of the peaks in this range, though lower than Monte Anrata, are conspicuous because of their jagged shapes. They often may be seen when the higher and more distant mountains are obscured by haze.

Another range extends about 13 miles S from Monte Anrata and terminates in a round summit 1,250m high. Monte Cosar, 700m high, stands about 15 miles S of Ras Shakhs and shows well.

5.23 Endel Monte (13°50'N., 41°55'E.), marked by a pillar, is conical in shape. Close NE are two conical hills, not quite so high, which appear as one when seen from ENE. Sachsohe Monte, marked by a pillar, stands about 3 miles SE of Endel Monte.

Picco Aguzzo (13°35'N., 41°49'E.) lies about 16 miles SSW of Endel Monte. About 5 miles farther SSW is another mountain, 1,549m high. Both of these mountains have sharp peaks on their SW ends. A smooth-topped mountain rises to a height of 2,131m about 8 miles farther SSW.

On the W side of the N approach to Bab El Mandeb, **Gebel Aduali** (12°57'N., 42°26'E.) stands about 18 miles SSW of Ras Terma and is the highest peak in the vicinity.

A range of well-defined and conspicuous peaks, which connects with the high land S of Baia di Beilul, extends E from Gebel Aduali toward the coast.

5.24 Tagi Terara (Gebel Tachi) (13°03'N., 42°39'E.), about 14 miles ENE of Gebel Aduali, is a conical peak.

Monte Garzale, similar to Tagi Terara, stands about 4 miles WSW of the latter. Sela Terara (Monte Sellal), dark and conspicuous, lies about 5 miles SE of Tagi Terara.

Monte Marcale, about 11 miles W of Sela Terara, resembles the latter from some directions, but it is much more towering.

Monte Abu Lulu (12°38'N., 42°54'E.) is a tableland, on the SE side of which is Monte Ann, an isolated cone, 334m high. Monte Potosi, about 1,524m high, lies about 27 miles W of Monte Abu Lulu. It has two clefts and is a good mark.

Massif Du Ada-Ali, about 10 miles SE of Monte Abu Lulu, is 500m high. Massif du Maghaira, the continuation W of Massif du Abu-Ali, rises to a height of 679m and is the highest hill in the vicinity.

Baia di Edd (Baia di Ed) (13°56'N., 41°43'E.) is shallow, with a sandy plain at its head. The village of Idi (Edd) (Ed), at the head of this bay, has some white buildings at its W end and a mosque with a minaret at its NE end. Backing the S part of the bay is a promontory of black rocky lava, 10 to 15.2m high.

5.25 Kordumuit Deset (Isola Cordumiat) (14°06'N., 41°40'E.) is a rugged bluff volcanic island, 83m high, lying about 4 miles offshore. A reef, with a least depth of 4.6m, extends about 2 miles W.

A bank, with depths of less than 10m and on which an islet lies, extends about 1 mile N from the island.

Isolotti Kordumuit (Isolotti Curdumiat) (14°04'N., 41°39'E.), consisting of several islets, lie about 2 miles SSW of Kordumuit Deset and within the 10m curve. Between these islets and the coast there are depths of 6.4 to 8.2m, which should only be navigated by vessels with local knowledge. A dangerous wreck lies sunk about 4 miles WNW of Kordumuit Deset and about 2 miles offshore.

Anchorage.—Anchorage can be taken, between Kordumuit Deset and the islets S, in 25.6m, good holding ground; it should only be used in calm weather, as it affords no shelter.

5.26 Ras Sceraier (Ras Bugeni) (13°46'N., 42°02'E.) lies about 21 miles SE of Idi; the intervening coast is rocky with several indentions.

Ras Sceraier is the N end of a promontory, rising to Monte Ascoma, 110m high. A conspicuous brown hill with a flat summit, about 61m high, stands on the coast at Ras Sceraier.

Mersa Dudo (13°52'N., 41°54'E.) lies on the W side of a promontory which rises to Monte Dudo, about 7 miles ESE of Ras Alob. A pillar stands on Monte Dudo.

Anchorage.—Anchorage can be taken in Mersa Dudo, in 12 to 14.6m, mud and sand, good holding ground, with Endel Monte bearing about 160° and the N extremity of Isola Sadla about 080°.

Sadla lies within the 20m curve in a position about 1 mile NE of Monte Dudo. There is a saddle-shaped hill at the NE end of the island, and a pillar on a hill at the S end of the island.

Somewhat sheltered anchorage can be taken S of Sadla during NW winds, in 14.6 to 20.1m, good holding ground.

Abaielat, about 2 miles E of Sadla, has three hummocks on it; the SW one is 120m high. The island is fringed by a reef. Anchorage can be taken SE of the island, where there is fair shelter from N winds.

5.27 Beraesoli Bahir Selate (Barassoli Bay) (13°40'N., 42°10'E.) is encumbered with islets and rocks. From the head of the bay, the land gradually rises to an elevation of 268m about 7 miles from the coast.

Several islands, including **Tekay Deset** (Isola Rachmat) (13°40'N., 42°13'E.), lie on the reef extending NW from Penisola Cabilia. When seen from a distance, these islands and the other islets in the bay appear to be a continuation of a range of hills extending from the high lands to the coast.

Dannabah, at the NW end of the reef extending from Penisola Cabilia, is partially covered with mangroves and has several peaks over 30m high.

Anchorage.—Good anchorage, sheltered from S and SE winds, can be obtained N of a line joining the N extremity of Tekay Deset and **Seil Selafi** (13°41'N., 42°08'E.), in 6.9 to 8.2m, or SE or W of Seil Selafi, in 6.4m.

Three white and rocky islets lie in the approach to Beraesoli Bahir Selate, in positions from 5 to 6 miles NW of Tekay Deset.

Northwest Fanaadir, Northeast Fanaadir, and South Fanaadir form the group. Fanaadir Rock, which dries 0.3m and is generally visible, lies about 2 miles SW of the S islet.

The coast S of Tekay Deset is backed by a low, bare, and sandy desert, which extends some distance inland. From the hills S of Beraesoli Bahir Selate, the mountains extend SE from 5 to 12 miles inland, are intersected by valleys, and appear level from seaward.

The only elevation near the coast visible from a distance is Gebel Beheta Ali, 30m high, standing about 13 miles S of Tekay Deset. A pillar stands on Gebel Beheta Ali.

A stranded wreck lies on the coast in position 13°23'N, 42°22'E. A beacon stands on the coast about 20 miles SSE of the NW extremity of Peninsola Cabia.

5.28 Beylul Bahir Selate (Baia di Beilul) is entered W of **Ras Darma** (Ras Terma Zerf Chaf) (13°14'N., 42°33'E.). Monte Darma, 95m high and surmounted by a pillar, stands about 1 mile WSW of Ras Darma; this hill slopes SW and fronts the E side of the bay.

About 4.5 miles SW of Ras Darma is a large white sand patch on the side of the hills in the S part of the bay. It is a good mark when approaching the bay from the N.

Hassalili, surmounted by a pillar, rises in the S part of the bay about 2 miles inland. To the W, the hills are lower; farther W, on the W side of the bay, is a flat clay plain.

The village of Beylul lies about 3 miles inland on the W side of the bay. There is a conspicuous tree standing about 2 miles NE of Beilul; SE of it are conspicuous huts.

Isolotto Bianco, 12.8m high, lies 0.5 mile offshore on a spur of the coastal reef N of the previously-mentioned conspicuous sandy patch.

Anchorage.—The best anchorage is W of the promontory on the E side of Beylul Bahir Selate, in 14.6 to 16.5m, with Isolotto Bianco bearing 216°. This anchorage is approached with the conspicuous white sandy patch bearing 180°. South winds impede and sometimes prevent boat work.

Between Ras Darma and Ras Loma Zerf Chaf, the NW entrance point of Assab Bahir Selate, about 16 miles SE, the coast is low and fringed by reefs, extending as far as 1 mile offshore. A group of hills, 15.2 to 24m high, lie about 7 miles SE of Ras Darma and 1.5 miles inland.

5.29 Sanahor Deset (Isola Sanah Bor) (Sanahbor Deset) (13°05'N., 42°43'E.), 85m high, lies on a shoal, with depths less than 9.1m. A passage, about 0.3 mile wide, with depths of 11 to 14.6m, lies between the S end of this shoal and the coastal bank.

Ras Loma Zerf Chaf (13°02'N., 42°45'E.) is reported to give a good radar return up to a distance of 18 miles.

Bosanquet Shoal (13°05'N., 42°48'E.), with a least depth of 5m, sand and broken shells, lies about 5 miles NE of Ras Loma Zerf Chaf; this shoal is indicated by discolored water.

Fieramosca Shoal (13°08'N., 42°51'E.), about 4 miles NE of Bosanquet Shoal, is composed of coral and has a least depth of 5.5m.

Secche Scilla (13°01'N., 43°03'E.), 10 miles further SE, is a sand and coral ridge extending in a NW to SE direction. There is a least depth of 4m, and it should not be approached from seaward within a depth of 40m in hazy weather. Strong cur-

rents in the vicinity of Secche Scilla generally set parallel with these shoals, but may set toward them.

5.30 Assab Bahir Selate (Bay of Aseb) (13°00'N., 42°45'E.), entered between Ras Loma Zerf Chaf and Ras Dehaneba Ye Midir Zerf Chaf, about 17 miles SE, affords good sheltered anchorage.

The islands in and off the bay prevent any swell from entering, but during the Northeast Monsoon, the prevailing strong SE winds by day cause a sea rough enough to inconvenience boats.

The town of Assab (Aseb) stands on the NW shore of the bay. The low coast of this bay is nearly all bordered by reefs, which are narrow along the W shore, but extends 2.5 miles from the S shore.

The S shore of the bay is low, swampy, muddy, and inundated at high tides. Several islets, mere sand cays covered with cactus and other rank vegetation, lie on the reef that extends off the S coast.

Fatma Deset (Isola Fatumah) (13°02'N., 42°52'E.), low and wooded, attains a height of 15.2m at Ras Fatuma, the NE extremity of the island.

Rubetino Boy (Canale Rubattino) (13°00'N., 42°53'E.), which lies W and S of Fatma Deset, has several shoals in its E part and should only be used by vessels with local knowledge.

Caution.—Mariners are advised to proceed with caution when navigating in Assab Bahir Selate. The area is inadequately surveyed and uncharted shoals may exist, especially off the edges of the reefs.

Assab (Aseb) (13°00'N., 42°45'E.)

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5.31 Assab lies on the NW side of Assab Bahir Selate. The N port limit is drawn from Ras Gombo to the E end of Ito Om el Baher (Om el Baher Island). The S port limit is drawn from Ras Marcanah to the S end of an island about 1 mile E of it.

Winds—Weather.—During the hot season, from May to September, the climate is particularly unpleasant, being hot and humid, although there is generally a breeze between 0800. and 2000 which affords some relief. From October to April, winds of 11 to 27 knots blow continuously from the SE, ceasing only for short periods at dawn and dusk.

Tides—Currents.—The tidal rise at the port is negligible, the diurnal range being 0.5m. Currents in the vicinity have been reported to reach 4 knots during strong SE winds.

Depths—Limitations.—With the exception of Bosanquet Shoal, the approaches to the port have general depths of 10.7 to 20m.

The main harbor complex consists of North Jetty and South Jetty, located about 2 miles N of Ras Caribale. The complex is protected by an offshore breakwater about 0.4 mile long.

Depths alongside are reported to be less than charted, with a 10m patch off North Jetty caused by concrete crumbling from the jetty.

The jetties can accommodate vessels up to 26,000 dwt, with a length of 210m and a draft of 10.3m, although it has been reported (2005) that vessels are limited to a maximum length of 200m and a maximum draft of 10m.

The Crude Oil Terminal, a multi-point mooring consisting of four mooring buoys and a submarine oil pipeline, lies about 1 mile NE of Ras Caribale. Vessels up to 35,000 dwt, with a maximum length of 185m, a maximum beam of 29m, and a maximum draft of 11m, can be accommodated.

The Coastal Tanker Jetty consists of a berth with two mooring buoys at the head of a pier close N of Ras Caribale. Vessels up to 105m long, with a maximum draft of 8m, can be accommodated.

The Shell Jetty (Oil Products Berth) lies about 0.1 mile S of Ras Caribale. Vessels up to 20,000 dwt, with a maximum length of 183m and a maximum draft of 8.5m, can be accommodated. Vessels berth facing S. North currents of up to 1 knot have been experienced at the berth. The pier has been reported (1995) to be in poor condition.

A disused salt berth, serviced by an overhead ropeway, is located SSE of Ras Caribale.

Obstructions and shallow areas can best be seen on the chart.

Aseb—Jetty Information			
Berth	Length	Depth	Remarks
North Jetty (S face)			
No. 1	210m	10.97m	See Notes 1 and 2.
No. 2	150m	10.97m	See Note 1.
No. 3	135m	10.06m	See Note 1.
South Jetty (N face)			
No. 4	80m	5.48m	See Note 1.
No. 5	140m	8.20m	See Note 1.
No. 6	160m	8.84m	See Note 1.
No. 7	150m	10.06m	See Note 1.
No. 7A	115m	7.5m	See Notes 1 and 2.
<p>Note 1.—Vessels usually berth heading SE. Note 2.—Can accommodate ro-ro vessels up to 145m long.</p>			

Aspect.—Monte Ganga Nord and Monte Ganga Sud, about 2 miles, respectively, SW of Ras Loma Zerf Chaf, are good marks. A conspicuous church with three domes, about 33m high, stands about 0.3 mile SSE of Ras Gombo. There are several ruined buildings on Ras Caribale.

A white two-story building, with a large square tower, stands N of the church; a white one-story building stands S of the church. A conspicuous flare stands 1 mile W of Ras Caribale.

Pilotage.—Pilotage is compulsory for vessels over 100 nrt, and is available 24 hours for the commercial harbor and from 0600 to 1800 for the oil harbor. The pilot boards about 0.6 mile NE of the N end of the offshore breakwater.

Regulations.—Vessels should send their ETA 72 hours, 48 hours, and 24 hours in advance.

Landing on any of the off-lying islands is prohibited. Approaching boats may be fired on without warning. Special regulations are in effect for vessels handling dangerous cargo.

Signals.—Visual signals are displayed from a signal station located just N of North Jetty, as follows:

Assab—Traffic Signals		
Day signal	Night signal	Meaning
One black ball	One red light	A vessel is maneuvering within the harbor or channels.
One black cylinder	One red light over one white light, vertically disposed	A vessel is approaching from N.
One black cone, point up	Two red lights, vertically disposed	A vessel is approaching from S.

Anchorage.—Anchorage, secure in all winds, is available in the S part of the bay.

The quarantine anchorage is located just E of the pilot boarding ground and is best seen on the chart. The anchorage offers depths of 16.8 to 18m.

Anchorage is prohibited N of a line joining Ras Loma Zerf Chaf and Fatuma Deset. Anchorage is also prohibited in an area off the port, best seen on the chart.

Directions.—If approaching from N, steer to pass about midway between Sanahor Deset and Bosanquet Shoal. Alter course to pass 1 mile off the W shore of the bay when due E of Sanahor Deset.

When approaching from NE, steer for **Sella Monte** (Monte Sella) (13°00'N., 42°42'E.) ahead bearing 241°. This course passes about 2 miles SE of Fieramosca Shoal, and 1 mile NW of the shoal, extending from the NW side of Fatma Deset. When the light on Ras Gombo bears 235°, alter course for Aseb.

If arriving from E, Sanahor Deset, steered for on a bearing of 270°, is an excellent mark. When Sella Monte bears 241°, steer for it on that bearing, and proceed as directed above.

Caution.—The area is inadequately surveyed and uncharted shoals may exist.

5.32 The coast between **Ras Dehanebe Ye Midir Zerf Chaf** (Ras Dehaneba) (12°54'N., 43°01'E.) and Ras Dumera Ye Midir Zerf Chaf (Ras Dumera), about 14 miles SE, is low and sandy.

The coastal reef extends as far as 3 miles offshore between Ras Dumera Ye Midir Zerf Chaf and Ras Sintian, about 6 miles SE, where it closes the coast. The 20m curve lies about 2 miles off the coastal reef along this stretch of coast.

Ghinnibad (12°47'N., 43°05'E.), a village about 3 miles S of Ras Sintian, is easily recognized by the high palms in the vicinity.

Ras Rehayto (Capo Raheita) (12°44'N., 43°07'E.), 81m high and conspicuous, extends about 1 mile from the coast. It is blackish in appearance, but on its N slope is a white sand patch. This bluff generally shows up well in hazy weather.

Ras Dumera Ye Midir Zerf Chaf (12°43'N., 43°08'E.) is a small rocky projection appearing on some bearings as two peaks and on others as three; one of these peaks is flat.

This promontory, backed by a sandy plain extending 10 miles inland, appears as an island from a distance, but from the E, it is completely obscured by Dumera Deset.

On the shore between Ras Rehayto and Ras Dumera Ye Midir Zerf Chaf, there is a small conical hill and another hill with a projection NW. The rise and fall of the tide completely changes the configuration of the coast between these two points. The coast in this area should not be approached within a depth of 9m.

5.33 Dumera Island (Dumera Deset) (12°43'N., 43°09'E.), which is double-peaked, lies about 0.3 mile E of Ras Dumera Ye Midir Zerf Chaf. The island is similar in appearance to this point when seen from a distance and shows up well in hazy weather.

A shoal, with a least depth of 6m, lies about 1 mile N of Dumera Island. The change in the color of the water when there is much sea makes this shoal clearly visible.

Dumera Island is reported to give a good radar return up to a distance of 15 miles.

The coast SE of Ras Dumera Ye Midir Zerf Chaf is backed by a low and sandy plain about 10 miles wide to Ras Siyyan, a distance of about 18 miles.

Siyyan Himar (Rocher Moulhele) (12°31'N., 43°18'E.), two small rocks, each of which is 1.8m high, lie on a reef about 3 miles NNW of Ras Siyyan and 1.5 miles offshore. This reef dries near its SE end. A dangerous wreck lies about 2 miles N of Ras Siyyan.

Ras Bab al Mandeb

5.34 Ras Bab al Mandeb (12°31'N., 43°30'E.), the S entrance of the Red Sea, is divided by Perim into two straits. Large Strait lies between the African shore on the W and SW and Perim on the NE; Small Strait lies between the latter island and the Arabian shore. Large Strait is recommended, as many casualties have occurred in Small Strait.

The NW side of the strait from Assab to Ras Siyan is described beginning in paragraph 5.32, while Ras Siyan and the coast S of it is described beginning in paragraph 10.2.

The NE portion of the strait's E coast is described beginning in paragraph 7.50, while the coast from Ras Bab al Mandeb S is described beginning in paragraph 8.2.

An IMO-adopted Traffic Separation Scheme (TSS) lies in the waters of Ras Bab al Mandeb and is best seen on the appropriate chart.

Tides—Currents.—During the Southwest Monsoon, June to September, the water runs out of the Red Sea; during the Northeast Monsoon, November to April, it runs in. The surface

set in the straits, the resultant of the currents caused by the wind and the tidal currents, is very variable.

The current in the straits sets approximately in the direction of the wind and attains a velocity of 1.5 knots. During November to April, the currents caused by the strong SE winds often overcome the SE tidal currents, and there may be a NW set of from 0.5 knot to 3.5 knots.

In November and December, many years ago, during fairly strong SE winds, this set to the NW was observed extending from Large Strait to the parallel of 13°N, at a velocity of 1.5 to 3.5 knots.

The NW set close SW of Perim turns sharply N round Balfe Point, its W extremity.

In June and July, many years ago, during light NW winds, the currents generally set SSE off this island at velocities of less than 0.5 of a knot, to 1.5 knots.

From recorded observations made in January, many years ago, at a position 7 miles SW of Perim, it appears that the surface currents set into the Red Sea at an average velocity of 1.5 knots and are greatly influenced by the tidal currents during this period.

From about 8 hours before to 4 hours after the highest HW at Perim, the NW set was from 1.5 to 2.5 knots. While from 4 hours after to 8 hours before the highest HW at Perim, the velocity was from 0 to 1.5 knots.

The tidal currents are very irregular, both in velocity and duration. Sometimes in the middle of the strait, there is a feeble SE current, while at other times, it attains a velocity of 4 knots and causes ripples when against the wind.

After strong NW or SE winds, the tidal currents setting in the same direction as the wind may continue for 16 hours.

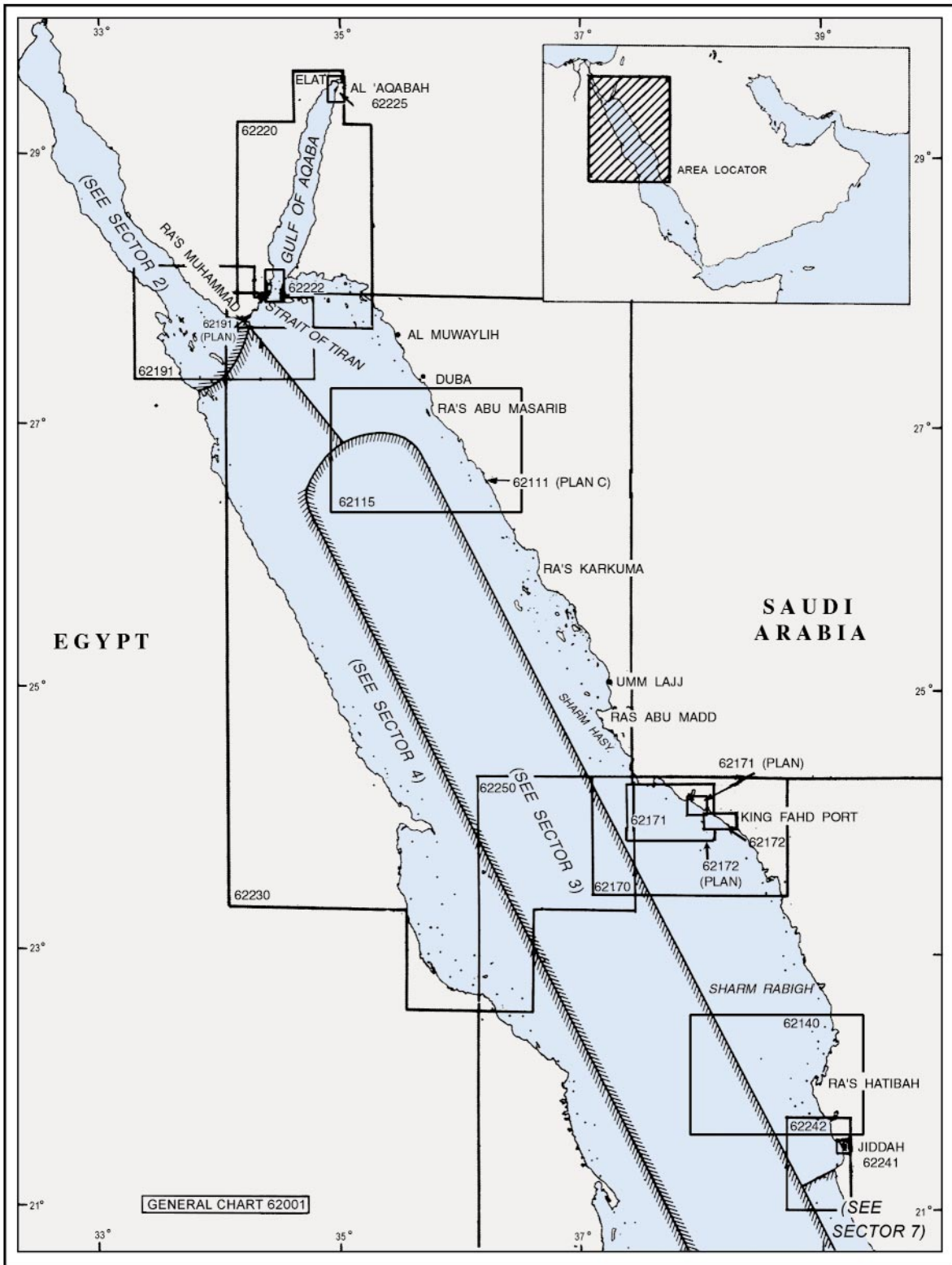
The currents set NW during the rising tide and SE during the falling tide. From recorded observations in January, many years ago, the tidal currents during this time set each way for about 12 hours; this may be expected, as there is practically only one tide daily in this locality.

At the SE extremity of Perim, the NW current divides, with one part flowing through Small Strait and the other flowing along the SW coast of Perim.

That current flowing through Small Strait appears to divide at the N extremity of Perim, with one part setting NNW and the other rounding Balfe Point. The latter turns SE along the SW coast of Perim and, at 2 to 3 hours before HW, it meets the branch of the NW current.

This causes overfalls, which generally work E to the entrance of False Bay. These currents are much influenced by the wind, and during the period when the current is setting into the Red Sea, the SE current does not appear to run.

Perim (Barim) (12°40'N., 43°25'E.) and Perim Harbor, which is located on the S side of Perim, are both described in paragraph 7.60.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 6 — CHART INFORMATION

SECTOR 6

THE RED SEA—EAST SIDE—RAS MUHAMMAD TO JIDDAH, INCLUDING THE GULF OF AQABA

Plan.—This sector describes the Gulf of Aqaba followed by the E side of the Red Sea S to Jiddah. The general sequence of description is from N to S.

General Remarks

6.1 From the E entrance of the Gulf of Aqaba to **Yanbu** (24°05'N., 38°03'E.), the coast is 15.2 to 30m high and generally has no beach; the inlets are more or less coves.

Below Yanbu, the coast is sandier and lower, and the inlets are more or less lagoons. These inlets form convenient stopping places for trading vessels proceeding up and down the Red Sea.

From Yanbu to Jiddah, the coast is composed of sandbanks with coral bases and is paralleled by off-lying reefs, which are in some places connected to shore. The entrances of the inlets in this locality are very difficult to distinguish.

The reefs fronting the coast between the E entrance of the Gulf of Aqaba and Jiddah extend in ridges, usually with deep water near them, or lie on extensive banks. They rarely exceed 3 miles in length, and there is no heavy surf on most of them under any conditions of wind or weather.

The high mountains backing the Arabian coast from the head of the Gulf of Aqaba to Bab al Mandeb lie from 12 to 60 miles inland and are conspicuous. They present peaked summits, 1,524 to 2,438m high, and fall abruptly on their seaward side. Other lower ranges exist, which gradually decrease in height as they approach the coast.

In clear weather, the mountains backing the Arabian coast can be seen from 40 to 70 miles, the most noticeable being **Jabal al Muwaylih** (27°37'N., 35°45'E.), **Jabal Radwa** (24°36'N., 38°16'E.), and Jabal Subh, about 88 miles farther SSE.

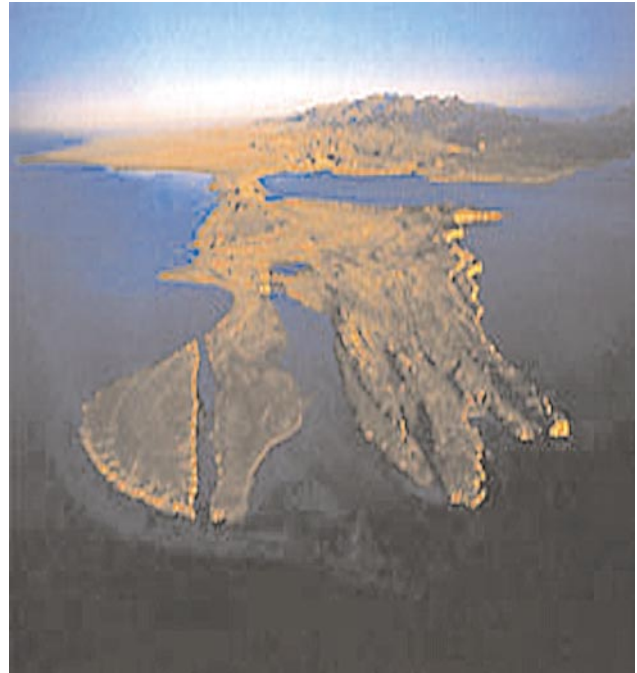
Jabal Ghazuan, about 60 miles E of Makkah, is about 4,267m high, and is reported to be the highest mountain in Arabia.

The higher mountains rise above hills of rock, while nearer the coast many hills are of limestone; those nearest the sea are mainly of light-colored sandstone, containing large quantities of shells and coral.

A low area of irregular width extends from the base of the hills to the coast between the head of the Gulf of Aqaba to Jiddah. It is generally deserted and barren, with a few cultivated spots.

The coast for a distance of about 65 miles SE of the Gulf of Aqaba is backed by mountains lying from 10 to 17 miles inland and attaining an elevation of 2,279m in **Jabal Dabbah** (27°50'N., 35°45'E.).

A mountain range extends about 13 miles NW from Jabal al Muwaylih, which is at the S end of the range. This peak, along with Jabal Shar, about 3 miles NW, is conspicuous.



Ras Muhammad from S

This range consists of very sharp ridges, which show as peaks on some bearings. They have an irregular columnar appearance with chasms between them when seen from S, while from the N, the peaks overlap and the range appears as a narrow ridge.

Jabal Liban is located about 74 miles SE of Jabal al Muwaylih and about 10 miles inland. Two small peaks, near the center of this mountain, assist in distinguishing it from seaward. This mountain lies near the NW end of a range which extends about 63 miles SE; Jabal ar Ral (Jal) is conspicuous and isolated with a broad summit near the S end of this range.

Winds—Weather.—Winds from the N incline to the land and sea breezes prevail throughout the year. During March and April, the land and sea breezes are more frequent on this side of the Red Sea than the W side. Land squalls in the S part occur in April and May. From May to July, when these squalls are experienced on the coast of Sudan, there are heavy dews and thick hazy weather on the Arabian coast.

6.2 Ras Muhammad (27°44'N., 34°15'E.) is an abrupt broken cliff with a flat top, 27m high, descending to a low plain a little N of the cape.

Black Hill, on the peninsula about 2 miles NNW of Ras Muhammad, is 58m high, black, rounded, and fairly conspicuous.

There is a flat sand-colored hill of nearly the same height SE. From a distance these hills appear as islands.

Ras Muhammad should be approached with care at night; the white cliffs and the land are not easily distinguished. It is steep-to, with no off-lying dangers on its E and S sides. A stranded wreck lies on a reef close S of Ras Muhammad. Ras Muhammad is reported to give a good radar return. The point is marked by a light and a racon.

The Gulf of Aqaba

6.3 The shores of the **Gulf of Aqaba** (27°59'N., 34°27'E.) are closely bounded by mountainous ridges, which in many places rise from the plain like a wall.

Winds—Weather.—During the greater part of the year NNE winds prevail and sometimes blow with considerable force. In April and May, they are generally more moderate, with an occasional change to S winds. In the winter months, S winds sometimes come up suddenly and may blow for a day.

At the end of August, N winds, light to moderate in force, have been experienced.

The coast between Ras Muhammad and Ras Nasrani, about 16 miles NE, is high and fringed by a narrow white reef.

This reef, which extends about 31 miles inside the Gulf of Aqaba, is usually covered and is marked on its outer edge by surf.

The water outside the reef is of a dark blue color because of its great depth. This reef is dangerous to approach, even by small boats.

6.4 Sharm el Sheikh (Sharm Ash Shaykh) (Sharm al Shaikh) (27°51'N., 34°17'E.) and Sharm el Moiya are separated from each other by a rocky tongue of land, on which a large white hospital is located, about 7 miles NNE of Ras Muhammad. Sharm el Sheikh, the W bay, is free from dangers.

A small concrete jetty is located on the SE shore of Sharm el Sheikh; boat landings are situated along the NE face of this facility. Three small craft mooring buoys are located near the head of the bay. This port is mainly used by yachts and passenger vessels.

Berthing is available during daylight hours only. The largest vessel handled was 30,000 dwt, with a length of 250m and a draft of 9m. Suez Odense Marine operates a floating dock, with a length of 144m and a width of 22m.

Depths of 100m are found for about 0.4 mile inside the entrance, but from then on the depths shoal rapidly.

Sharm el-Sheikh contains a new passenger quay. The quay is 482m long, and can accommodate vessels with a draft of between 4.5 and 9m. There are smaller wharves, with a total length of 36m, for vessels with drafts of less than 4.5m.

Pilotage is compulsory. The pilot monitors VHF channel 16. The pilot boards about 0.9 mile SSE of the E entrance point to Sharm el-Sheikh.

Anchorage can be taken, in about 25m, sand, in a position about 0.1 mile off the NE shore of Sharm el Sheikh. Caution is necessary when anchoring, as the bank drops abruptly into deep water.

Sharm el Moiya, the E bay, is about 0.2 mile wide in its entrance, but it is so obstructed by coral patches that a vessel drawing more than 3m can only make its way through them



The Strait of Tiran from S

with great difficulty. A light is shown from **Ras Umm Sid** (27°51'N., 34°19'E.), just E of Sharm el Moiya.

6.5 The **Strait of Tiran** (28°00'N., 34°27'E.) is obstructed by a chain of reefs. These reefs, with several large drying boulders on them, are awash at LW during the summer.

An IMO-approved Traffic Separation Scheme, best seen on the chart, exists in the Strait of Tiran. Northbound traffic passes E of Gordon Reef and the reefs extending to the NE of Gordon Reef; southbound traffic passes W of these reefs.

A Vessel Traffic Service Station, call sign "VTS Gulf of Aqaba," has been established to provide the following services:

1. Ensure safety of navigation within the Traffic Separation Scheme of the Gulf of Aqaba.
2. Monitor passing vessels outside the traffic lane 15 miles N and S of the station.
3. Provide navigation assistance and advice to the passing vessels, if required.

A radar station, call sign Salam, has been established at Nabq (28°04.2'N., 34°25.3'E.). Vessels approaching the station can obtain local navigation information, on VHF channels 13 and 16, when in the following positions:

1. About 1.3 miles S of Ras Nasrani.
2. About 1.2 miles NW of the light on Jackson Reef.

Gordon Reef (27°59'N., 34°27'E.) is the SW reef of the group. Thomas Reef, Woodhouse Reef, and Jackson Reef lie

within 1.5 miles NE of Gordon Reef, and are separated by deep channels, 0.1 to 0.15 mile wide. These channels, however, should not be used, as a dangerous current often sets across them.

Caution.—Stranded wrecks are located on the N and S portions of Jackson Reef. These wrecks should not be mistaken for vessels underway.

6.6 Jazirat Tiran (27°56'N., 34°33'E.) rises to a height of 524m close within its SW point. The remainder of the island is a low sandy plain, with some hills in places.

The NW coast of Jazirat Tiran between Chisholm Point, about 2 miles WNW of the above 524m peak, and Johnson Point, the NW extremity of the island, is fringed by reefs and backed by low, undercut, coral cliffs.

Two conspicuous hills, 94m and 47m high, lie about 0.5 mile apart, about midway between these two points.

Johnson Point, consisting of sand and dead coral, is low and flat. Two small sandy beaches S of Johnson Point are conspicuous when seen from S and generally afford good landing.

Enterprise Passage (27°59'N., 34°27'E.), the channel to the W, lies between Gordon Reef and the coastal reef NE of Ras Nasrani. This passage presents no difficulty as it is deep and clear, and the reefs on either side are steep-to.

Vessels should enter and leave Enterprise Passage during daylight only, except when there is ample moonlight. Tidal currents in the S approach to the Gulf of Aqaba are uncertain and sometimes attain a considerable velocity. Caution is necessary when approaching at night.

If navigating Enterprise Passage at night, it has been reported that visual bearings of the lights marking the passage are preferable to radar ranges of the nearby coast. The light structures in Enterprise Passage are difficult to distinguish during the day.

A N set of 3.5 knots was experienced many years ago, in Enterprise Passage about 1 hour after HW at Jazirat Tiran, with a 4 to 6 force S wind. A S set of 1 knot was experienced many years ago, in the passage about 2 hours 30 minutes after HW at Jazirat Tiran, with a NNE wind of force 5.

The wind in Enterprise Passage and Grafton Passage is very strong and the swell heavy at times, causing considerable tide rips. Gales, which spring up suddenly, are reported to occur frequently at night.

A local magnetic anomaly lies along the E shore of the gulf.

6.7 Al Gharqanah (28°07'N., 34°27'E.), a promontory about 2.5 miles NE of Nabq, may lie up to about 1 mile W of its charted position.

The W side of the Gulf of Aquaba between Nabq and Khalij al Qarah, about 24 miles N, is fringed by a narrow white reef.

Khalij al Qarah (28°28'N., 34°30'E.) lies on the S side of a low and sandy promontory, from which a low, sandy, barren spit extends about 1 mile S and then 1 mile W.

A drying reef extends about 0.4 mile SSW from the SE extremity of this spit. The bay, entered between the W extremity of this spit and the coast about 0.7 mile W, has general depths of 7.3 to 24m.

A 4.9m coral patch lies about 0.2 mile W of the extremity of the spit. Shoals extend about 91m W and NW, respectively, from the extremity of the spit.

To the N of this spit is an inlet, which dries a short distance inland. A shoal, with a depth of 4.9m, lies about 0.2 mile W of the sand spit. A light, with a racon, is shown from the coast about 1 mile N of the S point of the sand spit.

A cairn stands on the extremity of the sand spit and a single palm, reported to be conspicuous, stands on the coast N of the spit.

Anchorage.—Anchorage can be taken in Khalij al Qarah, in 29m, sand and coral, with the W extremity of the sand spit bearing 030°, distant 0.3 mile. This anchorage is sheltered from N and E.

6.8 Ras Abu Qalum (28°38'N., 34°34'E.) is a sandy promontory, fringed by reefs on its N side.

El Habiq (28°52'N., 34°39'E.), about 14.5 miles N of Ras Abu Qalum, is a low sandy point, with some stunted trees. A flat plain of sand and stones rises gradually within this point to the base of the mountains.

Caution.—An area just S of El Habiq has been established as a restricted area. Vessels over 500 gross tons, or carrying dangerous or toxic cargos, should avoid entering this area. There are several areas along the Sinai Peninsula, best seen on the chart, that are to be avoided in order to protect the environment. These areas have been adopted by the IMO.

6.9 Nuweiba el Muzeina (28°58'N., 34°39'E.) lies about 6.2 miles N of El Habiq. There is a quay for general cargo and ro-ro vessels. Berth limitations are, as follows:

1. Berth No. 1—The berth is 92m long and is used by passenger ferries with a maximum draft of 8m.
2. Berth No. 2—The berth is 42m long and is used by passenger ferries with a maximum draft of 8m.
3. Berth No. 3—The berth is 120m long, with an alongside depth of 8m. The berth is used by general cargo vessels up to 3,980 dwt, with a maximum draft of 7.3m.

Pilotage.—Pilotage is compulsory and is available 24 hours. The port is private and requires permission from the Maritime Transport in Alexandria before entering.

6.10 El Qarnus (28°59'N., 34°41'E.), close NE of Nuweiba el Muzeina, is covered with low bushes and sand hills. A fort stands about 3 miles N of El Qarnus, but the anchorage is open to the prevailing winds.

Ras Suwayhil as Saghir (28°53'N., 34°49'E.), on the E side of the gulf, is a sandy point fringed by rocks. Temporary anchorage can be taken, in 11m, S of Bir Marshah, close SE of the point, sheltered from N winds.

Humaydah (29°13'N., 34°54'E.), a 17m high islet, lies in the middle of the entrance of a small bay, about 21 miles NNE of Ras Suwayhil as Saghir. The N part of this bay is foul; the N end of the island is connected to the coast by a reef, partly above water.

The island is difficult to distinguish and should not be confused with a table-topped point about 3 miles farther N. The island has been reported to be gray in color and to contrast with the pink cliffs in the background.

Al Humaydah, a village, is located in the SE part of the bay. Some prominent tanks and a radio mast stand about 6 miles N of Humaydah.

Anchorage.—Good anchorage, sheltered from all winds, can be taken between Humaydah and the coast to the SE. Vessels of moderate size can take anchorage, in 55m, sand and coral, with the summit of the island bearing 322° and the S entrance point of the bay bearing 225°.

6.11 Geziret Firon (29°28'N., 34°52'E.), lying about 0.1 mile offshore, is fringed by a reef. There are several towers and ruins on the island.

Anchorage.—Anchorage can be taken off the extremities of the island according to the wind. With strong S winds, neither is recommended as, except for small vessels, there is little shelter.

Good anchorage, for vessels of moderate size, in 37m, coral, lies with the N end of the island bearing 197°, distant 0.1 mile, or, in 33m, sand, with the S end of the island bearing 008°, distant 0.1 mile.

Large vessels may anchor, in 35m, coral, with the N end of the island bearing 213°, distant 0.3 mile.

The shore at the head of the Gulf of Aqaba is very low, being the end of Wadi al Arabah, which is sandy with high mountains on either side.

Caution.—The Egypt/Israel boundary reaches the coast in the vicinity of Ras el Masri (29°29'N., 34°54'E.). A bouy, with a board inscribed "Caution Frontier Ahead," is moored about 0.15 mile off the coast.

Elat (Eilat) (Elath) (29°33'N., 34°57'E.)

World Port Index No. 48076

6.12 Elat, in Israel, is an open roadstead on the NW side of the head of the Gulf of Aqaba. Depths in the approach to Elat are deep and clear, and the only limitation in the size of vessels in the harbor is the depth alongside the wharf.

Israel Port Authority Home Page

<http://www.israports.org.il>

Winds—Weather.—See Al Aqabah, in paragraph 6.13, for further information.

Tides—Currents.—The mean tidal rise for the port is 0.6m, while spring tides rise 0.8m.

Depths—Limitations.—Naval Base Quay, formerly known as North Quay, is an Israeli naval base and ship repair facility.

The port of Elat, formerly known as South Quay, consists of three berths, with a total berthing length of 528m and an alongside depth of 13m. General cargo and container vessels with drafts of 11.6 to 12.1m can be accommodated.

An additional cargo jetty just N of the port of Elat is 200m long and can accommodate vessels up to 6m draft.

Katza Oil Terminal consists of North Oil Jetty and South Oil Jetty. North Oil Jetty, which has a T-head, can accommodate a vessel up to 125,000 dwt, with a maximum draft of 17.0m. South Oil Jetty can accommodate a vessel up to 500,000 dwt, with a maximum draft of 25.8m.

Aspect.—The port, which is an open roadstead, lies along the W and N shores of the Gulf of Aqaba. The major facilities

devoted to ocean-going vessels are located along the port's W shore.

A conspicuous hotel stands in approximate position 29°33'N, 34°58'E. Two chimneys, painted red and white in bands, stand about 1 mile SW of the hotel; a group of radio masts, 20m high and fitted with aeronautical warning lights, stands about 1 mile N of the same hotel.

A conspicuous silo stands at the S end of South Quay, with several oil tanks standing close SW of it.

A second hotel is located about 3 miles SW of the hotel mentioned above.

Pilotage.—Pilotage is compulsory, and may be ordered through the vessel's agent, or the harbormaster if the vessel is unable to make contact. The pilot boards at the following locations:

1. For tank vessels bound for Katza Oil Terminal—about 0.8 mile E of Eilat Port Light.

2. For cargo vessels bound for Elat—about 0.3 mile SE of North Oil Jetty.

Regulations.—Port Control, call sign "Yamit Elat," may be contacted on channels 12, 14, and 16. Vessels must report 24 hours in advance and vessels bound for anchorage must contact Port Control to obtain an anchor position. All vessels shall contact the Israeli Navy on VHF channel 16 when 25 miles from the coast.

Vessels using the oil terminal should send their ETA 72 hours, 48 hours, and 24 hours prior to arrival; any changes to the ETA greater than 6 hours should be sent immediately. When within VHF range, but no less than 1 hour before arrival, the terminal, call sign "Delek," should be contacted on VHF channel 13.

Special regulations are in force for vessels carrying dangerous cargo. Loaded tankers, empty tankers not gas-free, or vessels carrying dangerous cargo are permitted to enter the harbor to proceed to the berth only. Fire warps, consisting of wire pendants with an eye, are to be rigged over the bow and stern while working dangerous cargo.

See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details pertaining to vessels in Israeli waters.

Anchorage.—Nine numbered anchorage berths, with depths of 29 to 130m, exist off the port's N shore and may best be seen on the chart. The berths are assigned by port control.

The anchorages are exposed to S winds. Care must be taken to ensure sufficient swinging room.

Directions.—The approaches to the port are free and clear of charted dangers. A set of range lights, in alignment bearing 011°58', leads to South Oil Jetty.

Caution.—A restricted area, bound for Elat, which may best be seen on the chart, surrounds Katza Oil Terminal. Vessels may not enter this restricted area without permission.

The Israel/Jordan boundary reaches the coast in the vicinity of position 29°32.6'N, 34°58.7'E. The boundary then continues in a SSW direction through the waters at the head of the Gulf of Aqaba. Bouys, with boards enscribed "Caution Frontier Ahead," are moored on the W side of the boundary between the coast and the 50m contour.

Al Aqabah (29°31'N., 35°00'E.)

World Port Index No. 48090

6.13 Al Aqabah, in Jordan, is an open roadstead on the NE side of the head of the Gulf of Aqaba. Depths in the approach to the harbor are deep and clear. In the S part of the harbor, there are depths of 5.5 to 18.3m within 137m of the shore. Similar depths are located within about 0.2 mile of the shore in the N part of the harbor.

Aqaba Ports Corporation<http://www.aqabaports.com.jo>

Winds—Weather.—Al Aqabah is located at the base of a geographical trench which divides Jordan; winds can funnel into this area rapidly and create hazardous conditions for vessels at anchor. However, under normal conditions, the gulf is protected by its high sides and is usually calm.

Sudden squalls, up to force 6, from between NNE and NNW occur at night, usually commencing about 2 hours after sunset.

During the winter, strong S winds blow up the gulf, sometimes attaining great force and raising a heavy sea. Under such conditions, vessels should leave the anchorage until the weather moderates. It may also be necessary for vessels to leave their berths. These winds can rise within 2 hours, but warning is usually given by a sharp fall in the barometer.

As a result of such conditions, vessels may not immobilize their main engines without prior consultation with the harbor-master.

Depths—Limitations.—The berthing facilities at Al Aqabah handle a variety of cargo types and stretch from the head of the gulf to the Jordan-Saudi Arabia border. From N to S, the facilities are divided into the main port, the container port, and the industrial port. The main port offers 12 berths to vessels handling general, grain, or bulk solid commodities. The container port consists of two floating berths, a dolphin berth, and a container facility. The industrial port consists of an oil facility, a timber facility, and a fertilizer facility. Information on all these facilities is contained in the accompanying table.

Al Aqabah Port Facilities						
Berth	Length	Depth alongside	Maximum Vessel			Remarks
			Size	Length	Draft	
Main Port						
Berth No. 1	160m	10.0m to 13.0m	20,000 dwt	200m	10.8m	General cargo and grain. Outer face of wharf. Reported to accommodate vessels up to 70,000 dwt.
Berth No. 2	180m		20,000 dwt	220m	10.0m	General cargo. Outer face of wharf
Berth No. 3	180m		40,000 dwt	220m	13.0m	General cargo. Outer face of wharf
Berth No. 4	180m		40,000 dwt	220m	11.5m	General cargo. Outer face of wharf
Berth No. 5	180m		40,000 dwt	220m	11.5m	General cargo. Outer face of wharf
Berth No. 6	180m		40,000 dwt	220m	11.5m	General cargo. Outer face of wharf
Berth No. 7	150m	5.4m to 8.0m	8,000 dwt	170m	8.0m	General cargo. North face of wharf
Berth No. 8	150m		3,000 dwt	110m	5.8m	General cargo. Inner face of wharf.
Berth No. 9	150m		3,000 dwt	110m	5.4m	General cargo. Inner face of wharf.
Berth No. 10	60m	1.5m to 3.5m	400 dwt	60m	5.8m	General cargo. Inner face of wharf.
Phosphate Berth A	210m	12.3m to 14.8m	20,000 dwt	200m	11.0m	Dolphin-type berth. Bulk phosphates. Petroleum products handled during daylight hours only.
Phosphate Berth B	180m	12.5m to 15.5m	100,000 dwt	220m	14.4m	Bulk phosphates. Berthing dolphins located 60m N and S of each end of the berth.
Container Port						
Mo'ta Floating Berth						
North Berth	150m	—	10,000 dwt	150m	9.0m	Rice, bagged cement, and bulk cargo. Ro-ro vessels can also be accommodated.
West Berth	200m	—	40,000 dwt	200m	15.0m	
South Berth	150m	—	10,000 dwt	150m	10.0m	

Al Aqabah Port Facilities						
Berth	Length	Depth alongside	Maximum Vessel			Remarks
			Size	Length	Draft	
Moshtarak Berth	—	11.0m	120,000 dwt	250m	11.0m	Consists of two dolphins 120m apart. Bulk cement exports. Can also be used for oil exports.
Container Terminal						
Berth No. 1 Berth No. 2	540m	14.0m	55,000 dwt	230m	14.0m	Containers. Can be used for general cargo, livestock, and passenger vessels.
Ro-ro Berth	40m	10.0m	25,000 dwt	180m	10.0m	Located at the N end of the Container Terminal.
Yarmout Floating Berth						
North Berth	—	—	10,000 dwt	120m	7.5m	Ro-ro facility.
West Berth	150m	—	—	150m	10.0m	Passenger and container vessels. Maximum vessel length of 170m if ro-ro berths are not occupied.
South Berth	—	—	10,000 dwt	120m	6.0m	Ro-ro facility.
Industrial Port						
Aqaba Oil Terminal	—	—	400,000 dwt	370m	25.0m	Consists of four dolphins situated at the W end of a 150m-long approach arm. See Regulations section for information on reporting and berthing requirements.
Timber Berth	80m	6.8m	8,000 dwt	120m	6.8m	
Jordan Fertilizer Industry (JFI) Jetty						
Outer Berth (West Berth)	220m	15.0m	50,000 dwt	230m	15.0m	A maximum height of 23m above the waterline can be accommodated. See Regulations section for information on reporting requirements.
Inner Berth (East Berth)	190m	—	30,000 dwt	190m	11.0m	A maximum height of 23m above the waterline can be accommodated. See Regulations section for information on reporting requirements.

Aspect.—A fort and a minaret close NE of the town are conspicuous from seaward over the palm trees that front the town; the customhouse on the coast W of the town is largely obscured by trees.

A conspicuous minaret stands close N of the customhouse, although it has been reported (1994) that new construction in the city obscures the minaret.

A large conspicuous white building stands in the middle of the town, about 0.2 mile NE of the customhouse.

The loading elevator on the phosphate pier is conspicuous.

A tower usable as a range with a light close NE sits on the N end of Victoria Pier.

A power station stands 1 mile S of Phosphate Berth B; two water intake structures stand offshore, about 100m WNW of the power station.

Conspicuous silos and two conspicuous domes are located close E of Mo'ta Floating Berth.

Pilotage.—Pilotage is compulsory for all vessels bound for Al Aqabah for berthing and unberthing or for entering the near and far anchorages. Vessels may leave from the anchorages without a pilot.

Vessels should send their ETA about 24 hours and 12 hours in advance. The pilot boat is equipped with a radiotelephone. Pilots board, as follows:

1. For Al Aqabah, the Phosphate Berths, and the anchorages—about 1 mile W of Al Burj (29°30'N., 34°59'E.).
2. For the Container Berth—about 0.6 mile SW of the berth.
3. For Moshtarkek Berth and Mo'ta Floating Berth—about 0.7 mile SW of the berth.



Al Aqabah—Control Tower



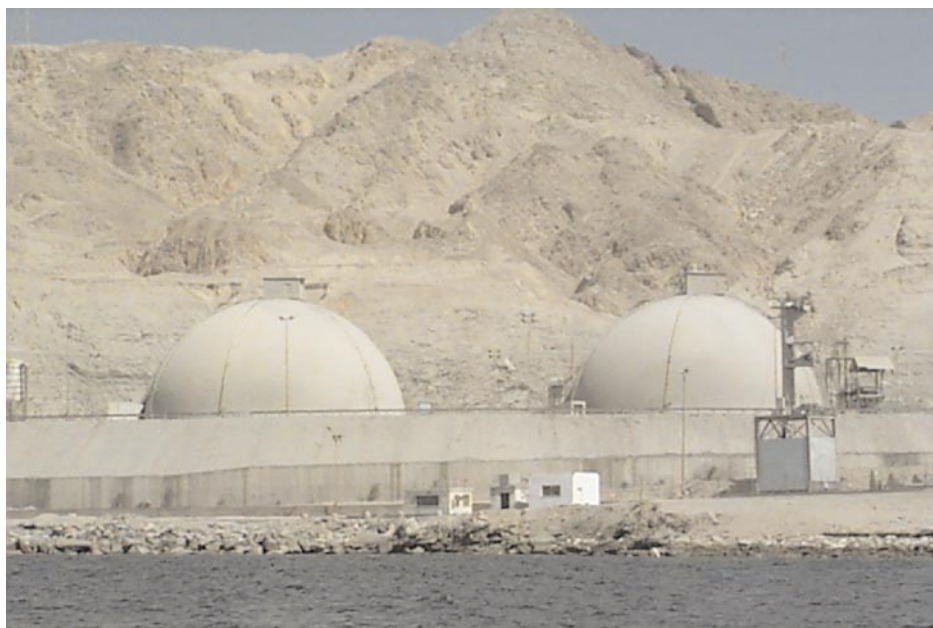
Al Aqabah—Phosphate Terminal



Al Aqabah—Power Station



Al Aqabah—Moshterak Berth



Al Aqabah—Domes close E of Mo'ta Floating Berth



Al Aqabah—Silos close E of Mo'ta Floating Berth



Al Aqabah—Chimneys and stacks at Jordan Fertilizer Industry facility

4. For Yarmout Floating Berth—about 1 mile SW of the berth.

5. For the Jordan Fertilizer Industry (JFI) Jetty and the Aqaba Oil Terminal—about 1 mile SW of the JFI Jetty.

Outbound vessels should send their ETD and request for pilotage 1 hour in advance to Aqabah Port Control on VHF channel 12 or 16.

Regulations.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details on regulations pertaining to vessels in Jordanian waters.

Vessels arriving after 2000 are not permitted to enter Jordanian waters.

Explosives are discharged at the anchorage during daylight hours only.

Ships which were built 15 years or more ago, with certain exceptions, are banned from the port of Aqabah due to lack of operational facilities.

Due to sudden changes in weather, vessels should obtain permission from the harbormaster prior to immobilizing engines.

Vessels carrying dangerous cargo or radioactive materials should inform the Ports Corporation of all details to enable the port to take all necessary precautions and safety measures during unloading.

Vessels bound for this port are requested to send the following information to the harbormaster, via Port Control facsimile (+926(0)-32019265), at least 12 hours prior to arrival:

1. Vessel name and call sign.

2. Flag and home port.

3. Length overall.

4. Maximum draft fore and aft.

5. Summer dwt/grt/nrt.

6. Last port of call/next port of call.

7. ETA (date and time).

8. Propulsion (single screw/twin screw).

9. Type of ramp/length.

10. Cargo (type and tonnage).

11. Liner or charterer.

12. Agent's name.

13. Year built.

Vessels arriving from seaward should, in addition to their signal letters, hoist the flags prescribed by the International Code of Signals.

Vessels should contact Aqabah Port Control on VHF channel 12 and maintain a listening watch on VHF channels 12 and 16 for instructions.

Tankers intending to use the Aqaba Oil Terminal must inform the Port Authorities by cable or letter at least 15 days prior to arrival. Their ETA should be confirmed 5 days before arrival and every day thereafter. Tankers can only berth and unberth during daylight hours and tugs must be used. Vessels should arrive fully inerted.

Vessels intending to berth at the Jordan Fertilizer Industry (JFI) Jetty should send their ETA 7 days prior to arrival, repeating it 96 hours, 72 hours, 48 hours, and 24 hours prior to arrival.

Tankers may not berth alongside Phosphate Berth A if the following signals are shown from the top of the loading elevator on this pier:

1. By day—a red flashing light
2. By night—two red fixed lights, horizontally disposed.

Anchorage.—Eight anchorage berths, best seen on the chart, offer depths of 27 to 55m, sand and coral, good holding ground.

An area off the port, inside the 100m curve and consisting of Anchor Berth 1 to Anchor Berth 4, has been reported to be termed the “near” anchorage, and is utilized by vessels working cargo.

The area seaward of the 100m curve and consisting of Anchor Berth 5 to Anchor Berth 8, reportedly has been named the “far” anchorage, and is utilized by vessels awaiting a berth.

Anchorage is prohibited within 0.6 mile of the jetty close S of the wind sock mentioned above.

Reports have also indicated that anchorage is prohibited within 1 mile of Berth No. 1.

Caution.—There are numerous magnetic anomalies in the northern Gulf of Aqaba. It has been reported (2003) that there is an additional 14° E variation near the main wharf in the vicinity of position 29°30'N, 34°35'E.

Information on the Israel/Jordan can be found in paragraph 6.12.

Jazirat Tiran to Jiddah

6.14 Jazirat Tiran (27°56'N., 34°33'E.) has a sloping sandy beach along its E side for a distance of about 2.5 miles NW from **Champlain Point** (27°55'N., 34°37'E.). Several well defined coral rocks lie close offshore on the coastal reef within 0.8 mile farther N. A coral reef, with a least depth of 0.3m, lies about 1 mile E of Champlain Point, and several detached shoals, with depths of 2.7 to 8.8m, lie within 2 miles of this point.

Anchorage.—Anchorage can be taken about 0.3 mile offshore, in 22m, sand and coral, good holding ground, with a conspicuous hump, about 1 mile WSW of Champlain Point, bearing 342°, and the S edge of Jazirat Tiran bearing 268°.

Anchorage can be taken off the E side of Jazirat Tiran. Care should be taken to avoid the reefs and rocks between Jazirat Tiran and Jazirat Sanafir.

Approaching through the channel between Champlain Point and the coral reef E is not recommended during N winds.

In August many years ago, a vessel anchoring off Champlain Point experienced a N gale, which came up suddenly at night. These gales are reported to occur frequently during the night in this locality.

It was reported in December, many years ago, that the tidal currents in the passage E of Jazirat Tiran set N during the rising tide and S during the falling tide.

Jazirat Sanafir (27°56'N., 34°43'E.) lies about 2 miles E of Jazirat Tiran. Numerous broken peaked limestone hills rise on the E part of the island, with the highest being near the SE extremity of the island.

Jazirat Abu Shushah (27°56'N., 34°54'E.) is low at its N end, but gradually rises at its S end to a bluff, 61m high. It appears wedge-shaped on E or W bearings.

Jazirat Burqan (27°53'N., 35°04'E.), 30m high, lies about 7 miles E of Shushah Island, and is divided into two parts connected by a low sandy isthmus. When seen from a distance, the island appears as two wedge-shaped islands; closer in it appears broken and rugged, with large masses detached from the hills lying at their bases. A good lookout is necessary as there are many uncharted coral reefs, awash, in this locality.

Jazirat Yuba (27°46'N., 35°07'E.) is about 107m high. The island is precipitous and cliffy at its N end, gradually sloping to its SE end. Three rocky islets lie on the reef bordering the SW side of the island. Shib Pelham, which dries, lies about 2 miles NNW of Jazirat Yuba.

Jazirat Walih and Jazirat Julajilah are both low, and lie about 1.5 miles E of the N end of Jazirat Yuba and 2.5 miles E of the S end of Jazirat Yuba, respectively. The latter islet stands on a reef, with sunken rocks, which extends about 2 miles W and S from its NW and SE ends, respectively.

6.15 Ash Sharmah (27°56'N., 35°15'E.), a small subsidiary port of Yanbu, is reached by a buoyed channel leading from a point off the N end of Yuba, NE to the pilot boarding station. Range lights, in alignment bearing 036°, lead from the pilot boarding ground to the port area. A grounded barge, with a length of 130m, offers a berth which will accommodate drafts of 7.8m alongside.

It was reported that several other berths were under construction here.

Pilotage.—Pilotage is compulsory but is available during daylight hours only. The pilot boards about 4 miles SSW of the port, in the vicinity of Lighted Buoy No. 6, just W of the range line. The pilot may be contacted on VHF channel 16.

Regulations.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for regulations pertaining to vessels in Saudi Arabian waters.

Caution.—The fairway entrance N of Yuba is about 2 miles wide; it shows depths of 96 to 239m but leads between isolated shoal patches with depths of 9m. The areas outside of the buoyed channel are unsurveyed.

Take care when steering on the entrance range, as shoal water lies close NW, and in the vicinity of the pilot station. The least charted depth on the range line is 70m.

Jazair Silah is a low group of coral reefs and islets extending from 6 to 12 miles SE of Jazirat Yuba.

6.16 Al Muwaylih (27°40'N., 35°29'E.) is a village consisting of a few huts and some stone houses. On the S side of the village is a conspicuous fort with a minaret.

A spit, on which stand some palm trees, extends WSW from the fort, and continues under water for some distance. This spit can be seen under favorable light conditions.

Temporary anchorage can be taken off Al Muwaylih on a coral bank, about 0.5 mile in extent, with the minaret in the fort bearing 111°, distant 3.5 miles.

Sharm al Harr (Sharm Yahar) (27°37'N., 35°31'E.), narrow and fringed by reefs, lies about 4 miles SSE of Al Muwaylih. It is difficult to identify because of the low coast in the vicinity.

Sharm Jubbah (27°33'N., 35°33'E.), another narrow inlet fringed by reefs, provides good and secure anchorage, in 9.1 to

12.8m. The entrance of this inlet is fringed by reefs, making it tortuous.

6.17 Duba (Dhiba) (27°34'N., 35°32'E.) is situated in a natural harbor and is approached through a 100m wide entrance channel marked by lighted beacons. The channel is 1,482m long and 95m wide, with a depth of 11m; the maximum draft allowed is 9.5m.

Saudi Ports Authority Home Page—The Ports
<http://www.ports.gov.sa>

The quay, which consists of three berths, has a total length of 600m and has a ro-ro facility at its S end, with a 30m ramp.

Berth	Length	Max. draft	Remarks
1	200m	10m	Livestock
2	200m	10m	General cargo
3	200m	10m	Ro-ro

Pilotage is compulsory for all vessels greater than 150 nrt; the pilot boards in position 27°34.3'N, 35°29.6'E.

Mooring and unmooring is performed during daylight hours only. Vessels should send their ETA 5 days, 48 hours, and 24 hours before arrival.

The recommended anchorage is SE of Sila Shoal Lighted Buoy.

Caution.—High speed craft operate out of the port.

6.18 Duba Bulk Plant Tanker Terminal (27°19'N., 35°54'E.) is a multi-buoy mooring berth (MBM) situated 3 miles SE of the village of Duba. Vessels up to 16,500 dwt, with a maximum length of 155m, are berthed and unberthed during daylight hours only. Pilotage is compulsory; pilots board SSW of the berth, in position 27°15.7'N, 35°42.5'E and remain onboard throughout cargo operations. Vessels can obtain anchorage, in 16.2m, about 5 miles NW of An Numan.

Sharm Dahba and Sharm Qafafa lie about 22 and 24 miles, respectively, SSE of Al Muwaylih. The former is entirely filled in and the latter has not been sounded. A conspicuous white house stands on the N side of Sharm Qafafa.

Dhaba, a village consisting of a few houses and a fort, stands near the coast, about 1 mile SE of Sharm Qafafa.

6.19 An Numan (27°06'N., 35°45'E.) is low and sandy at its N end, gradually rising to red limestone cliffs and hills, about 122m high, at its S end. These hills, fringed by a few bushes, have a rugged appearance.

Sharm an Numan, on the E side of An Numan, provides good anchorage, in 8.5 to 14.6m, coral. This anchorage is sheltered, as its sides rise almost vertically to about 30m.

The coast between An Numan and Sharm Habban, about 75 miles SSE, is fronted by steep overhanging cliffs of coral and sandstone. A level ledge of rocks extends about 37m from the base of these cliffs and rises like a wall from a considerable depth.

The outer part of this ledge is nearly dry. The sea, at times, breaks with violence and produces a surf against this ledge, which makes landing between the inlets difficult.

On the off-lying banks along this coast are several low sandy islets and large patches of coral reefs, with deep water between them, lying as far as 8 miles offshore. These reefs should not be approached, however, without local knowledge.

Between Sharm Habban and Ras Karkuma, about 12 miles S, the coast is low and sandy, with low coral cliffs in places.

Sharm Jazzah (26°57'N., 35°57'E.) is small and does not provide good anchorage. The country in the vicinity is barren, with a stratum of black stone on the surface of the hills giving it a bleak and desolate appearance.

Marsa Zubaydah (26°52'N., 36°01'E.), about 5 miles SE of Sharm Jazzah, lies on the E side of an islet on a reef extending from the shore; this bay, with depths of 18.3 to 55m, is fringed by reefs. Marsa Zubaydah provides sheltered anchorage, but the holding ground is bad.

An Nabqiyah (27°44'N., 36°01'E.), on the middle of the large bank, about 14 miles SSE of Sharm Jazzah, is low, sandy and covered with bushes.

Al Uwaynidhiyah is a low sandy islet about 8 miles SSE of An Nabqiyah.

6.20 Sharm Dumaygh (26°39'N., 36°11'E.) provides well-sheltered anchorage in its W part, in 16.5 to 23.8m, soft sand and coral, good holding ground. A good berth is with Mark Rock, a white conspicuous rock on the NE shore of the inlet, bearing 087° and the E extremity of the W side of the entrance bearing 176°.

Vessels without local knowledge should mark the channel before entering to avoid the steep and dangerous patches near the middle of the inlet and the shoal ground extending some distance E from the W side of the entrance.

The best time to enter is with the sun high or astern and at LW, when the reefs are visible.

Sharm Antar (26°36'N., 36°13'E.) is small and provides good anchorage.

Sharm al Wajh (26°13'N., 36°27'E.) is free of dangers in the approach. The shores of the inlet are fringed by a reef; the head of the inlet is foul. There are depths of 27.4m in the entrance, which is about 0.1 mile wide between the reefs, shoaling to about 5.5m about 0.2 mile within.

The coast in the vicinity consists of coral cliffs 15 to 21m high. A low plain, which is marshy near the sea and covered with salt encrustation, lies between these coral cliffs and the steep hills 3 or 4 miles inland. A fort, about 6 miles E of this inlet, is surrounded by hills.

Al Wajh, a village on the NW shore of the inlet, consists of some stone houses, a few minarets, and a fort. Two jetties, in ruins, on the NW side of the inlet, constitute a danger for boats approaching the landing quay.

A lighted radio mast, 75m high, stands about 3 miles ENE of town.

Anchorage.—Small vessels can take good anchorage in Sharm al Wajh. The best berth is in 12.8m, about 183m SSE of the SE extremity of the village.

A vessel of moderate size can lie, moored head and stern, close inside the N entrance point, in stiff clay. This position is

clear of the swell setting across the entrance, and safe against a shift of the wind to the S and SE, which is often very sudden; a NW swell sets into the inlet.

Large vessels can take indifferent anchorage, in about 59m, about 0.5 mile SW of the entrance of the inlet. Rayikhah, about 5 miles WSW of Sharm al Wajh and described in paragraph 6.21, is a good mark in the approach to this inlet.

6.21 Ras Kharabah (26°09'N., 36°28'E.) is fringed by a reef; a small patch, not always seen, lies a short distance outside the visible reef off the point. An opening in the coastal reef near this cape affords good landing.

An inlet, about 2 miles SE of Ras Kharabah, can be distinguished from N by a bluff sloping to the low coast.

To the S of this bluff, the coast is reported covered with scrub. Another bluff, covered with black soil or stones, but not so conspicuous, lies farther S. Anchorage, in 31.1 to 36.6m, has been taken off this inlet.

Sharm Habban (26°06'N., 36°32'E.), about 6.5 miles SE of Ras Kharabah, is narrow and fringed by reefs. This inlet affords good anchorage, in 7.3 to 9.1m, sand and mud.

A detached reef extends from about 0.1 to 0.2 mile NW from the SE entrance point; two reefs project as far as about 0.1 mile NW from the S shore of the inlet.

These projections and the detached reef are marked by discolored water; the channel N of these dangers is 91m to 270m wide. There are depths of 6.9 to 7.8m in the entrance and from 5.9 to 14.6m inside the inlet.

Rayikhah (26°10'N., 36°22'E.), low and rocky, gradually rises from its E end to a height of 15.2m in the middle and at its W end. Good anchorage, in 18.3 to 21.9m, can be taken S of the rocky patches between Rayikhah and the islets E.

Mardunah, about 8 miles SE of Rayikhah and on the S end of the same bank, is a coral ridge in detached pointed masses, about 61m high.

Ras Karkuma (Ras Qurqumah) (25°53'N., 36°38'E.) is fringed by a reef which extends about 2 miles WSW. The land within this cape rises gradually to a height of 122m, about 2 miles E.

6.22 Shaykh Mirbat (25°54'N., 36°35'E.), about 3 miles W of Ras Karkuma, is a low coral island, bordered by reefs; a conspicuous tomb stands on the island. A detached islet, 4m high, lies close off the W end of the island; a rock, 0.3m high, lies about 1 mile WNW of the island.

The approach to this island is safe, as the reefs surrounding it and those to the S are visible. Hawar Islet, about 5 miles SSW of Shaykh Mirbat, and Umm Urumah, about 1 mile farther S, are both low and sandy; the latter islet is covered with bushes.

Mashabih (25°39'N., 36°28'E.) is composed of level coral about 6.1m high. Its W coast, consisting of coral cliffs, is bordered by a steep-to reef, on which are several rocks.

Shaybara (25°24'N., 36°50'E.) is a low, sand and coral island with many bushes, lying on the SE extremity of a reef with many coral islets on it. Wughadi, about 3 miles SE of Shaybara, is a low islet.

Anchorage.—Good anchorage can be taken in the inner channel among the reefs between Ras Karkuma and Wughadi, but no vessel should pass inside the reefs in this locality except to take up a temporary anchorage.

6.23 Umm Lajj (25°02'N., 37°14'E.) is a small village on the coast, with a conspicuous white minaret. A large table-topped mountain, about 1,219m high, lies about 8 miles ENE of Umm Lajj. It is somewhat isolated and is a fairly good mark.

Nipple Hill, about 3 miles E of Umm Lajj, is a sharp cone in the coastal range and the highest peak in the vicinity. It is rather difficult to distinguish, but when in range with the above table-topped mountain, its identity becomes apparent.

Al Hasani (24°58'N., 37°03'E.), an island fringed by coral reefs lying about 9 miles SW of Umm Lajj, is 159m high near the center, with two peaks, each 146m high, on its W side. The W side of these latter two peaks is steep, but the E side falls gradually to a plain.

A tomb, on the E side of the island, about 0.4 mile N of its SE end, and a small white house, about 0.2 mile farther N, are good marks when visible.

A sand patch, on the S side of the island close to its SE extremity, is conspicuous.

There appears to be no passage over the foul ground, with numerous coral heads, extending N and NE from Al Hasani and continuing to the coast.

A reef extends about 2 miles S from the SW end of the island; from the same point a conspicuous sand spit extends about 1 mile along the middle of this reef.

Numerous detached coral patches and rocks lie between the S end of this reef and the SE extremity of the island. The sea around Al Hasani is very clear, and even patches with depths of 9m show well in certain lights.

Anchorage.—Anchorage can be taken about 0.5 mile E of Al Hasani, in about 14.6m, sand and coral, fair holding ground, with the SE extremity of Al Hasani bearing 227° and the small white house bearing about 270°.

6.24 Lubanah, 76m high, about 0.5 mile W of Al Hasani, is, except on its NE side, bordered by a reef extending about 0.5 mile S from it. The passage between Lubanah and Al Hasani is encumbered with several coral patches.

A chain of reefs extends about 6 miles W from a position about 3 miles W of the N end of Al Hasani. The three largest reefs in this chain are awash at LW, and the sea generally breaks over them.

Shib Asbayzeniyat (24°51'N., 36°58'E.), over which the sea breaks during any wind, lies about 8 miles SW of the SE extremity of Al Hasani.

Shib Al Abyadh (24°54'N., 37°07'E.), about 3 miles SSE of Al Hasani, dries 0.3m. Rocky foul ground extends about 1 mile N from Shib al Abyad and SE to the coast.

6.25 Umm Sihr (24°57'N., 37°09'E.), about 3 miles ESE of Al Hasani, is 4.5m high and covered with sparse vegetation. This islet is fringed, except at its E end, by a reef which extends about 0.5 mile S and NW.

A rock, 0.9m high, stands near the N end of the NW reef; about 0.2 mile farther NW is a rocky patch, with a 5.5m patch close S. Shoals, with depths of less than 10.9m, extend about 0.6 mile N and WSW, respectively, from this rocky patch.

Malihah (25°00'N., 37°07'E.), about 2.5 miles NE of Al Hasani, is a sand cay with some reported scrub. A reef extends about 2 miles W from this sand cay. Some patches extend as

far as 0.9 mile E from Malihah; a detached patch lies about 1 mile SSW of it.

Gateway Channel, between Umm Sihr and Malihah, is narrow and has a least depth of 7.3m within about 0.2 mile on either side.

Shib al Guak (24°59'N., 37°11'E.), which dries, lies about 3 miles NNE of Umm Sihr. Some patches lie as far as 1 mile E from this reef, and a detached patch lies about 1 mile SE. The sea sometimes breaks on these reefs, but they cannot be depended upon to be visible.

Tides—Currents.—It was reported that a constant current sets N and E between Al Hasani and Ras Abu Madd.

Anchorage.—The only safe anchorage for large vessels near Umm Lajj is on a bank which extends about 1 mile N from Shib al Guak and the reef E.

A good berth is in 12.8 to 18.3m, with the minaret at Umm Lajj bearing 051°, distant 2.5 miles. The bottom is sand, interspersed with coral patches and boulders, and is fair holding ground.

6.26 Ras Abu Madd (24°50'N., 37°08'E.) is low and sandy. Black Hill, 274m high, stands about 11 miles E of Ras Abu Madd, and is conspicuous when seen from NW.

A range of mountains, 457 to 610m high and broken into detached pyramidal hills, stands about 15 miles inland in this vicinity.

Sugarloaf (24°33'N., 37°32'E.), about 28 miles SE of Ras Abu Madd, is the W hill of any prominence when seen S of **Ras Baridi** (24°17'N., 37°30'E.).

Jabal Hajinah, with six peaks, and another hill, lie about 9 miles ESE and 5 miles NE, respectively, of Sugarloaf; they are conspicuous when a vessel is near the coast.

The high land N of these hills is part of the mountain range extending inland from Umm Lajj SE to the vicinity of **Yanbu** (24°05'N., 38°03'E.). Round Mountain, about 17 miles NE of Jabal Hajinah, is the summit of this range.

Jabal Radwa (24°36'N., 38°16'E.), about 47 miles ENE of Ras Baridi, is the highest point of a range of table mountains.

Between this range and the coast is a group of dark-colored hills, generally about 152m high.

6.27 Jabal Subh (23°18'N., 39°01'E.) is the summit of a range about 24 miles in extent. It is the highest land between Yanbu and Jiddah.

Between Ras Abu Madd and Ras Mahar, about 8 miles SSE, the land near the coast is in some places low and sandy and in others high and rocky.

To the SE of Ras Mahar, the land rises gradually to elevations of 30 to 61m and forms an extensive tableland. The W side of this slope is intersected by numerous water courses. The coast is reported to be radar conspicuous.

Ras Mahar (24°43'N., 37°11'E.) is about 24m high and rocky, its upper part considerably overhanging the base. A small patch of rocks extends from it. A short distance SE of Ras Mahar is a similar bluff, about 49m high.

Anchorage.—Good anchorage can be taken in Sharm Mahar, about 3 miles SE of Ras Mahar, in 12.8m, sand, sheltered from NW winds.

A deep valley in the moderately-high tablelands closely approaching the coast in this vicinity is conspicuous and marks the inlet. This valley is extensive and spreads out to a considerable width as it advances to the interior.

The lower part of the valley is covered with bushes and a few straggling palm trees can be found about 1 mile inland.

This valley has the appearance of a dry bed of a river. The upper part of the hills on either side overhang considerably, and large fragments from them lie scattered in the valley.

6.28 Sharm Hasy (Sharm Hasi) (24°39'N., 37°18'E.) is fringed by reefs, which extend as far as 0.3 mile from the E shore of the inlet. The N half of this inlet is shoal and encumbered with reefs.

Good anchorage can be taken by small vessels about 1 mile inside this inlet, in 9.1 to 12.8m. Anchorage in the outer part is not recommended, as the channel is contracted and the bottom is foul.

The coast between **Ras al Lakk** (24°24'N., 37°25'E.) and Ras Baridi, about 8 miles SE, is steep-to and composed of coral cliffs. Ras Baridi is low and sandy. A conspicuous cement silo stands about 2 miles E of the point. The silo is lighted at night, and should not be mistaken for Yanbu.

Sharm al Khawr (24°17'N., 37°40'E.) is an unsurveyed inlet lying about 8 miles E of Ras Baridi. A bank, on which numerous dangers lie, extends about 14 miles S of the W entrance point of the inlet.

Sharm Yanbu (24°10'N., 37°55'E.) is about 1 mile wide. The inlet extends about 6 miles NNE, with a branch extending E close within the entrance and one extending NW farther in.

Depths of 12.8m were reported in the entrance and 12.8 to 18.3m in the harbor, which had a hard sandy bottom. There is a rock in the N arm, with shallow water between it and the shore to the N.

Yanbu (24°05'N., 38°03'E.)

World Port Index No. 48120

King Fahd (23°57'N., 38°13'E.)

World Port Index No. 48121

6.29 Yanbu stands on low sandy land which lacks vegetation and is fringed in places by a coral reef.

King Fahd is a major oil and general cargo port linked to a crude oil pipeline that is reported to originate in the E part of Saudi Arabia.

The berthing complexes here are approached from seaward by swept routes through the reefs N and S of the port area.

The N approach is made via two charted channels, leading in turn to a Traffic Separation Scheme, established by the local authority. The S approach is well-marked.

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Winds—Weather

A diurnal sea breeze/land breeze cycle occurs almost daily throughout the year and causes wind speeds of 10 knots and above to occur from the NW during the late afternoon. Storms occur as frequently as every 5 to 10 days and sometimes can last as long as 2 weeks.

Although there is little drop in barometric pressure and very rarely any precipitation during these storms, wind speeds of up to 30 knots may occur from the N or NW.

The incidence of fog is rare, but, should it occur, it is more likely during the period from November to April.

During the summer months, from May to September; the incidence of poor visibility (less than 5 miles) can be quite high due to mist and haze, or dust particles held in suspension in the atmosphere. However, throughout the year, dust storms may occur obscuring the coastline.

Tides—Currents

The tidal range is about 0.6m at spring tides, but fluctuations due to non tidal effects are up to about 0.5m. The fluctuations due to non tidal effects are caused by storms which can cause a mean sea level drop of 0.6m during the storms and a significant increase in mean sea level after the storm, or as it subsides. Generally the tides are semi-diurnal.

Currents in the area are influenced by local wind conditions, tide, and the general circulatory pattern of the Red Sea.

Generally, currents within the port have been observed at less than 0.5 knot and run parallel to the coast.

Depths—Limitations

Shib ash Sharm (24°03'N., 37°52'E.), awash and marked by a light, is an extensive bank lying from 6.5 miles SW to 8.5 miles S of the entrance to Sharm.

Reefs, drying reefs, and other dangers, which are best seen on the chart, extend SE and S of Shih ash Sharm to **Yanbu South Light** (23°28'N., 38°26'E.).

The N approach, consisting of the Seaward Approach Channels, are entered respectively about 47 miles SW or 50 miles W of the light on Shib ash Sharm. They are deep, well-surveyed, and best seen on the appropriate chart. The waters outside of the channels are unsurveyed.

The Traffic Separation Scheme leading from the pilot station to the boundary of the Controlled Navigation Area shows a least swept depth of 32m.

The S approach channel, entered about 2 miles SE of Yanbu South Light, is deep and well-marked, but requires local knowledge.

Yanbu.—The port of Yanbu is entered from the Traffic Separation Scheme via a channel dredged to a depth of 12m. A turning basin dredged to the same depth lies in the center of the harbor. It has been reported that the entrance channel and turning basin have been dredged to a depth of 14m. Information on berthing facilities is given in the accompanying table.

Within the Controlled Navigation Area off King Fahd, a line of shoals, with a least charted depth of 3m, lies parallel to, and up to 2.5 miles off the shore.



Yanbu

A deep channel clear of dangers and about 1.5 miles wide lies between these shoals and the edge of the Controlled Navigation Area.

Yanbu—Berth Information

Berth	Length	Maximum draft	Remarks
No. 1	170m	8.22m	Passenger terminal.
No. 2	210m	8.53m	General cargo.
No. 3	210m	10.97m	Dry bulk cargo.
No. 4	106m	10.36m	General cargo.
No. 5	260m	10.36m	General, bulk, and ro-ro cargo.
No. 6	260m	10.67m	General, bulk, and ro-ro cargo.
No. 7	280m	10.67m	General, bulk, and ro-ro cargo.
No. 8	190m	10.97m	Bulk and ro-ro cargo.
No. 9	260m	11.12m	Bulk and ro-ro cargo.

King Fahd.—The General Cargo and Container Terminal (GCCT) lies in the NW part of King Fahd. The terminal is approached via a fairway dredged to a depth of 16m and a turning basin dredged to a depth of 15m.

The Bulk Terminal lies SE of the General Cargo and Container Terminal.

The Export Refinery Terminal, W of the Bulk Terminal, consists of three berths (Berth No. 40, Berth No. 41, and Berth No. 42, also known as the Export Refinery Chemical Terminal) in its inner basin and two berths (Berth No. 54 and Berth No. 55) along the outer face of an L-shaped wharf. Berth No. 54 and Berth No. 55 are also known as Suez West and Suez East. Berth No. 40 is comprised of six breasting dolphins and four mooring dolphins.

The Crude Oil Terminal, a T-shaped jetty, lies close SW of the Export Refinery Terminal. The outer face consists of four

berths, although only two vessels can berth here simultaneously.

The LNG Terminal, located SE of the Crude Oil Terminal, is L-shaped and provides two berths alongside its outer face for vessels loading refrigerated LPG or other specialized cargo.

The Yanbu Petromin Refinery Terminal, located SE of the LNG Terminal, consists of an L-shaped quay providing two berths on its inner face and two berths on its outer face.

The Construction Support Terminal, located ESE of the Yanbu Petromin Refinery Terminal, is no longer in use but can be reactivated if necessary. The terminal consists of an L-shaped pier and a ramp. Vessels with a maximum length of 205m can be accommodated at the inner berth; vessels with a maximum length of 250m can be accommodated at the outer berth. Bulk carriers up to 72,000 dwt, with a maximum draft of 11m, and general cargo vessels up to 50,000 dwt, with a maximum draft of 11.5m, can use this terminal.

King Fahd—Berth Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Draft	Length	
General Cargo and Container Terminal (GCCT)					
No. 1	200m	14.0m	12.6m	250m*	Container and ro-ro cargo.
No. 2	300m	14.0m	12.6m	250m*	Containers.
No. 3	200m	14.0m	12.6m	250m*	General cargo.
No. 4	180m	14.0m	12.6m	250m*	Heavy-lift and general cargo.
No. 5	180m	14.0m	12.6m	250m*	General cargo.
No. 6	180m	14.0m	12.6m	250m*	General cargo.
No. 7	180m	14.0m	12.6m	250m*	General cargo.
* A minimum distance of 15m is required between vessels at adjacent berths during berthing/unberthing operations.					
Bulk Terminal					
No. 21	250m	15.5m	13.9m	—	Bunkers. Can accommodate vessels up to 60,000 dwt.
No. 22	250m	15.5m	13.9m	—	Sulphur. Can accommodate vessels up to 60,000 dwt.
Export Refinery (Chemical) Terminal					
No. 40	220m	13.5m	12.1m	200m	Chemicals. Can accommodate vessels of 5,000 dwt to 50,000 dwt.
No. 41	200m	13.5m	12.1m	200m	Chemicals. Can accommodate vessels of 5,000 dwt to 35,000 dwt.
Export Refinery Terminal					
No. 42	225m	13.5m	12.1m	200m	Refined products. Can accommodate vessels of 5,000 dwt to 35,000 dwt.
No. 54	300m	18.5m	16.6m	300m	Refined products. Can accommodate vessels of 30,000 dwt to 150,000 dwt.
No. 55	300m	18.5m	16.6m	300m	Refined products. Can accommodate vessels of 30,000 dwt to 150,000 dwt.
Crude Oil Terminal					
No. 61	440m	28.0m	25.3m	—	Crude oil. Can accommodate vessels of 80,000 dwt to 275,000 dwt, with a minimum length of 80m.
No. 62	470m	32.0m	28.9m	—	Crude oil. Can accommodate vessels of 275,000 dwt to 500,000 dwt, with a minimum length of 80m.
No. 63	490m	27.4m	24.7m	—	Crude oil. Can accommodate vessels of 120,000 dwt to 275,000 dwt, with a minimum length of 141m.
No. 64	400m	25.9m	23.1m	—	Crude oil. Can accommodate vessels of 100,000 dwt to 400,000 dwt, with a minimum length of 104m.

King Fahd—Berth Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Draft	Length	
LNG Terminal					
No. 71	439m	18.3m	16.2m	—	LNG and naptha. Can accommodate vessels of 20,000 dwt to 150,000 dwt, with a minimum length of 104m.
No. 72	439m	18.3m	16.2m	—	LNG and naptha. Can accommodate vessels of 20,000 dwt to 150,000 dwt, with a minimum length of 104m.
Yanbu Refinery Terminal					
No. 91	245m	16.0m	14.2m	260m	Refined products. Can accommodate vessels of 20,000 dwt to 60,000 dwt.
No. 92	245m	16.0m	14.2m	260m	Refined products. Can accommodate vessels of 20,000 dwt to 8,000 dwt.
No. 93	175m	11.5m	9.8m	175m	Refined products. Can accommodate vessels of 3,000 dwt to 20,000 dwt.
No. 94	175m	11.5m	9.8m	175m	Refined products. Can accommodate vessels of 3,000 dwt to 20,000 dwt.
Ras al Maajiz Terminal					
No. 101	—	29.0m	26.2m	347m	Crude oil. Can accommodate vessels of 35,000 dwt to 300,000 dwt, with a maximum beam of 61m.
No. 102	—	32.5m	29.6m	421m	Crude oil. Can accommodate vessels of 100,000 dwt to 500,000 dwt, with a maximum beam of 61m.
No. 103	—	29.0m	26.2m	347m	Crude oil. Can accommodate vessels of 35,000 dwt to 300,000 dwt, with a maximum beam of 61m.



King Fahd Industrial Port

Ras al Maajiz Tanker Terminal, located about 9 miles SE of the Yanbu Refinery Terminal, consists of a trestle jetty, which contains three berths, connected to the shore by a causeway extending about 0.9 mile SW from Ras al Maajiz. Breasting dolphins front the berths; lighted mooring dolphins are located NE and SW of the berths.

The berth locations can best be seen on the chart. Berth information is given in the accompanying table.

Aspect

Reefs and shoals, lying up to 38 miles offshore, front the shore in the vicinity of Yanbu. This section of coast is lower than the coast to the N marshy, and thickly covered by mangroves. Inland, sharp, conical hills up to 300m high, and all the surrounding land appear to be covered by a fine light sand.

Yanbu.—A conspicuous white building (the Harbormaster's Office) and a water tower stand near Berth No. 1.

Two cement silos, and another water tower about 0.3 mile NE of them, are conspicuous.

The taller buildings of the tower are reported to be visible up to 13 miles offshore.

In the early morning, mist may obscure the hinterland. After 0900 the sun is sufficiently high for the reefs to be seen easily.

King Fahd.—The **Port Control Tower** (23°57.2'N., 38°13'E.) is prominent. A radio mast, 60m high, stands about 3.5 miles N of the control tower.

A group of six conspicuous flares stands within a short distance of each other near the root of the NGL Terminal, about 2 miles E of the Port Control Tower.

Several groups or pairs of conspicuous chimneys, all of which show flashing obstruction lights, are situated, relative to the Port Control Tower, as follows:

1. Two chimneys, each 88m high, standing close together, 1.5 miles N.



King Fahd Control Tower

2. A group of three chimneys, each 142m high, about 1 mile NE.
3. Two chimneys, about 3.5 miles E.
4. Two chimneys (23°52'N., 38°22'E.) standing close together near the coast 4.5 miles SE of the Construction Support Terminal.

It is reported that a tower, from which a strobe light is shown, stands approximately 1.5 miles N of the Port Control Tower. This light has been sighted from a distance of 32 miles.

Pilotage

Yanbu.—Pilotage for Yanbu, which is available 24 hours, is compulsory.

Vessels should send their ETA at the outer pilot boarding position and await instructions from King Fahd port before proceeding to the inner pilot boarding position. A pilot will board at the outer pilot boarding position if arranged well in advance. Pilot boarding and disembarking is at the discretion of the pilot.

Pilots for both Yanbu and King Fahd board, as follows:

1. Northern approach.
 - a. Outer—in position 24°02.0'N, 37°44.0'E.
 - b. Inner—in position 24°05.0'N, 37°55.0'E.
2. Southern approach.
 - a. Outer—in position 23°26.6'N, 38°27.2'E.
 - b. Inner—in position 23°50.0'N, 38°19.0'E.

King Fahd.—Pilotage in the approach channels for King Fahd is compulsory, as follows:

1. Northern Approach Channel—All vessels 300 grt and over.
2. Southern Approach Channel—All vessels.

Regulations

Radio reporting points, the positions of which may best be seen on the chart, are established in the approaches to Yanbu and King Fahd. Inbound and outbound vessels should communicate with Port Control when passing through these positions.

Vessels carrying explosives of ammonium nitrate shall not be underway between sunset and sunrise. The Saudi Arabian flag should be hoisted when within territorial waters and kept flying day and night until the vessel departs Saudi Arabian waters.

Yanbu.—The vessel’s ETA should be reported 10 days, 2 days, and 24 hours before arrival.

King Fahd.—The vessel’s ETA should be sent 5 days, 72 hours, 48 hours, and 24 hours in advance. Any changes of more than 2 hours should be sent.

The vessel’s ETA should be confirmed by VHF when the vessel is within range. Permission to enter the port must be obtained from Port Control.

Vessels calling at Saudi ARAMCO terminals are requested to send the following information:

1. Vessel’s ETA at Yanbu, with any amendments.
2. Vessel’s former name, if applicable; flag; and nrt.
3. Agent’s name, quarantine information, and if any disease or illness on board.
4. Technical details.

All LPG vessels calling at Saudi ARAMCO terminals should provide the following additional information:

1. Vessel name.
2. Whether vessel is equipped with VHF.
3. Gross tonnage.
4. Further technical details, as required.

Anchorage

Five anchorage berths are charted on a bank about 3 miles SW of the port control tower, with depths ranging from 29 to 53m, over a charted bottom of coral and fine sand.

Another anchorage, about 0.2 mile in radius, is charted about 1 mile SW of the Construction Support Terminal. The least swept depth at the anchorage is 32m. Another anchorage is bound by a line joining Lighted Buoy 1R, Lighted Buoy 3R, and Lighted Buoy 1P. It lies close SW of the 32m depth anchorage, and can be used by vessels with a maximum draft of 10m.

Vessels are advised to take only temporary anchorage, and keep their engines ready to maneuver, especially in N to NW winds.

Directions

Vessels should not mistake the lights shown from the cement silo on **Ras Baridi** (24°16'N., 37°33'E.) for Yanbu when approaching from seaward.

In the N approach, the seaward approach channels are not marked, but the Traffic Separation Scheme, dredged cuts, and dangers inshore of the barrier reef are well-marked.

In the S approach, the channel through the reef is deep and well-marked, but it is inadequately charted at present.

Vessels are urged to contact the local authorities for the latest information on this channel and the approach routes to it.

Caution

The approach channels and waters of the port have been well-surveyed within the channel boundaries shown on the chart, but less water and/or uncharted dangers may exist outside of them. Vessels are strongly advised to remain within the fairways.

6.30 Ras al Abyad (23°32'N., 38°33'E.) is low and sandy. Ras Masturah, about 33 miles SSE of Ras al Abyad, is 20m high and is reported to give a good radar return.

Rabigh (22°44'N., 38°59'E.), about 18 miles SE of Ras Masturah, is a bay that has been dredged to provide an oil-loading terminal for berthing VLCCs handling oil and other products of a large oil refinery close S of the harbor.

Winds—Weather.—The prevailing wind is reported from the NW. Gales from the S or SW, with poor visibility, occur most frequently between December and March.

Summers are hot and very humid. Winters are mild and pleasant.

Tides—Currents.—The tidal currents are weak and scarcely perceptible. The range of the tide is about 1.2m.

Depths—Limitations.—To the SW of the harbor entrance, and separated from it by a deep channel, is the N end of a bank which extends 25 miles S.

Numerous reefs lie on this bank, which is steep-to on its E side. Tanta Rock, marked by a light, stands on the N end of this reef, about 3 miles W of the harbor entrance.

The harbor is entered between Ras el Auliya, the SE extremity of a low ridge of hard sand, and Ras Abu Dibsa, about 0.4 mile farther SE. Drying reefs extend 1 mile SW from the W side of Ras el Auliya and 0.3 mile S of Ras Abu Dibsa.

The entrance channel, dredged to a depth of 28m and 400m wide at its outer end, narrows to 240m about 0.5 mile SW of Ras el Auliya, and then leads NE to a turning basin. From the turning basin, Dry Cargo Port extends NE and Liquid Cargo Port extends SE. Pioneer Port lies close SW of Liquid Cargo Port.

The turning basin is dredged to a depth of 27m and is about 900m in diameter; it is marked at its NW end by a lighted buoy.

Dry Cargo Pier is situated on the S side of the entrance channel, between Ras Abu Dibsa and Pioneer Port. Dry Cargo Pier has a berthing length of 80m and a depth of 6.5m alongside. It is used for all handling of dry cargo and ro-ro traffic.

Pioneer Port is dredged to a depth of 15m. Four concrete piers, with depths from 7 to 15m alongside, project from the S side of the basin. Pioneer Port is used by tugs and small craft.

Liquid Cargo Port, 960m long on its NE side and 760m long on the SW, is 690m wide and dredged to a depth of 26.5m. Berth No. 2 and Berth No. 3, on the NE side of the basin, each consist of a concrete T-headed jetty with mooring and breasting dolphins; the berths have depths of 26m alongside and can

accommodate tankers from 30,000 to 325,000 dwt, with a maximum length of 400m and a maximum draft of 23m. With strong W winds, to which the berth is exposed, berthing may be impossible, even with the help of tugs.

Dry Cargo Port is dredged to depths of 10 to 14m. This basin forms the non-commercial area of the harbor; there are piers for yachts along its SE side.

Aspect.—The entrance is marked by lighted buoys. Two stone huts stand on Ras el Auliya.

The customhouse stands on the N side of the bay, near three brick buildings, 1.5 miles NE of Ras el Auliya. The ruins of a pier extend from the shore about 0.1 mile SW of the customhouse.

Pilotage.—Pilotage is compulsory and is available 24 hours. Pilots board in the approach channel 2.2 miles NW of Tanta Rock. Vessels should not proceed E of this position without a pilot.

The pilot vessel is equipped with VHF but communications should be through Port Control.

Regulations.—The vessel should send its ETA 5 days, 48 hours, and 24 hours in advance, with a confirmation sent 3 hours prior to arrival.

Anchorage.—Large vessels are reported to anchor SW of the refinery. Small vessels anchor SE of Tanta Rock.

6.31 Shib al Bayda (22°44'N., 38°47'E.) is steep-to and dries; the S end of the reef is marked by a beacon. Deep-draft vessels should pass at least 0.7 mile S of this beacon.

Shib Nazar (22°19'N., 38°51'E.) has depths of less than 1.8m and is located at the SW end of a bank that extends about 26 miles SSW from Rabigh. Two stranded wrecks lie on the N part of the reef. The reef is marked by a lighted buoy.

Anchorage.—Anchorage can be obtained by small vessels with local knowledge off the NE side of Shib Nazar. Caution should be observed because of the several dangers in the area of Shib Nazar.

6.32 Al Qadimah (Mina al Qadimah) (22°21'N., 39°05'E.) is a port used principally for the unloading of military cargo. Vessels are urged to contact local authorities before attempting to berth here.

Depths—Limitations.—The approach channel is entered between two buoys S of Shib Nazar. The fairway, which has a depth of 12m, leads from seaward through the coastal reef to the port.

A quay which has been built here is reported to have a length of 400m and depths of 13 to 14m alongside its W face; the NE face is reported to be 200m in length, with alongside depths of 7m.

Pilotage.—Pilotage is reported to be available by day only, W of the inner coastal reef.

Signals.—Port Control should be contacted on VHF channel 16, 72, or 74 before attempting to enter.

Anchorage.—Anchorage can be had at the pilot boarding ground, in depths of 15 to 20m.

Directions.—Vessels are urged to contact local authorities for the latest information on channel depths before attempting to berth here. A pair of range beacons, in alignment bearing 103°, marks the channel reach passing through the coastal reef.

Caution.—The only landmark at the seaward end of the channel is reported to be a radar conspicuous wreck on Shib

Nazar. In daylight, the edges of the reefs along the channel are clearly visible.

6.33 Between Ras Makhluq and **Ras Hatibah** (22°00'N., 38°58'E.) are several spacious anchorages, but they are difficult to approach because of the off-lying dangers.

Haramil, 3.3m high and covered with bushes, lies about 7 miles WSW of Ras Makhluq. It is merely an accumulation of drift on the upper ridge of a reef. An isolated steep-to patch, the existence of which is doubtful, lies about 5 miles WNW of Haramil.

Aiqa, a sandy islet, lies about 3 miles N of Ras Hatibah and 0.5 mile offshore.

Between Ras Hatibah and Ras al Sahhaz, about 30 miles SSE, the coast is low and sandy for the first 20 miles to Sharm Abhur; the high land inland presents no conspicuous features.

About 10 miles E of Sharm Abhur, North Sister and South Sister are the mountains to the N in the vicinity; they are conspicuous.

Shib Al Kabir (21°41'N., 38°50'E.) is reported to be marked by a light. This reef lies on the SW side of a bank which extends about 32 miles S from a position 15 miles SW of Ras Makhluq.

A stranded wreck lies about 3 miles N of the above beacon; the wreck is reported to give a good radar return.

Caution.—The reefs lying S and E of Shib al Kabir should be given a wide berth. Uncharted coral heads may exist within the 100m depth contour in this area. Reefs dry in the summer months when N winds are blowing, but may be covered by up to 1m with S winds.

Jiddah (Jeddah) (21°29'N., 39°11'E.)

World Port Index No. 48140

6.34 Jiddah, the pilgrimage port for Mecca (Makkah) and Madinah, is the principal port of Saudi Arabia on the Red Sea. The bay, entered between Ras al Jahhaz (Ras Qahaz) and Ar Ras al Aswad, about 9 miles S, is encumbered with a series of reefs, which form three nearly parallel lines in a N and S direction.

The port is so well-protected by these reefs that the sea within them is comparatively smooth regardless of the force and direction of the wind.

Jiddah, a town on the NE side of the port, is situated on a long sandy plain which extends 5 to 10 miles inland to the base of a range of hills.

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Winds—Weather

The prevailing winds are between N and W throughout the year, and although generally light to moderate, they are liable to freshen daily to a force of 4 to 6 by the afternoon.

The natives say that when the wind remains from the N during the night, a strong wind from that direction may be expected the next day; however, if the wind inclines to the E in the early morning, it will be light and the weather fine.

On rare occasions, the E winds sweep in, bringing sand from the desert, but they seldom exceed 17 knots. The S wind in summer, whether light or fresh, brings a high humidity; a fine dust sometimes accompanies it and reduces visibility.

Tides—Currents

The currents in the approach are strong and variable, but in the bay itself no appreciable current is found.

The summer LW level is 0.6m below that of winter. In summer, when N winds prevail, many of the banks are dry. In January, many years ago, during a N gale of 5 day's duration, the level of water fell about 1.5m.

Depths—Limitations

Middle Gateway and Inner Gateway, each with a least depth swept of 16m, over a width of about 0.1 mile, lead to the major facilities of the port.

The JRD Tanker Terminal Approach Channel has been dredged to a depth of 16.4m (1996), while the channel to the JRD Inner Harbor has been dredged to a depth of 13.4m (1996). The main approach to the Royal Saudi Naval Facility has been dredged to a depth of 11.6m (1981).

The least charted depth in the approach channel to ammunition pier is 6m.

Jiddah—Berth Information			
Berth	Length	Depth alongside	Remarks
North Basin			
No. 1	250m	13.9m	Bulk grain and general cargo.
No. 2	260m	13.9m	Bulk grain and general cargo.
No. 3	260m	14.0m	Bulk grain and general cargo.

Jiddah—Berth Information			
Berth	Length	Depth alongside	Remarks
No. 4	250m	14.0m	Jeddah Northern Container Terminal. Handles bulk grain, containers, and general cargo. Ro-ro ramps are located between Berth No 6 and Berth No. 7, as well as between Berth No 8 and Berth No. 9
No. 5	250m	14.0m	
No. 6	250m	14.0m	
No. 7	250m	13.4m	
No. 8	250m	13.4m	General cargo.
No. 9	250m	11.0m	General cargo.
No. 10	184m	11.0m	General cargo.
No. 11	154m	7.5m	General cargo.
No. 12	205m	7.9m	General cargo.
No. 13	205m	7.9m	General cargo.
No. 14	110m	7.8m	General cargo.
No. 15	60m	7.5m	Passenger and ro-ro vessels.
No. 16	60m	7.5m	Passenger and ro-ro vessels.
No. 17	60m	7.5m	Passenger and ro-ro vessels.
No. 18	60m	7.5m	Passenger and ro-ro vessels.
No. 19	75m	7.5m	Passenger and ro-ro vessels.
No. 20	185m	10.0m	Passenger vessels.
No. 21	200m	10.8m	Passenger vessels.
Southeast Basin			
No. 22	183m	11.0m	General cargo.
No. 23	180m	10.0m	General cargo.
No. 24	180m	10.5m	General cargo.
No. 25	180m	10.5m	General cargo.
No. 26	200m	10.3m	General cargo.
No. 27	184m	10.3m	General cargo.
No. 28	181m	10.3m	Bulk grain and general cargo.
No. 29	181m	10.4m	Bulk grain and general cargo.
No. 30	181m	12.0m	General cargo.
No. 31	181m	12.0m	General cargo.
No. 32	180m	12.0m	Chilled and frozen cargo.
No. 33	180m	11.8m	Chilled and frozen cargo.
No. 34	180m	11.7m	Bulk grain and general cargo.
No. 35	190m	10.7m	Container vessels.
No. 36	200m	10.8m	General cargo.
No. 37	250m	11.5m	General cargo.
No. 38	250m	11.9m	General cargo.
No. 39	180m	12.0m	General cargo.
No. 40	181m	11.8m	General cargo.

Jiddah—Berth Information			
Berth	Length	Depth alongside	Remarks
No. 41	181m	11.6m	General cargo.
No. 42	181m	11.6m	General cargo.
No. 43	180m	11.8m	General cargo.
No. 44	180m	11.2m	General cargo.
No. 45	180m	11.8m	General cargo.
No. 46	181m	12.0m	General cargo.
No. 47	180m	12.0m	General cargo.
No. 48	180m	12.0m	General cargo.
No. 49	180m	12.0m	General cargo.
Southwest Basin			
No. 50	222m	13.0m	General cargo.
No. 51	248m	14.9m	Container vessels.
No. 52	249m	14.6m	Container vessels.
No. 53	250m	14.2m	Jeddah Southern Container Terminal. Handles container vessels. A ro-ro ramp is located at Berth No. 56
No. 54	250m	14.3m	
No. 55	240m	14.7m	
No. 56	260m	15.0m	
No. 57	205m	13.0m	Livestock.
No. 58	205m	12.7m	Livestock.
JRD Tanker Terminal			
No. 1	250m	17.5m	Petroleum products. Can accommodate vessels up to 100,000 dwt, with a maximum length of 260m and a maximum draft of 12.8m.
No. 2	250m	17.5m	
No. 3	250m	11.7m	

There are 58 numbered berths within the port for a variety of cargo types. The basins containing the various berths are dredged to depths of 11 to 15.5m. Information on the berths is contained in the accompanying table.

The normal maximum permitted draft is 13.5m; vessels up to 300m long are berthed regularly.

The Chyoda Island Oil Terminal is an offshore oil berth, located at the approximate position 21°26.5'N, 39°08.8'E. Vessels moor to a stern buoy and take a floating hose aboard. Vessels are urged to contact the local authorities and the pilot for information on this berth.

The JRD Tanker Terminal is located on the seaward side of the causeway forming the W side of JRD Inner Terminal. Berth information is given in the accompanying table. Vessels are urged to contact the local authorities and the pilot for information at this terminal before attempting to berth here.

The JRD Inner Terminal is located at the head of a basin close E of the root of the causeway on which the JRD Tanker Terminal is located. The facility can accommodate vessels from 6,000 dwt to 49,000 dwt, berthed stern-to, with one or both anchors down. Depths alongside the terminal range from



Jiddah Southern Container Terminal

7.0m to 12.8m. The facility handles petroleum products and lubricating oil.

The shipyard E of Anchorage A is contained within a basin, dredged to a depth of 8m. An ammunition pier is available about 3 miles SSE of the Chyoda Island Oil Terminal. The local authorities should be consulted before attempting to berth here.

Aspect

The landmarks by which the position of Jiddah can be identified, before the town is visible, are not easily distinguished. The mountains backing the plain E of the town are so rugged and uneven that the peaks are difficult to identify. They are also very often obscured.

Jabal Umm Arar, about 10 miles NNW of Ras al Jahhaz, appears as the W hill of a range N of Jiddah when approaching from S.

Jabal al Yamaniyah, about 8 miles ENE of Jiddah, is conical, and can easily be recognized when the town is on E or NE bearings, as it is then the most noticeable cone behind the houses. The jagged appearance of the double-peaked hill S of Jabal al Yamaniyah is an aid in identifying it.

Jabal Hadda, about 18 miles E of Jiddah, is a double peak with a saddle between them. It is generally the highest and most conspicuous of the nearer mountains to be seen, as the higher range behind Makkah is seldom visible.

Jabal al Moya, black and rounded, stands about 7 miles SSW of Jabal al Yamaniyah and is the S extremity of the range nearest the coast. This hill is conspicuous because of its color and its being at the end of a line of white sand hills lining the fore-shore.

Jabal Sanam is a small but conspicuous nipple on a flat hill about 9 miles SE of Jiddah. This hill has the same appearance from all directions.

When a vessel is near the latitude of Jiddah, the town itself can generally be seen from a position outside the reefs, with the buildings appearing white in the sun and several minarets showing above them. The beacons on some of the outlying patches are good marks, but cannot be depended on.

Great care should be taken not to mistake the lights of the airport, 14 miles N of Jiddah, for those of the city and the port.

The following may be useful marks when approaching Jiddah:

1. New Control Tower—twin towers standing on the W mole of the service harbor.
2. A conspicuous hotel about 3 miles N of the old control tower.
3. A fountain, which is conspicuous when illuminated during the King's presence in the city, is situated about 0.6 mile WSW of the hotel.
4. A conspicuous building 1.2 miles NE of the old control tower.
5. A conspicuous mushroom-shaped water tower standing about 3 miles ENE of the old control tower.
6. Conspicuous silos situated 0.7 mile ESE and 1.5 miles SSE of the old control tower.
7. A refinery, about 2 miles SE of the old control tower, consisting of a tower marked by obstruction lights, a conspicuous flare, and a number of silver colored tanks.



Jiddah Marine Control Tower

It has been reported that, due to the modern skyline of the city, the hotel and silos were difficult to distinguish.

A conspicuous group of buildings with a tower, 25m high, stands about 3 mile N of Ras al Jahhaz. The Prince's Palace, about 2 miles ESE of Ras al Jahhaz, is easily distinguishable as far as 8 miles by vessels approaching from W or NNW.

When vessels are approaching the gateways to Jiddah, the buildings on **Jazirat Abu Sad** (21°26'N., 39°10'E.) and Jazirat

al Wusta, about 1.5 miles farther SSW, are good marks. The four buildings on the latter island have red roofs.

A jetty, which gives a good radar return, extends W from Ras al Jahhaz, 5 miles NNW of Jiddah Pier. A desalination plant with two conspicuous chimneys and a water tower are situated close NE of the jetty.

A factory and a chimney are situated 5 miles farther NE. A radio mast, with two dish aerials, stands 4 miles NNW of Jiddah Pier.

The headland 0.5 mile ESE of the SE end of Ras al Jahhaz is reported to give a good radar return.

A conspicuous office block stands in the commercial center of Jiddah. It was reported that this building was of particular assistance in identifying the position of Jiddah from seaward. The building is marked by obstruction lights.

Pilotage

Pilotage is compulsory for all vessels greater than 150 nrt entering, navigating within, or departing the port. Pilotage for most vessels is available 24 hours; pilotage for tankers is only available from 0700 to 1600. Pilots board, as follows:

1. North Approach Channel—about 1 mile NW of Shib Qahan Lighted Beacon, for vessels bound for the terminal.
2. South Approach Channel—about 1.3 miles W of Ash Shibayn, for vessels with a draft of 5.5m and less.

A pilotage request should be forwarded through Jiddah Signal Station, on VHF channel 12 or 16, stating the following information:

1. Vessel name.
2. Nationality.
3. Length overall.
4. Agent's name.
5. Maximum draft.
6. Gross tonnage and net tonnage.
7. Cargo.
8. Any special characteristics.

Regulations

The following information should be included in the first ETA message sent to the port:

1. Name of vessel.
2. Flag.
3. Name, address, telephone number, and telex number of agent.
4. Speed.
5. ETA.
6. Type of radar.
7. Frequency.
8. Scan rate.
9. Pulse width.
10. Pulse peak power.
11. Pulse repetition rate.
12. Beam width.

Vessels equipped with more than one radar should give the information concerning radar for each radar. This information need only be supplied once.

The vessel's ETA should be sent 5 days, 96 hours, 72 hours, 48 hours, and 24 hours in advance. Vessels should contact port control, as follows:

1. When within VHF range.
2. When 20 miles from the port, to confirm ETA.
3. When 2 miles from the pilot boarding position, if berthing, supplying the vessel's grt, loa, draft, agent's name, last port of call, and cargo for Jiddah.
4. When anchored in the outer anchorage.
5. When entering, and before moving within, the port limits.
6. On departure.

Berthing schedules are broadcast on VHF channel 12 at 0630, 0730 (occasionally), and 1830.

Signals

Vessels not equipped with VHF, and in need of pilotage, should make the following signals, in addition to the usual flag signals:

1. From sunset to sunrise—use flash "G" by signal lamp.
2. In the event of poor visibility caused by rain, fog, or dust—sound "G" on the vessel's whistle. Vessels are reminded that this sound signal is in conflict with the International Regulations for Preventing Collisions at Sea.

Anchorage

Several anchorages, which should only be used with permission of Port Control, have been established off Jiddah, as follows:

1. Anchorage A and Anchorage B are to be used by authorized vessels only.
2. Anchorage W1 and Anchorage W2 are cargo-working anchorages, with the latter designated for a single vessel carrying explosives. These anchorages also may not be entered or left without a pilot.
3. Anchorage C is for vessels carrying dangerous cargo.
4. Anchorage D is for dry cargo vessels.
5. Anchorage E is for tank vessels and serves as an overflow anchorage as well.

Caution should be exercised when using these anchorages, particularly those within the outer reefs. There is an area in the E section of Anchorage D where coral heads are known to exist.

Several anchors have been lost to the foul ground in the vicinity of Anchorage A. Numerous unmarked reefs border the inner anchorages.

A shoal patch, with a depth of 5m, lies close outside the NE corner of Anchorage B.

An area, shown on the chart, in which anchoring is prohibited, is established S of Anchorage E.

Directions

In the approach to Jiddah, the turn should be made from a position well out to sea from about 30 minutes before to 30 minutes after sunrise at a distance of about 30 to 40 miles W of Jiddah. At this time, the mountains in the vicinity can occasionally be clearly distinguished and a reliable fix obtained.

Jabal Hadda will be the most prominent landmark, followed by the buildings at Jiddah, but in thick weather, which is common during the summer, these buildings can be seen only from a short distance.

The best time for entering is toward noon, as then the sunken reefs appear as dark green shadows on the surface. When the sun is low, or in thick, hazy, or cloudy weather, the reefs are not visible until close to them. Caution should be exercised when entering or leaving the anchorages, as the turns are sharp.

Caution

Care should be taken when making Jiddah because of the variable and strong currents in the approach, and the excessive refraction sometimes encountered in these waters.

Two extensive reefs have been reported to exist between position 21°21.7'N, 38°48'E and position 21°26'N, 38°54.7'E. Although the existence of these reefs has not been proven, vessels should exercise the appropriate caution in the general vicinity.

The beacons and buoys are frequently washed away and cannot be depended on.

Conspicuous wrecks lie on Shib Qahan and Shib Jiddah, about 0.5 mile SSW. Another conspicuous wreck lies on a reef about 2 miles SE of Shib Qahan. Caution should be exercised in identifying these wrecks, as some have been reported to resemble vessels at anchor.

Radar should be used with caution because of the difficulty in identifying targets. The large number of vessels in the anchorage obscures landmarks and confuses the radar picture.

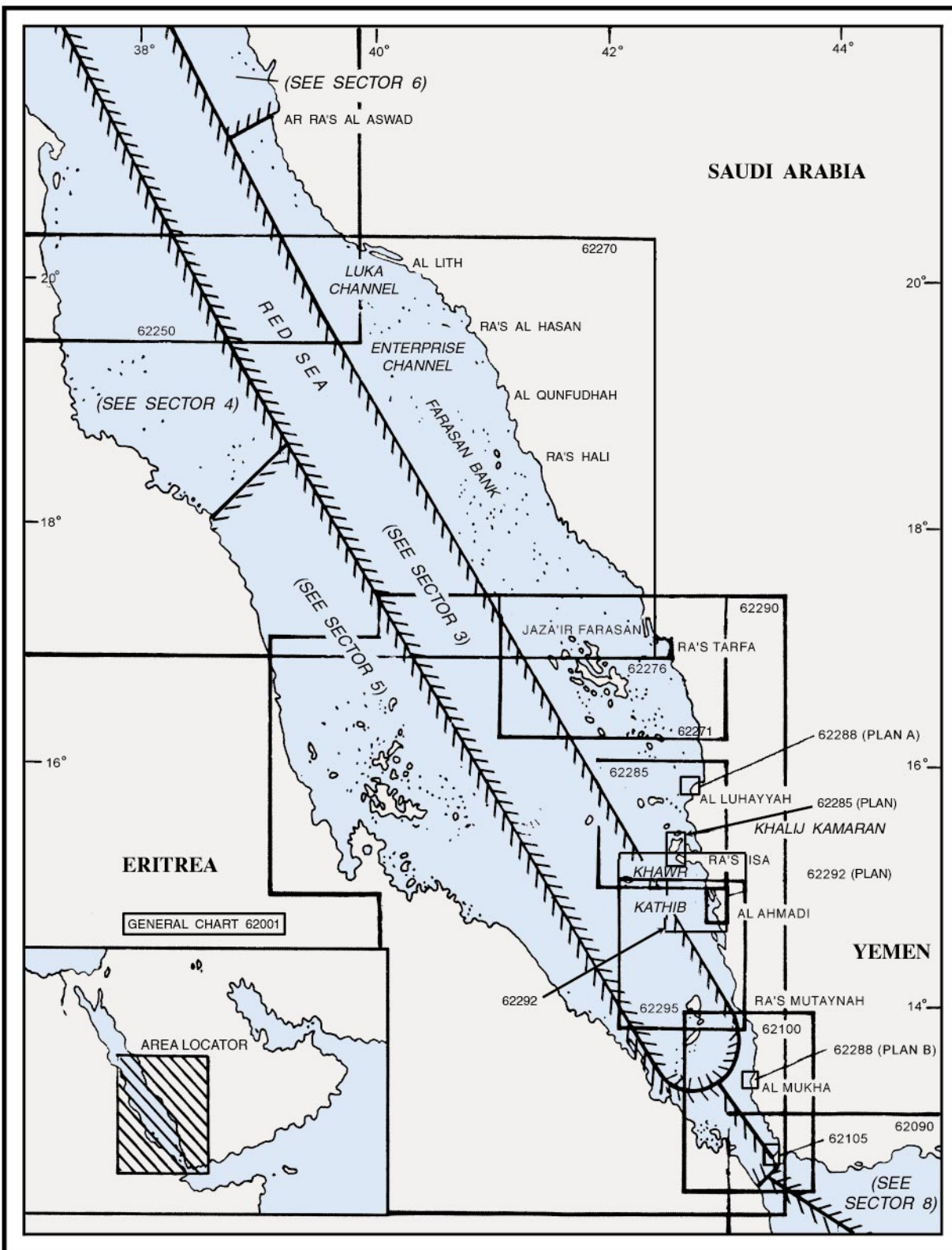
Vessels should give a good berth to all reefs in the vicinity of Jiddah.

Uncharted reefs may exist inside the 100m curve. Vessels are advised to use caution when transiting this area.

6.35 Mismari Reef (21°20'N., 39°02'E.), which dries, is marked by a light. The sea is reported to break on the W edge of the reef occasionally.

Close N of the reef lies a detached shoal, with depths of 1.8 to 10.9m, which breaks in strong W winds.

A dangerous wreck is charted about 1 mile N of the light on the reef. A 3.6m patch, which seldom breaks, lies 0.3 mile ENE of Mismari Reef.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 7 — CHART INFORMATION

SECTOR 7

THE RED SEA—EAST SIDE—JIDDAH TO RAS BAB AL MANDEB

Plan.—This sector describes the E side of the Red Sea between Ras al Aswad, the S entrance of the port of Jiddah, and Ras Bab al Mandeb, the SE entrance of the Red Sea. This sector first describes the coast between Ar Ras al Aswad and Al Lith, followed by a description of Farasan Bank.

The inner channels E of Farasan Bank between Al Lith and Ras al Bayad are next described. The coast between Ras Isa and Ras Bab al Mandeb is then described. The general sequence of description is from N to S.

General Remarks

7.1 Gulf of Aden Voluntary Reporting System.—A voluntary reporting system in support of Operation Enduring Freedom has been established to support surveillance and anti-terrorist operations in the Gulf of Aden and its approaches. For further information, see Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean, Indian Ocean—Navigational Information.

The main range behind Mecca (Makkah) trends in a general SSE direction. That part of this range from NE to ESE of **Al Lith** (20°09'N., 40°16'E.) is a lofty escarpment, 1,829 to 2,134m high, and from 40 to 50 miles inland. It is the principal watershed of this country and falls abruptly to an intricate mass of hills and valleys, that are seldom seen from seaward.

The coastal ranges are from 610 to 1,219m high and have numerous well-defined peaks. These ranges fall steeply to a low area extending to the coast. The plain is broken in places by conspicuous low hills, often visible from seaward when the coastal ranges are obscured by haze. This frequently occurs in summer and autumn.

Jabal Abu Shawk (20°55'N., 39°29'E.), about 33 miles SE of Ar Ras al Aswad and 10 miles inland, is a small double-knobbed hill.

The conspicuous **Jabal Sadiya** (20°45'N., 40°06'E.), about 37 miles NNW of Al Lith, is the highest part of a range that extends SSE for a distance of about 40 miles.

Close E of this peak is a still more remarkable peak which helps to identify Jabal Sadiya. A mountain with three peaks lies about 14 miles SSW of Jabal Sadiya.

7.2 Tower Hill (20°26'N., 40°00'E.), about 20 miles SSW of Jabal Sadiya, is conspicuous. It resembles a tower, but from SSE it appears as a rugged double peak and much larger than when seen from W. The high land S of Tower Hill shows as two round hills.

Jabal Ghala stands about 9 miles E of Tower Hill. About 2 miles SSW of Jabal Ghala is a hill, 582m high. Both of these have double peaks, which from W appear as the summits of two sloping mountains.

Jabal Bani Sad (20°37'N., 40°38'E.), about 35 miles NE of Al Lith, consists of a large isolated mass with three principal peaks. North Notch, the E peak, is precipitous on its N side.

The central peak is rounded in appearance and the W peak is conical. Another conical peak, 1,732m high, stands about 2 miles WSW of the latter.

Jabal Bujalah, about 9 miles SW of North Notch, is a pair of wedge-shaped peaks, the highest of which is 1,432m high.

Jabal Unsar, about 15 miles E of North Notch, shows over the main escarpment.

Jabal Shifa (20°35'N., 40°56'E.), in the main escarpment about 3 miles S of Jabal Unsar, rises in two pyramidal peaks. On N bearings it presents a well-defined notch with a break in the cliff close E. Jabal Ibrahim, on the escarpment about 16 miles SE of Jabal Shifa, presents two peaks that are divided by a nick. The highest peak is a sharp pinnacle.

Jabal Hajra (20°14'N., 41°12'E.) stands about 11 miles SSE of Jabal Ibrahim; its N side falls steeply in two steps.

Jabal Surra is the name of the escarpment from Jabal Hajra to a point about 18 miles SSE, where the range turns E.

Jabal Dauqa (19°50'N., 41°18'E.) is a conspicuous group of pinnacles S of and isolated from the S end of Jabal Surra. Its summit is a sharp peak. Another pinnacle, 2,192m high, is a truncated cone with a peak resembling a chimney. A pair of pinnacles, the higher being 1,821m high, stand on the N end of the group.

7.3 Jabal Umm Kurha (20°28'N., 40°46'E.), one of the lesser coastal ranges, is about 35 miles NE of Al Lith. It consists of a remarkable mass of red granite domes and pinnacles. It is seldom visible from seaward, but the summit can sometimes be seen in the morning when the lower hills are obscured by haze.

Jabal Umar, about 6 miles SSW of Jabal Umm Kurha, has two conspicuous peaks, resembling the ears of a pig. There are also several lower peaks. South Notch, about 6 miles S of Jabal Umar, is the N end of a red granite range, which extends about 5 miles SE.

Jabal al Aswadain (20°09'N., 40°50'E.), about 8 miles SE of South Notch, consists of three dark hills, it appears on most bearings as a saddle between two peaks.

Jabal Muzairah stands in the middle of a break in the range between Jabal al Aswadain and Jabal Nakhra, about 13 miles SSE. A bold summit with three peaks stands about 9 miles NE of Jabal al Aswadain. The W peak, a conspicuous smooth pinnacle, is visible through the break.

Jabal Bani Salim (19°53'N., 40°58'E.), S of Jibal Nakhra, is a range extending about 5 miles S. Its N peak has a conspicuous spike on its S shoulder. To the SE of Jabal Bani Salim are numerous low hills.

Jabal Nadesh (19°58'N., 41°10'E.), about 11 miles E of Jabal Nakhra, is visible through a break in the low hills. Its lower peak is 1,353m high, but there is a much higher peak, with a detached pillar rock, farther inland. Jabal Shadi, about 17 miles SE of Jabal Bani Salim, appears as two flat-topped ridges, the W one being 1,141m high. The hills in the coastal

plain more often visible than the high land inland are probably more useful for navigation.

Jabal al Jabbara (20°18'N., 40°30'E.), about 17 miles NE of Al Lith, is prominent and triple-peaked. A range of coastal hills extends between Jabal al Jabbarah and a 167m peak about 10 miles S. This latter peak is isolated and a good mark. Hills, about 152 to 183m high, extend about 8 miles SE from the above 167m peak.

There are several isolated knolls and small peaks as far as 9 miles SE of the above hills.

A knoll shaped like a beehive, 89m high, stands about 2 miles SSW of these hills. A 113m peak, with two small mounds at its base, rises about 4 miles farther SE; **Twin Cones** (20°03'N., 40°46'E.), a small double peak, rises about 8 miles ESE of the range.

Sugarloaf (19°59'N., 40°46'E.) is a sharp cone about 4 miles S of Twin Cones. A lower mound stands N of Sugarloaf.

Ar Ras al Aswad to Al Lith

7.4 Ar Ras al Aswad (21°22'N., 39°08'E.), the S entrance of the port of Jiddah is the N extremity of a low sandy projection which extends about 2 miles N from the coast. Radio masts showing aircraft warning lights are reported to lie 2 miles S of the point.

The coast between Ar Ras al Aswad and Abu Shawk, 32 miles SSE, is low and is fringed by a reef which extends over 1 mile offshore in places. Many detached reefs lie off this stretch of coast.

Sumaymah (Sumaima) (21°14'N., 39°08'E.) is a break in the coastal reef, which affords moderately-sheltered anchorage from S winds, but is open to NW winds. The N entrance is encumbered with discolored patches and mariners should use caution in this area.

An entrance near the SW side of the reef is marked by a rock, 1m high. This rock stands on the reef on the S side of the entrance. This entrance is about 0.4 mile wide, but it is necessary to keep in mid-channel as isolated patches, which do not break, lie off the reefs on each side of the entrance.

Anchorage.—Anchorage can be taken, in 31m, mud, with the above 1m rock bearing 214°, distant 0.4 mile. Four radar conspicuous radio masts, marked at their tops by white quick flashing lights, are reported to stand near the coast in the vicinity of Sumaymah; conspicuous 72m high towers lie 8 miles farther SSE.

Caution.—A bank, on which several dangers lie, extends about 24 miles SSE from a position about 8 miles W of Sumaymah.

7.5 The coast between Sarum, about 6 miles S of Sumaymah, and Damrur, about 12 miles farther S, is a series of lagoons divided by sandspits and islets. The coral reef which fronts these lagoons has a depth of 0.3 to 0.6m.

The deep channel between this bank and the coast is easy to follow in daylight by keeping about 1 mile off the coastal reef, which is visible. Fixes by bearings, however, cannot be relied on.

Shib Qubbayn (Kobbein Reef) (21°11'N., 39°02'E.), with depths of less than 1.8m, lies on the NE side of this bank, about

6 miles WSW of Sumaymah. A small wreck, with superstructure above-water, is stranded 2 miles SE of Shib Qubbayn.

Abu Shawk (20°52'N., 39°18'E.), an easily identifiable bight lying about 5 miles SSE of Damrur, forms a good mark for making the open sea between Qita Kidan and Shiab Abu Shawk.

Makram (20°25'N., 39°40'E.) lies about 32 miles SSE of Abu Shawk.

Shib Shajah (20°21'N., 39°34'E.), consisting of two parts and with depths of less than 1.8m, lies about 5 miles WSW of Makram. A similar reef lies about 7 miles W of Makram. A bank, with depths of 9.1m, was reported to extend approximately 5 miles NW of this reef.

Qadd Humays (20°17'N., 39°29'E.), a series of low sandy islets, lie about 15 miles SW of Makram.

Harkat (20°20'N., 39°46'E.), 8 miles SE of Makram, can be identified by a conspicuous tomb on a hill. Anchorage can be taken close S of the shoals off Harkat, in depths of 27.4 to 29.3m, sheltered somewhat from W winds.

7.6 Marsa Qishran (20°15'N., 39°55'E.), located 10 miles SE of Harkat, between the W end of the island of Qishran and the coast, has a bar with a least depth of 5.5m, but it is studded with rocks on either side of the entrance.

Anchorage can be taken SW of Marsa Qishran, in 46 to 86m, about 2 miles offshore. Anchorage can also be taken, in 11m, mud, in a bight W of an islet on the W end of Shib al Jiffin.

Al Lith (20°09'N., 40°16'E.) lies about 1 mile inland and is composed mainly of low mud houses and conical straw huts.

The mosque and a large two-story building in the town are the only objects conspicuous from seaward. Some ruined barracks, with a tower at their S end, about 2 miles W of Al Lith, are also conspicuous. There is a thick grove of palms N of the town.

Marsa Ibrahim (20°09'N., 40°13'E.), about 1 miles W of Al Lith, is entered between the two W of the three detached reefs fronting the entrance. These reefs will be clearly visible when the sun is in a favorable position. It was reported that a depth of 7.3m existed in this channel.

Several patches, with depths of 3.6 to 5.5m, lie within about 1 mile SSE of the detached reefs. A few buildings, some in ruins, stand on the NW side of the entrance.

Anchorage.—Small vessels can anchor, in 8.7m, good holding ground, N of the two E detached reefs.

Large vessels can anchor WSW of Marsa Ibrahim, in 20m, sand and coral, with the center of a low islet about 0.5 mile S of the E end of Daama, an island located 4 miles WNW of Al Lith, bearing 005°.

There is no shelter, however, from NW winds. The above islet, which is low and covered with scrub, is fringed by a reef extending as far as 0.2 mile W.

Farasan Bank

7.7 Farasan Bank parallels the coast for about 300 miles S of Al Lith, and has a general width of about 50 miles. This bank is so encumbered with imperfectly charted reefs that it is dangerous to cross throughout the greater part of its length.

It should also be kept in mind that uncharted reefs may exist anywhere in this area.

There appears to be numerous coral reefs on the N part of the bank, separated in some places by deep channels, 5 to 6 miles wide. The reefs were reported clearly visible.

The reefs in this part of the Red Sea differ from the off-lying reefs near the coast in that they are more regularly defined, light in color, and usually steep-to.

There are channels among the islands and reefs on the broad part of Farasan Bank between the parallels of about 18°N, and 17°N. They are seldom used because of their great depth and distance off the coast.

Caution.—Mariners are advised that uncharted coral heads exist within Farasan Bank. The only recommended marked channel is the Gizan North Approach Route.

If it becomes necessary to pass from seaward to the Inner Channels, a vessel should ascertain her position, and approach the bank when there is sufficient daylight to cross.

A good lookout should be kept for the sunken patches, some of which can be seen only in clear weather with the sun astern.

7.8 Jazirat Abu Latt (19°58'N., 40°08'E.), the N island on Farasan Bank, rises to a height of 30m near its S end. The SE part of this island is rugged and the SW part is precipitous. A conspicuous isolated conical rock, 28m high, stands on the SW side of the island. To the N of this rock, the island is low and sandy, with many rocky knolls from 3 to 6.1m high.

The island is fringed by a drying reef, which extends as far as 1 mile from its SW side. An islet, 8m high, and a small cay, over which the sea breaks, lie off the SW side of the island on this fringing reef. On the reef fringing the NE side of the island are three steep islets, one of which is 15.2m high. To the S of these islets and nearer the island is a conspicuous mushroom-shaped rock. A 4.5m patch lies about 0.5 mile N of the N end of Jazirat Abu Latt.

Shib Sahabak (19°54'N., 40°00'E.) is about 8 miles in length and has two drying patches near its S end. These patches are brown and conspicuous. Shib Sulaim, close NE of Shib Sahabak, is about 3 miles in length and has several drying patches on it.

The positions of these reefs W of Jazirat Abu Latt are doubtful. The currents are strong and uncertain in direction, and the depths are too great for anchoring. Caution is necessary when navigating in this vicinity.

Marmar (19°50'N., 39°56'E.), about 13 miles SW of Jazirat Abu Latt, is low and fringed by a reef. There is a conspicuous clump of bushes near the SW extremity of Marmar.

Dohra, about 2 miles W of Marmar, is low, covered with scrub, and fringed by a reef. Al Jadir, about 3 miles SSE of Marmar, is barren, sandy, and bordered by a reef. Malathu Island, about 5 miles SSW of Marmar, is small, low, sandy, and barren. This island, fringed by a reef, has a whitish appearance and can be identified by some white graves.

Danak (19°31'N., 40°02'E.), which is fringed by a reef, is 4m high and bushy. Two cairns, 3m high, stand on the N and SE sides, respectively, of Danak.

7.9 Jabbara (19°26'N., 40°04'E.) is a low, sand and coral islet, bordered by a steep-to reef. Shib al Madhun, with a small sand cay, lies about 2 miles NE of Jabbara.

Shib as Saqa, with a rocky islet, lies about 4 miles SSE of Jabbara.

Shakir (Shaker Island) (18°52'N., 40°25'E.) is a low and sandy islet with some bushes. It lies on a low coral reef and is steep-to on its N side.

Ring Reef (18°58'N., 40°22'E.), about 5 miles N of Shakir, is composed of coral. The sea breaks over its outer edge.

Tidhkar (Tedkar Island) (18°57'N., 40°36'E.), about 12 miles ENE of Shakir, is small and low, with a few bushes, and is fringed by a reef.

Muska, another small and low islet, lies on a steep-to coral reef, about 5 miles S of Tidhkar. Dusaqrya, a low islet, lies about 6 miles ESE of Tidhkar.

Sharbain (18°44'N., 40°37'E.) is a low, sand and coral islet with a few bushes. Dorish, about 13 miles SSE of Sharbain, is a low, sandy islet, covered with bushes and also fringed by a reef. Shib Abu Saiyal lies SE of Dorish. The sea breaks over it.

Maghabiyah (18°15'N., 40°45'E.) and Jazrat Sabiyah, about 2 miles NE, are low, coral and sand islets. Jazirat Al Halah, a small sand cay, lies about 2 miles SSW of Maghabiyah. A low sand bank and two reefs have been seen NE of these islets. Farther N, Farasan Bank appears to be full of shoal patches.

7.10 Mafsubber Island (18°14'N., 40°53'E.) is fringed by a reef. A conspicuous wreck lies in an approximate position on a detached reef lying about 4 miles SW of Mafsubber Island.

Zuqaq (18°04'N., 40°48'E.), lying 11 miles SSW of Mafsubber Island, is a low sand bank. Shib Maras is a group that extends about 8 miles SSE from a position about 2 miles SE of Zuqaq; the sea breaks on its N and S parts.

Dahret Abu Masali is a low sandbank about 3 miles SE of Zuqaq. Shib Rabid is a small rocky patch about 3 miles N of Dahret Abu Masali. A similar patch lies about 1 mile SW of Shib Rabid. The sea breaks on both these patches.

Dahret Maraya are two small sandy islets about 6.5 to 9 miles, respectively, E of Dahret Abu Masali; the E islet is fringed by a reef. A rocky patch lies midway between the two islets; two rocky patches lie close SW of the W islet.

A shoal, on which there are several pointed rocks with a least depth of 3.6m, lies midway between the S end of Shab Maras and the W islet of Dahret Maraya. To the E and ESE of Dahret Maraya are numerous rocky patches.

Wasaliyat Islets (17°41'N., 40°55'E.), lying on a coral shoal, are low and sandy.

7.11 Shib Farasan (16°40'N., 41°30'E.), a bank with many islands, shoals, and rocky patches, lies near the W edge of Farasan Bank and fronts Jazair Farasan. It extends about 60 miles in a SE and NW direction and is from 8 to 18 miles in width. No known navigable channel exists across Shib Farasan, but between it and Jazair Farasan is a deep channel 2 to 5 miles wide.

Al Baghlah (16°57'N., 41°21'E.), the N island on Shib Farasan, lies on the N part of a reef. A lighted beacon marks the island. Dhi Dahaya, low and sandy, lies about 5 miles SE of Al Baghlah. Close SE of Dhi Dahaya is another low and sandy islet. The three Stewart Islets lie about 22 miles SE of Dhi Dahaya.

Marrak (16°24'N., 41°51'E.), the S island on Shib Farasan, is low and ill-defined. It lies on a shoal which extends about 3 miles N and 1.5 miles S.

Tawasila and Cayte lie on the N edge of this shoal. Marrak is reported to give a good radar return up to a distance of 19 miles.

An islet lies on a shoal about 7 miles N of Marrak. A wreck, which had two masts and the bridge showing, lies stranded close E of the islet lying on the shoal.

7.12 Jazair Farasan (16°45'N., 42°00'E.), E of Shib Farasan, is a group containing the largest islands on the E side of the Red Sea. Farasan al Kabir and Sajid, the two largest, are connected by a shallow spit. They are of considerable height and interspersed with plains and valleys.

Jabal al Qasr, about 5 miles NNW of Ras Abarah, the SE extremity of Farasan al Kabir, is the most conspicuous hill on the above two islands.

Jabal Shidda, a conspicuous bluff about 7 miles WNW of Ras Abarah, appears wedge-shaped on some bearings, but on N bearings shows as a hummock with that has a peak in the middle.

Matrahayn (17°09'N., 41°37'E.), the NW islet of Jazair Farasan, is formed by a small group of rocks about 3m high.

Wishka (17°01'N., 41°36'E.) is 18.3m high, composed of sand and coral, and fringed by a reef with several rocks. Jabal Muhammad, about 5 miles ENE of Wishka, rises in its E part to a wedge-shaped hill, 46m high.

Ad Dissan (16°55'N., 41°39'E.) is a flat island gradually rising toward the center. Jabal Dissan, a conspicuous hummock, 67m high, rises in the S part of Ad Dissan. A cairn stands on the S side of the island. The island lies on a shoal bank, on which are several islets. A conspicuous rock lies on this shoal bank off the SW side of the island.

Safan, 12m high, lies close off the N extremity of Ad Dissan, and is separated from it by a narrow channel.

Farasan al Kabir (16°42'N., 42°00'E.), extending SE from Ras Farasan, its NW extremity, is high and rocky. A 75m hill stands about 6 miles SSE of Ras Farasan. There is anchorage for dhows off the coast NW of this hill.

7.13 Janabah Bay (Genaba Bay) (16°40'N., 42°03'E.), on the S side of Farasan al Kabir, affords sheltered anchorage in its E part. The bay, with general depths of 12.8 to 36.6m, is entered via a clear passage, about 2 miles wide.

The coast between the SE entrance of Janabah Bay and Ras Abarah, 6 miles ESE, is low. About midway along the E coast of the island, the village of Farasan lies about 2 miles inland.

A fort, in ruins, stands about 0.4 mile NW of the village. Khella, a small fishing village and the port for Farasan al Kabir, lies on the coast N of Farasan.

In the anchorage off this village it is inadvisable to anchor in less than 36.6m as the bottom appears to be uneven. The fort is a good mark for approaching this anchorage from N.

A bank, on which lies many islets and dangers, extends about 6 miles E, then 8 miles N from the middle of the E side of Farasan al Kabir.

Abulad Islets (16°48'N., 42°09'E.), with many dangerous patches N, lie near the N end of this bank; there is a conspicuous knob on the S end of the central islet of this group.

North Sulain and South Sulain, with a smaller group close S, lie about 2 miles SSE of Abulad Islets. The latter islet is the highest in the vicinity, and has a flat summit with a fort.

The coast between Ras al Jass, the N extremity of Farasan al Kabir, and Al Qabr, about 6 miles SSW, is fringed by a reef. This reef extends about 4 miles N from Ras al Jass; a shoal with depths of 3.6 to 5.5m extends about 1.5 miles farther NW.

Seil Sherra Saghir and Seil Sherra Kabir lie on this reef about 2 miles, respectively, WNW and NW of Ras al Jass.

Al Qabr is approached through a narrow, tortuous channel between the reefs. The fairway is encumbered with rocks and has a least depth of 5.5m.

Sajid (16°52'N., 41°52'E.) lies in a bight on the N side of Farasan al Kabir. A narrow promontory, fronted on both sides by several islets, extends N and WNW from the N part of the island, and terminates in Ras Rasib.

Khawr Sajid (16°50'N., 41°57'E.), on the E side of Sajid, has depths of 16.5 to 23.8m and affords complete shelter. The shores of the bay are fringed by a reef, which has a small opening, about 16m wide, on its NW side. The village of Segid and a grove of date trees stand on the NW shore of the bay. The houses in the village are in ruins.

East Mandhar Island (16°51'N., 41°58'E.), on the S side of the entrance of Khawr Sajid, rises to a height of 30m in Jabal Mandhar. The island lies on the edge of the coastal reef extending from the S side of Sajid. Duff Islet lies about 0.5 mile S of the N entrance of the bay; about 0.5 mile farther SW is a rocky patch with a depth less than 1.8m.

The channel leading into Khawr Sajid has a least width of 0.2 mile in a least depth of 10.9m.

Sayr Abd (Seil Abadho) (17°01'N., 42°02'E.) is about 6.1m high, small, and mushroom-shaped.

7.14 Kaira (16°47'N., 41°42'E.), rather high and wooded, lies about 6 miles SSW of Ras Rarasan, the NW extremity of Farasan al Kabir. Zufaf, about 3 miles S of Kaira, is high and conspicuous. A conspicuous sand spit is located close E of a 30m hill about 1 mile NNW of the SE extremity of the island; a conspicuous white cliff lies about 2 miles farther NW.

Doewa Reef, with a least depth of 1.8m, extends about 2 miles NW from a position about 0.5 mile NE of the SE extremity of the island.

An inlet lies on the NE side of Zufaf. The entrance of the inlet, between Doewa Reef and the SE end of a shoal marked by a beacon 1.8m high, extending SE from the NE entrance of the inlet, is about 0.5 mile wide and has a least depth of 10.9m.

A rock, awash, lies about 0.3 mile S of the N entrance of the inlet and is marked by a beacon. About 0.4 mile farther W, two beacons stand close W and S, respectively, of a small islet.

Anchorage.—Anchorage has been taken, in 18.3m, about 0.2 mile N of the N end of Zufaf. Anchorage can also be taken, in less than 36.6m, W and NW of Doewa Reef.

7.15 Akbar Uqayli (16°37'N., 41°53'E.) is high and fringed by a reef. Salubah and Dumsuq lie on the NW and SE ends, respectively, of a shallow bank, about 8 miles in length, SE of Akbar Uqayli. The former is high while the latter, also high, is almost divided in half by a narrow inlet.

Qummah (Kumh) (16°38'N., 42°00'E.), fronting the entrance of Janabah Bay, has an inlet on its S side. The island is

steep-to on its NE and E sides, but is fringed by a reef on its SW side. A peak, about 27m high, on the W side of the inlet, is conspicuous.

The shores of the inlet are rocky and steep-to for about 1 mile within its entrance. There is a shallow bight about 0.5 mile within the entrance, on the W side of the inlet.

The N entrance point of this bight is formed by a series of peculiar rocks, which are a good mark for entering the inlet.

Anchorage.—Good anchorage can be taken in this inlet, in 14.6 to 16.5m, with a point about 1 mile within the E entrance point, bearing 071°.

7.16 Strawbridge Strait (16°35'N., 42°17'E.) lies W of the extensive bank on which Masaqif and Zahrat Sumayr lie; the depths in the strait were reported to be 3.6m.

Sumayr (16°30'N., 42°13'E.), small and low, lies about 6 miles SE of Ras Abarah; a reef extends about 2 miles WNW from it. A rock, with a depth of less than 1.8m, lies about 2 miles S of Sumayr.

Passage through the strait should not be attempted without local knowledge. Dangerous rocks are charted in the S entrance of the strait.

Zahrat Sumayr (16°28'N., 42°16'E.), low and fringed by a reef, lies on the SW side of the extensive bank mentioned above about 3 miles SE of Sumayr. This bank, on which are numerous shoal and rocky patches, extends about 6 miles SSE and 12.5 miles NNE, respectively, from Zahrat Sumayr.

Masaqif, about 7 miles NNE of Zahrat Sumayr, consists of three low islets. A wreck, with the hull, stack, and two masts showing, lies stranded about 2 miles SSW of Zahrat Sumayr; this wreck was reported conspicuous many years ago.

Duharab (16°17'N., 41°57'E.), lying about 21 miles SW of Ras Abarah, is low, sandy, and surrounded, within 1.5 miles, by rocky shoals. A conspicuous wreck, the position of which is approximate, lies about 2 miles SSE of the island. The fore-castle and stack of the wreck was showing and appeared as a vessel approaching from S.

7.17 Rumayn (16°24'N., 42°14'E.) is sandy and highest at its NW end. The island is fringed by a reef and some shoal heads, which show well, lie from 1.5 to 2.5 miles E.

Murain (Maran Islet) about 3 miles SE of Rumayn, lies on the N edge of a reef, and has a white cross on its NE extremity. Barri and Rafa Barri, lying on the SW part of this bank, are not as conspicuous as the dark rocky islets in the vicinity. Both islands are fringed by reefs.

Juzur Duqaylah (Dugaila Islands) (16°17'N., 42°28'E.) lie on the SW side of a shoal. The NW island, with a small village and mosque, is about 9m high, while the SE island is about 27m high.

Anchorage.—Anchorage can be taken, in 5.0m, off the NW side of the NW island.

7.18 Jazirat al Bayda, about 2 miles ESE of Juzur Duqaylah, is high and prominent. Some rocky islets lie within 1 mile N through W of Jazirat al Bayda. A reef, nearly awash, extends about 2 miles N from a position about 0.4 mile SE of Jazirat al Bayda. Jabal Jink and Maflaqayn, both of which are high and rocky, lie on a reef about 2 miles SW of the larger of the Juzur Duqaylah.

Jazirat Fasht (16°10'N., 42°21'E.) is high and has a village and a mosque in its center. A reef, over which the sea breaks, extends about 5 miles S from Jazirat Fasht. Two islets lie on this reef.

Sana Island (16°07'N., 42°15'E.), about 5 miles WSW of Jazirat Fasht, is low, white, and sandy. A 5.5m shoal extends as far as 0.5 mile NE and 1.5 miles SE from Sana Island.

Lubwan (Loban Island) (15°53'N., 42°17'E.) is bordered by underhung cliffs, about 3m high, and shows up well. Landing is possible only in calm weather.

Inner Channels East of Farasan Bank

7.19 The Inner Channels on the E side of the Red Sea extend from Al Lith to **Khalij Kamaran** (15°25'N., 42°40'E.). The channel, which is encumbered with many dangers, is from 0.5 mile to 12 miles wide and affords good anchorage.

Throughout the channels, the charts are in many places inaccurate and incomplete. Hazy weather frequently renders navigation difficult. From January to May, however, the visibility is very good, and the distant mountains often show well.

In winter and early spring, the water level is higher than in the summer, and though this difference is small, it has a considerable effect on the visibility of the reefs.

The reefs, which generally dry in summer, are covered in winter and show as light green-colored water. Sometimes the red or green discolorations caused by algae make the reef's discolorations less noticeable.

Winds—Weather.—From January to June, inclusive, NW winds prevail, but in the early part of the year, there are frequent days of calms, and light land and sea breezes. The weather is more unsettled in summer, and there are occasional W and SW gales. The sea then becomes confused in the Inner Channels and navigation is difficult.

Usually in the winter, it is calm in the morning and often freshens in the afternoon to a strong breeze, which falls at sunset.

From January to May, inclusive, there is practically no rain. It has been reported that rain fell only on one day during a survey made during these months.

The conditions become more unsettled toward the end of May; thick mists and haze as a result of heat are then common.

Tides—Currents.—The currents in the Inner Channels set mostly N from January to June, inclusive, when the prevailing wind is NW. If the winds are strong, the currents may for a short time set S, and on such occasions the water piles up in the narrow channels. The N set is greater when the wind falls, seldom attaining a velocity of more than 0.5 knot.

7.20 Lunka Channel (20°09'N., 40°07'E.) extends from the N approach to Al Lith to the entrance of Enterprise Channel, about 29 miles SE. The channel is entered between Qita Al Qursh and Shib Habil. It has a width of 0.5 to 1.5 miles and depths that appear to be 28 to 61m.

On the NE side of Lunka Channel, the coast is low and covered with scrub for a distance of about 4 miles SE of Al Lith. Then for a distance of about 9 miles ESE to Marsa Raka, the coast rises to a ridge of sand hills, of which North Raka, 21.3m high, and South Raka, 20.7m high, are the most con-

spicuous. Inland, a sandy plateau rises to numerous low hillocks.

A conspicuous clump of palms, 13.4m high, stands on the coast about 4 miles SSE of Al Lith. From SE, this group appears as two palms.

Shoals, with a least depth of 3.6m, extend about 4 miles SW from the coast from a position about 3 miles S of Al Lith.

Imogene Shoal, an 8.5m patch, is the SW of these shoals and shows as a patch of light green.

Raka Shoals (20°00'N., 40°25'E.), a group of well-defined reefs, some of which dry, extend about 3 miles SSW from South Raka. North Reef, on the W side of Raka Shoals, shows as a patch of light green.

Shib Mudharr, about 0.5 mile SE of North Reef, has depths of less than 1.8m, and is well-defined. A range of sandhills, 15.2 to 18.3m high, extends along the coast for a distance of about 7 miles ESE from South Raka; the coast then becomes low and sandy to Jalajil.

7.21 Shib Subaikha (19°56'N., 40°27'E.), about 6 miles SSE of South Raka, consists of two rocky patches with depths of less than 1.8m. The S patch is light green in color and generally visible; an 8.7m patch lies close W of the S patch.

On the SW side of Lunka Channel, there are numerous reefs and shoals lying between Qita al Qursh and Ghawwas Bank, about 25 miles SE.

Gordon Patches (19°55'N., 40°27'E.), about 0.5 mile SSW of the S end of Shib Subaikha, consists of several shoals with depths of 2m or less.

There is deep water between these shoals, but the water over them shows only a little discoloration.

Enterprise Channel (19°48'N., 40°33'E.), the continuation of Lunka Channel, extends from a position about 4 miles S of Jalajil, in a general SE direction, to a position about 4 miles W of Ras al Hasan, about 21 miles SE of Jalajil. The passage is from 0.5 mile to 2 miles in width between the shoals and has depths of 14.6 to 42m.

Jalajil (19°54'N., 40°32'E.), a point rising to dunes 7.6m high, has a conspicuous white cliff, 4.2m high, at its W extremity. The coastal reef extends about 2 miles NW from the point, and some detached reefs and shoals lie as far as 2 miles NNW of it. The sand dunes N of Jalajil are reported to give a good radar return.

The coast between Jalajil and Ras al Askar, about 5 miles SSE, is low and sandy. The latter point, covered with mangroves, is conspicuous, as it stands on the low ground where the Wadi Halya flows into the sea.

Shib al Farkan (19°39'N., 40°34'E.), with numerous coral heads, lies W of Ras al Askar and is separated by a narrow channel. This channel, which is less than 183m wide in places, is not recommended.

7.22 Qita al Auwal (19°50'N., 40°32'E.), on the NE side of the entrance of Enterprise Channel about 3 miles W of Ras al Askar, has a least depth of 4.2m. Shoals, with depths of 7.3 to 18.3m, lie between Jalajil and Qita al Auwal. Less water was reported over the shoals, which had extended 0.5 mile S.

Qita Ath Thani, on the SW side of this passage, is a group of shoals, with a least depth of 4.5m, lying about 3 miles WSW of Ras al Askar. Shib Auda, a conspicuous drying patch, lies at

the W end of Shib al Farkan, about 2 miles W of Ras al Askar. Shoals extend about 0.3 mile NW and W from its N end. Qita al Bitan, about 3 miles SW of Ras al Askar, has a least depth of 3.0m and is clearly visible. Al Mafriqat, about 0.6 mile ESE of Qita al Bitan, dries. Shib Namis, about 2 miles S of Ras al Askar, dries and is steep-to.

Jinnabiyat (19°46'N., 40°35'E.), the largest and W of a group of islands fringed by reefs, is low, and covered with scrub and mangroves on its N side. A shoal, with a depth of less than 1.8m at its S end, lies about 0.5 mile NW of Jinnabiyat. Melma Islet, 2.4m high, lies close E of Jinnabiyat, and is connected with the latter by a narrow drying reef.

Two above-water rocks, covered with scrub, lie on a detached reef about 0.2 mile NE of Melma Islet. Muhammad Islet, the NE of the above group, is 2.1m high and has a conspicuous clump of bushes near its center. It is fringed by a reef which extends about 0.2 mile NW.

A 3.6m patch, with a depth of less than 1.8m at its SE end, lies about 0.3 mile N of Muhammad Islet. Qita Kashafi, with a least depth of 3.3m, lies about 0.3 mile SE of Muhammad Islet. Bar al Bahhar is the passage between the 3.6m patch N of Muhammad Islet and the shoals about 0.3 mile NE.

7.23 The coast between **Ras al Humara** (19°48'N., 40°37'E.) and Ras Kinnateis, about 5 miles SE, forms the SW side of a peninsula composed of low sand dunes, with a belt of mangroves on each side.

Sanak Islet (19°43'N., 40°38'E.), about 2 miles SW of Ras Kinnateis, is low, covered with scrub, and fringed by a reef, which extends about 0.5 mile W from the islet. The W edge of this reef is not clearly defined, and on its SW edge are a few coral heads above water.

Shib Belem, about 0.5 mile N of Sanak Islet, dries and is fairly conspicuous; a sand cay lies on Shib Belem. Shib Abyad, about 6 miles SSE of Sanak Islet, is white, conspicuous, and steep-to. It is the SW reef of a large area of foul ground extending E.

Sirrayn (Sirrain) (19°38'N., 40°37'E.) lies about 8 miles S of Jinnabiyat. A hill W of the summit is flat-topped, and between the two is a conspicuous truncated cone, about 30m high. The ends of the island are low. The W end of the island is marshy and has a few clumps of mangroves on its NE side.

The high ground consists generally of very rugged coral with a base of red sandstone outcropping on the S shore. Several shoal patches and numerous coral heads extend about 7 miles N from Sirrain. These dangers lie on the W side of the channel.

Directions.—All the reefs are clearly visible, but a good lookout aloft is necessary. From a position in the approach to Al Lith about 3 miles NE of Qita al Qursh, alter course to the SE to pass about 0.5 mile SW of Imogene Shoal.

From this position, make good a course to pass midway between Shib Subaikha and Gordon Patches and, when about 1 mile past these dangers, course can then be shaped for the entrance of Enterprise Channel.

From the entrance of Enterprise Channel, steer a SE course to a position about 3 miles SW of Ras al Askar, then an ESE course to Bab al Bahhar. Pass through Bab al Bahhar with the middle of Sanak Islet bearing 148° and, when the summit of Sirrayn bears 184°, steer for it on that bearing until past the

5.9m patch W of Sanak Islet. Course can then be shaped to the SSE, passing about 0.3 mile W of Shib Abyad.

It was reported that the passage N of Muhammad Islet appeared to be easier and preferable to Bab al Bahhar, as the two reefs on either side of Bab al Bahhar are difficult to see.

By keeping the reef fringing Muhammad Islet, which is usually clearly visible, close aboard, these reefs are avoided.

7.24 Wemyss Passage (19°46'N., 40°21'E.), from NE of Abu Latt, passes through Chisholm Passage, then SW and S of Ghawwas Bank, and finally NE between the shoals S of Jinnabiyat and N of Sirrayn into Enterprise Channel.

Al Qad al Wustani (20°02'N., 40°08'E.) dries and is clearly visible. The sea breaks on it during strong winds.

Shib Ghufra (19°47'N., 40°23'E.), on the SW end of Ghawwas Bank, is the only drying reef in the vicinity. It is light green in color, conspicuous, and steep-to on its SW side.

Daughlish Rock (19°42'N., 40°31'E.), about 6 miles NW of the W extremity of Sirrayn, has a depth of 9.1m; several shoal patches lie SW of this rock.

Shib Khadra (19°45'N., 40°32'E.), about 3 miles WSW of Jinnabiyat, dries. A sand cay, which sometimes shifts with the wind and sea, lies on this reef. Several detached patches of reef lie close S of Shib Khadra.

Directions.—Vessels approaching this passage from W should steer E on the parallel of 20°N, passing N of **Shib Janab** (19°55'N., 39°56'E.), Shib Sulaim, and Abu Latt.

If bound for Wemyss Passage from Al Lith, approach with the summit of Abu Latt bearing 185°, which leads clear of the shoals N of the island and E of Al Qad al Wustani.

When about 2 miles NE of Abu Latt on either of the above courses, alter course to the SE through Chisholm Passage, passing E of **Chisholm Rock** (19°54'N., 40°15'E.).

The drying reefs on either side of Chisholm Passage at this point are about 0.5 mile apart; the sea breaks on them during strong winds.

Continue on a SE heading, passing about 1 mile W of Shib Ghufra. From a position about 2 miles S of Shib Ghufra, make good an ESE course to a position about 2 miles S of Shib Khadra.

When Sanak Islet bears 090°, steer for it on that bearing until the SW extremity of Melma Islet bears 000°, then course should be altered to the NE into Enterprise Channel. Abu Latt and Sirrayn are good marks when using this passage. A good lookout must be kept for reefs; caution is necessary.

Ghubbat al Mahasin

7.25 Ghubbat al Mahasin (19°45'N., 40°43'E.), with general depths of 12.8 to 21.9m, is entered between Ras Kinnateis and Ras al Hasan, about 9 miles SE. A chain of low islets and coral reefs extends across the entrance, but between these are two navigable channels, one at the N end and the other at the S end.

The E side of the bay is low and backed by sand hills, about 6.1m high, which extend as far as a point about 3 miles NE of Ras al Hasan. Along the shore are some scattered clumps of mangroves. Groups of huts stand on the N and E sides of the bay.

Ras al Hasan (19°38'N., 40°46'E.), the N extremity of a narrow projection extending about 2 miles NNW from the coast, is low, sandy, and covered with scrub. On its seaward side is a clump of mangroves.

The ground rises steeply to a cliffy bluff, about 10.6m high. Zughuib Islet, on the coastal reef about 3 miles S of Ras al Hasan, is low, sandy, and scarcely visible.

Gheibisa Islet, Umm Ibsas Islet, and Minzak Islet lie about 1.5, 1.5, and 3.5 miles, respectively, SSE of Ras Kinnateis. They are all low and sandy; a mangrove bush on Umm Ibsas Islet is a good mark.

The Umm Al Gharaniq Islands, a group thickly bordered with mangroves, lie about 2 miles NNW of Ras al Hasan. Umm al Qandil, about 1 mile ENE of Ras Kinnateis, is low and bordered by a thick belt of mangroves. A reef extends about 0.5 mile E from its E extremity, and an above-water rock, covered with bushes, lies on the reef extending about 0.5 mile NNE from the islet.

Anchorage can be taken, in 12.8 to 14.6m, coral and mud, about 0.2 mile NE of the above rock. The N entrance of Ghubbat al Mahasin lies between Ras Kinnateis and Gheibisa Islet. A small drying reef in mid-channel divides the channel into two parts. The S part is about 0.1 mile wide and is recommended; the shoals in the N part are not clearly visible.

When entering this bay, vessels should keep the N side of the recommended channel close aboard to avoid a small detached drying reef close N of Gheibisa Islet.

The S entrance of the bay lies between the al Gharaniq Islands and Ras al Hasan. It is about 1 mile wide, and the reefs on each side are clearly visible. The point about 3 miles NE of Ras al Hasan, marked by a clump of mangroves, is a good mark in the approach.

Inner Channels (continued)

7.26 Between Ras al Hasan and Al Qunfudhah, about 35 miles SE, the Inner Channel continues in a SE direction, roughly paralleling the coast.

The **Nahud Islets** (19°33'N., 40°47'E.), on the NE side of the Inner Channel, lie on a reef about 5 miles S of Ras al Hasan. The N edge of this reef is usually visible.

Two reefs lie about 2 miles E and 4 miles ESE, respectively, of the Nahud Islets. There are reported to be patches, with depths of 11 to 14.6m, between these two reefs and the Nahud Islets.

Ghurab (19°30'N., 40°53'E.) is low and flat, with well-defined extremities. A chain of low, sandy islets and cays extends about 2 miles NNW and 2.5 miles SE, respectively, from the islets.

Safiq (19°32'N., 40°44'E.), on the SW side of the Inner Channel, lies about 7 miles SE of Sirrayn; it is low and sandy, with a few bushes. Detached reefs lie as far as 1.5 miles E of Safiq.

Umm Ali (19°31'N., 40°45'E.), close SE of the S end of Safiq, is thickly covered with bushes on its E end and is a good mark when seen from the N.

Abu Rukaba, with a conspicuous clump of bushes, lies about 0.5 mile off the middle of the E side of Long Island, the S of these islets. There are some conspicuous clumps of bushes near the N end of Long Island.

The **Fara Islands** (19°20'N., 40°50'E.), extending about 8 miles SSE from the S end of Long Island, are low and sandy. From N, they consist of Third Islet, Next Island, and Pelican Island.

Next Island is covered with bushes, and between it and Third Islet is a sand cay.

Pelican Island, 6.1 to 9.1m high, is conspicuous from S. On the E part of Pelican Island and around a lagoon on its S side are mangroves; the W part of this island is covered with dry scrub.

A bushy islet lies on the edge of Farasan Bank about 0.3 mile ESE of Pelican Island.

Anchorage.—Good anchorage, in 18m, sand, can be taken off the NE side of Pelican Island; it is sheltered from W and SW winds. The entrance of Baghghalah Channel (Baggala Channel), which is used by native craft to cross Farasan Bank, is a break in the E side of Farasan Bank, about 2 miles SSE of Pelican Island.

7.27 Umm as Saifa (19°03'N., 41°02'E.), 2.4m high, low, sandy, and bushy, lies on the E edge of a reef extending about 0.4 mile S. A shoal, with a depth of 6.4m, extends about the same distance NW from the islet.

Directions.—From a position about 0.3 mile W of Shib Abyad, vessels should steer a SE course until Abu Rukaba bears 242°. Then alter course to the SSE from Umm as Saifa, passing about 1 mile W of Crawford Reef and 0.5 mile W of Cox Reef. These reefs lie W of Al Qunfudhah. Umm as Saifa is a good mark and is usually seen from some distance N of Crawford Reef and Cox Reef.

Al Qunfudhah (19°08'N., 41°04'E.) is a small town and consists chiefly of huts. From S, two minarets in the middle of the town and a tower about 0.5 mile S of it are conspicuous. A mosque with a minaret stands between the town and the tower.

A pier extends SW almost to the edge of the coastal reef S of the town, but it is not suitable for landing.

Crawford Reef (19°08'N., 41°01'E.), about 4 miles W of Al Qunfudhah, is awash and generally clearly visible. There is a small sand cay on the reef in the summer.

Cox Reef, about 4 miles WSW of Al Qunfudhah and about 2 miles S of Crawford Reef, has a least depth of 0.9m; it is difficult to distinguish until close.

The bay off Al Qunfudhah, fringed by reefs, lies between the extremity of a low projecting point about 2 miles N of the town and a low rounded point close S of the town.

The coastal reef extends about 0.4 mile W from the N entrance point; a shoal with a depth of 4.5m at its S end extends about 0.1 mile S from this reef. About 0.3 mile farther S is a detached drying reef; patches of reefs lie between this detached reef and the coast.

From close S of the S entrance point, a tongue of reef extends about 0.6 mile WNW.

A large detached reef, about 1 mile in length, lies close W of the S entrance point, and is separated from it by a passage filled with wrecks.

An islet, 2.7m high, with some bushes, stands on the E side of this reef.

Anchorage.—Anchorage can be taken, in about 9 to 11m, in the S part of the bay W of the town, from 0.5 to 0.7 mile off-

shore. It is sheltered from the S by the large detached reef with an islet on it.

Caution.—Vessels approaching the anchorage should pass about 0.3 mile S of Cox Reef and then steer NE for the entrance of the bay.

7.28 Ghubbat al Qina (19°04'N., 41°09'E.) is entered between Al Qunfudhah and Ras Makasir about 11 miles SSE.

The coast is low and fringed by reef. Some white sand hills, about 5m high, stand at the head of the bay.

A chain of reefs extend about 3 miles SSE from the S entrance of the bay off Al Qunfudhah; an islet, 1.5m high, lies on the S part of this reef. Sawle Reef, awash at very LW, lies about 1 mile WSW of the above islet.

Rouquette Reef, about 3 miles S of the same islet, dries. Shib Qina, about 3 miles E of Rouquette Reef, is a group of drying patches.

Ras Makasir (18°57'N., 41°07'E.) is the W end of a reef, which is connected to the coast by a drying mudflat. Reefs, the outer edges of which are clearly visible, extend about 1 mile NW from the point. Nares Reef and Purvis Reef, both of which dry, lie about 2 and 3 miles, respectively, NNW of Ras Makasir. A small detached reef, with a depth of 3.6m, at its W edge lies close W of Nares Reef.

7.29 Umm al Qamari Islets (18°58'N., 41°04'E.), about 5 miles SSE of Umm as Saifa, are two islets that are low, sandy, and covered with bushes. The E islet is 6m high, while the W islet is 3m high; the islets are fringed by a reef.

Cullinane Reef, nearly awash, lies about 0.5 mile N of the E islet. A 4.5m patch and a 3.6m patch lie close W and 0.4 mile SW, respectively, of the same islet.

To the W of a line drawn between Umm as Saifa and the W Umm al Qamari Islet are several shoal patches, which are usually visible, but some have not been examined.

Shib Ath Thalatha extends about 0.5 mile SSE from a position about 1 mile ESE of the W part of Umm al Qamari Islets. The two N parts of these three reefs have sand cays on them during most of the year.

The coast between Ras Makasir and Ras Abu Matnah, about 5 miles SSE, and Ras Abu Kalb, about 11 miles farther SSE, is low, sandy, and covered with scrub.

Ras Abu Matnah is fringed by a reef; a shoal, with a depth of 2.7m, extends about 2 miles S from the point.

Shib Aniker extends about 2 miles SW from a low point on the coast about 5 miles SSE of Ras Abu Kalb. Its outer edge is clearly defined, parts of it being awash at very LW.

Booth Patch and Salmond Patch, with depths of 3.6m and 4.5m, respectively, are difficult to distinguish. The former lies about 2 miles SW of Ras Makasir while the latter lies about 1 mile WSW of Ras Abu Matnah.

Mason Reefs (18°51'N., 41°02'E.) are a group of five patches with a least depth of 0.6m at their N end.

Shib Anda (18°51'N., 41°09'E.) extends from 1.5 to 2.5 miles S of Ras Abu Matnah. Near its N edge is a sand cay, awash at HW. This drying reef is steep-to, except at its S end, where coral heads extend about 1 mile SSW.

7.30 Pettis Reef (18°48'N., 41°09'E.), which dries, lies about 5 miles SSW of Ras Abu Matnah; several large boulders

lie on the E edge of this reef. Shoals, with depths of 3.6 to 5.5m, lie within 0.5 mile N, W, and S of this reef.

Anchorage can be taken, in 20.1m, sand and mud, off the E side of Pettis Reef. Tully Reef, partly awash at HW, lies about 2 miles S of Pettis Reef.

Coral heads extend about 0.4 mile NNW from this reef; a 3.6m patch lies about 0.5 mile E.

Fuller Shoal, with depths of 3.6 to 9.1m, lies about 3 miles NW of Ras Abu Kalb.

Brook Shoal (18°42'N., 41°05'E.), with a least depth of 2.7m, lies about 7 miles W of Ras Abu Kalb. There are several shoal patches, not closely examined, lying W of Brook Shoal. Backham Patches, with a least depth of 9.1m, coral, lies about 7 miles WSW of Ras Abu Kalb.

Shirley Reefs (18°41'N., 41°08'E.), a group which dries in places, lie about 4 miles WSW of Ras Abu Kalb. Shirley Reefs are not easily seen.

Hunt Patches, with depths of 5.5 to 12.8m, extend about 3 miles SE from a position about 3 miles WSW of Ras Abu Kalb. They are difficult to distinguish because of the discoloration of the water in the vicinity.

7.31 Ras Hali (18°36'N., 41°17'E.), lying about 9 miles SSE of Ras Abu Kalb, is low and covered with bushes and clumps of palm trees. A reef extends about 2 miles SW from the point.

The outer edge of this reef, steep-to and generally visible, has a sand cay on it. Some of the sand banks off the cape dry from 0.6 to 0.9m in summer; the water off the cape is usually very discolored, the bottom being soft mud.

Jabal Hali, lying about 23 miles NE of Ras Hali, appears pyramidal in shape when seen from N of Al Qunfudhah.

To the S of Al Qunfudhah its appearance quickly alters, and from Shib Anda it shows as an oblong mountain, with its N part rounded off abruptly.

The mountain range converges toward the coast in the vicinity of Khawr Nuhud, about 22 miles SSE of Ras Hali, and Khawr al Birk, about 3 miles farther S. Jabal Tusi Sham stands about 20 miles SE of Ras Hali and 6 miles inland.

Jabal Tusi Yemeni stands about 4 miles farther SE. These two peaks are larger than the others and from Khawr al Birk they appear as the N part of the range. There is a peak S of the above two which may be mistaken for Jabal Tusi Yemeni.

7.32 Jabal Wasm (Jabal Qahm) (18°01'N., 41°36'E.) stands on a peninsula. On NE bearings, this steep hill appears pointed while on E and SE bearings it shows as a round hill with a peak on its N slope. A steep, flat-topped hill, 219m high, stands about 3 miles ESE of Jabal Wasm; about 4 miles farther E is Jabal N, steep and conspicuous.

Jabal Baqara, close to the coast about 5 miles WSW of **Jabal Widan** (17°54'N., 41°48'E.), is 122m high and conspicuous on N bearings. The N and W sides of this hill are composed of black lava and on the S side is a white sand slope.

Jabal Husna-l Majis, about 6 miles SE of Jabal Widan, is steep on its N side, and has a fort on its summit. Jabal Itwad, about 23 miles ESE of Jabal Husna-l Majis, is conspicuous.

Khawr Amiq (18°28'N., 41°26'E.), about 10 miles SE of Ras Hali, is formed by a sandy point extending S, which can be

identified by the gap it forms in the mangroves fronting the coast in the vicinity.

Shoals, with depths of less than 1.8m, extend about 2 miles S from the W entrance of Khawr Amiq.

Good anchorage can be taken in the bay N of Khawr Amiq, in 9.1 to 18.3m, sheltered from N and E winds.

Odin Shoal (18°26'N., 41°25'E.), with a depth of 5.5m, lies about 2 miles S of the W entrance point of Khawr Amiq, and is only seen under favorable conditions. A 3.6m patch lies between Odin Shoal and the coast SE.

Barton Islet (18°23'N., 41°16'E.) lies on a reef; about 2 miles E on the same reef is another islet. Both these islets are low, sandy, and covered with bushes. Minto Patch, with a depth of 7.3m, lies about 3 miles WSW of Khawr Amiq.

Freeman Shoals lie close W of Minto Patch. The coast between Khawr Amiq and Khawr Nuhud, about 12 miles S, is fringed in places by reefs. About 4 miles N of Khawr Nuhud, the sandy coast is broken by a conspicuous, dark, flat-topped rocky point, 9.1m high.

7.33 Umm Kerkan Shoal (18°22'N., 41°24'E.), lying about 2 miles offshore, extends about 5 miles S from a position about 4 miles S of Khawr Amiq. Its N part is awash and clearly visible, while its E edge is steep-to and also clearly visible.

Khawr Nuhud (18°17'N., 41°28'E.) is divided into two small bights by a projection extending S. Both of these parts are almost filled with the coastal reef, which extends about 1 mile SSE from the N entrance point.

The coast between Khawr Nuhud and Khisa, about 22 miles SSE, is fringed by reefs extending as much as 3 miles offshore. The trend of this stretch of coast was reported, many years ago, to be inaccurately charted.

The coast in the vicinity of Jabal Qahm, about 5 miles NNW of Khisa, was reported to lie 2 miles farther E than charted.

Jazirat Marqa (18°13'N., 41°19'E.), about 10 miles WSW of Khawr Nuhud, is low, sandy, and bordered by a reef.

Khawr al Birk (18°14'N., 41°30'E.), fringed by reefs, is entered about 2 miles S of Khawr Nuhud, and is separated from it by a projection, off which the coastal reef extends about 2 miles SW. The entrance lies S of this reef and the reef extending about 3 miles SSW from the S entrance point. The passage into the inlet is reported to be tortuous and narrow.

7.34 Hasr (18°09'N., 41°29'E.), low and wooded, lies on the coastal reef. Abu-l-Mahlef Islet, small, conical, and about 15.2m high, lies on the coastal reef about 3 miles SE of Hasr.

North al Wasm (North al Qahm) and South al Wasm (South al Qahm), about 6 and 9 miles, respectively, SSE of Abu-l-Mahlef Islet, provide good sheltered anchorage.

Anchorage, in 20.1m, has been taken off the entrance of North al Wasm. There is a sand bar, with a least depth of 4.5m, across the entrance of North al Wasm and a depth of 11.0m, mud, within. South al Wasm has depths of 9.1 to 14.6m.

Two above-water rocks lie on the coastal reef about 2 miles WNW of the N entrance of North al Wasm. Khisa is a small village on the coast, about 3 miles S of South al Wasm.

Widan (17°52'N., 41°43'E.), about 7 miles SE of Khisa, is a village on the shore of a small bight formed by a narrow projection extending W and N from the coast. This projection

has the appearance of an island from W. This bight provides anchorage, in 5.5 to 7.3m, sheltered from S winds.

Kutumbul (Qadimbal Islet) (17°54'N., 41°38'E.), about 3 miles S of Khisa, rises like a wedge to a small rugged peak.

A reef extends about 0.5 mile SSW from the island; a 2.7m patch, not visible, lies about 0.5 mile E of the island.

7.35 Khawr al Makra (17°48'N., 41°51'E.) is a small break in the coastal reef about 8 miles SE of Widan. Between Khawr al Makra and Khawr Itwad, about 22 miles SE, there are several villages along the coast, which is fringed in places by reefs and shoals lying as far as 3 miles offshore.

The coast in the vicinity of a large village about 11 miles SE of Khawr al Makra was reported to lie 3 miles farther NE than charted.

In general, anchorage is available all along the coast from Widan to Khawr Itwad.

Sumayr (17°47'N., 41°23'E.) is low and composed of sand and coral. A bank, with depths of 5.5 to 35m and probably less, extends about 5 miles N from a position about 1 mile NE of Sumayr. A rocky patch lies about 1 mile W of the middle of the W side of this bank; a similar patch lies about 2 miles ESE of its NE extremity.

Anchorage can be taken on this bank or off the W side of Sumayr, but care should be taken to avoid the shoal patches.

Mamali Saguir, a narrow reef on which the sea breaks in places, extends about 10 miles SSE from a position about 21 miles SSW of Khawr al Makra.

Matbakhayn, a rock, stands on the N end of this reef, and is a good mark. A beacon, 5m high, stands on the rock.

Khawr Itwad (17°34'N., 42°08'E.) is narrow and 1.8 to 3.6m deep. A large village is located about 4 miles E of the inlet. A 7.3m shoal, the position of which is approximate, was reported to lie about 6 miles SSE of Khawr Itwad. Caution is necessary, as shoal water may extend some distance from this shoal.

In general, anchorage is available all along the coast from Khawr Itwad to a position about 26 miles SSE.

Firan (17°11'N., 42°10'E.), on the W side of the Inner Channel about 29 miles SE of Matbakhayn, is covered with trees and bushes; its highest part forms a steep bluff W.

Shairah (17°04'N., 42°16'E.) is about 6.1m high and covered with bushes. Ghurab lies about 9 miles WSW of Firan near the W end of a bank. A small black rock lies about 0.3 mile NW of the N end of the island.

7.36 Ras at Tarfa (17°02'N., 42°20'E.) is the S extremity of a long bushy peninsula which forms the W side of Khawr Abu as Saba. The point is fringed by a reef, which extends about 0.2 mile S and 0.8 mile W. Farafir and two islets close W

of its S extremity lie on a reef about 2 miles ESE of Ras at Tarfa.

From a distance, these three islets appear as one. An 11m shoal extends about 2 miles SE from the SE end of Farafir. Khawr Abu as Saba is encumbered with shoals on its E side for a distance of about 8 miles from its head.

Anchorage can be taken, in 7.3 to 14.6m, in the outer part of this inlet. The coast between the E entrance of Khawr Abu as Saba and Jizan, about 11 miles SSE, is flat and sandy, and fringed by a reef.

Some hills, about 61m high, close behind Jizan are conspicuous, being the only high land in the vicinity.

Qarn al Wada (17°02'N., 42°30'E.), a bight in the coast about 3 miles SE of the E entrance of Khawr Abu as Saba, is almost filled with the coastal reef.

Jizan (16°54'N., 42°31'E.)

World Port Index No. 48142

7.37 Jizan (Gizan) is a developing port serving the S area of Saudi Arabia. The port deals mainly with breakbulk, container, ro-ro, and bulk cement cargo.

Saudi Ports Authority Home Page—The Ports

<http://www.ports.gov.sa>

Winds—Weather.—The prevailing winds here are from NW in the summer and from SE in the winter.

Tides—Currents.—The tidal rise is less than 1m.

Depths—Limitations.—Vessels up to 220m long, with a maximum draft of 10.5m, can be accommodated. The main harbor is comprised of a large basin, dredged (2005) to 10m in its N half and 12m in its S half. The basin contains 13 berths, 11 of which are used for general cargo and ro-ro vessels, while two are dedicated solely to ro-ro operations. The approach channel has been dredged to a depth of 13.5m; a turning basin just inside the breakwaters has been dredged (2005) to 13m.

A pier, used by coastal tankers, extends 0.8 mile SW from the shore, 1.5 miles SE of the root of the South Breakwater; it has a T-head berth, with a dolphin at each end. The pier can accommodate two vessels up to 5,000 dwt, with a maximum draft of 5.7m.

Jizan Oil Terminal consists of two SPM buoys, SPM-1 and SPM-2, moored about 4 miles SW of the main harbor entrance. Both berths can handle vessels between 10,000 and 49,000 dwt, with a maximum length of 220m, a maximum beam of 35m, and a maximum draft of 16.3m.

Jizan—Berth Information

Berth	Length	Depth alongside	Maximum draft	Remarks
No. 1	199m	12.0m	10.5m	Bulk cement.
No. 2	176m	12.0m	10.5m	Bulk and general cargo.
No. 3	176m	12.0m	10.5m	Bulk and general cargo.
No. 4	171m	10.0m	8.5m	General cargo.

Jizan—Berth Information				
Berth	Length	Depth alongside	Maximum draft	Remarks
No. 5	171m	10.0m	8.5m	General cargo.
No. 6	183m	10.0m	8.5m	Livestock and general cargo.
No. 7	122m	10.0m	8.5m	
No. 8	174m	10.0m	8.5m	General cargo and ro-ro.
No. 9	174m	10.0m	8.5m	General cargo and ro-ro.
No. 10	143m	10.0m	8.5m	Containers and vehicle carriers.
No. 11	216m	12.0m	10.5m	Containers and ro-ro.
No. 12	216m	12.0m	10.5m	Containers and ro-ro.
No. 13	205m	8.0m	—	Coastal traffic.

Aspect.—A conspicuous fort stands on a ridge about 0.5 mile E of the port area. Two radio masts stand close by the fort, while a third radio mast, with a small dish aerial, stands at the N end of town.

A conspicuous stranded wreck, probably one of two charted wrecks, stands about 1 mile NW of the harbor. A cement factory ship is reported to be permanently moored N of the main port area.

Pilotage.—Pilotage is compulsory and is available 24 hours. Pilots board about 5 miles WNW of the harbor entrance. Pilots can be reached on VHF channel 11.

Regulations.—Vessels should send their ETA, via the agent, 5 days, 48 hours, and 24 hours in advance. Vessels should contact Jizan Port Control 2 hours prior to arrival on VHF channel 16.

Anchorage.—Anchorage Area A and Anchorage Area B are located, respectively, approximately 4 miles WNW and 3 miles WSW of the harbor entrance.

Anchorage Area A, which is for cargo vessels, shows charted depths of 12.7 to 16.2m, but a reef with a least depth of 5.3m encroaches on the E portion of the anchorage. Anchorage Area B, which is for tankers, has charted depths of 15.8 to 19.8m.

Directions.—The northern approach route is the only entrance to the Port of Jizan. The route leads for about 90 miles from a position 10 miles WSW of Jizan North Lighted Buoy (16°57'N., 41°17'E.). The approach channel is well marked by lighted buoys. Range lights, in line bearing 096.3°, lead through the breakwaters and into the port.

Caution.—Vessels seeking passage to Jizan should exercise the appropriate caution, as the waters surrounding the port are not adequately charted. Less water or dangers in addition to those shown on the chart may exist.

The buoys marking the approach channel may be altered or missing. Two buoyed approach routes traverse the outer reefs to the port area, but the S fairway via **Pearly Gates** (16°23'N., 41°50'E.) was reported closed to shipping.

It has been reported (2004) that up to a 2.5° discrepancy between the charted alignment of the channel and the actual alignment may exist.

Vessels are urged to contact local authorities at Jizan for the latest information on recommended tracks, depths, aids to nav-

igation, etc. before attempting to enter the N approach route, as it requires local knowledge.

7.38 Abu Shuqar Islet (16°56'N., 42°15'E.), on the SW side of the Inner Channel, is conspicuous and covered with trees. From a distance the islet appears as two islets, especially on NW bearings. The islet lies on the N part of Abu Shuqar Bank, which extends about 13 miles S and 5 miles W. The depths over this bank are irregular and there are probably shoal heads.

Zahrat Durakah (Abu Raji) (16°52'N., 42°16'E.), about 5 miles S of Abu Shuqar Islet, shows as a sand cay during the summer, but at other times, the sea breaks over it. There are other islets between these two.

Hibar Island (16°54'N., 42°22'E.) lies about 7 miles ESE of Abu Shuqar Islet. A shoal, with depths of 5.5 to 10.9m and not easily distinguished, lies on the NE side of the Inner Channel, about 4 miles ENE of Hibar Island.

The coast SE of Jizan to Khawr al Wahlah, a distance of about 13 miles, is composed of rocky cliffs, backed by jungle. Qarn Ash Shurah, about 4 miles SSE of Jizan, is a bushy point.

Khawr Al Wahlah (16°44'N., 42°40'E.) has a narrow and shallow entrance between the fringing reefs.

The S end of a belt of mangroves at the entrance of this inlet and a sand patch on the coast about 0.4 mile SE of the mangroves are conspicuous marks. Harrier Reef, coral, lies about 2 miles SSW of the entrance of Khawr al Wahlah; Sandy Islet, 0.3m high, lies on its E side.

7.39 Kathriyah (16°43'N., 42°33'E.) lies on the SW side of the Inner Channel about 7 miles W of Khawr al Wahlah. It lies near the N end of a shoal extending about 5 miles S. Jafari and Dhahrat Jafari lie near the SW and SE ends, respectively, of this shoal.

The latter islet, which is visible only at LW, is a small sand cay. From S, Kathriyah is the first of this group to be seen. The coast SSE of Khawr al Wahlah is composed of rocky cliffs backed by jungle for a distance of 29 miles to Ras Musaghib.

Oreste Point (16°22'N., 42°46'E.) is located about 23 miles SSE of Khawr al Wahlah. Oreste Shoal, awash in places, extends about 2 miles W from Oreste Point. This shoal does not show well and its inner part consists of a reef that uncovers.



Jizan Marine Control Tower

Marsa Baqlah (16°21'N., 42°47'E.) is a small dhow harbor fronted by a drying mud bank. On the N side of the entrance is a conspicuous tower; on the S side is a few huts. A ridge of white sand hills, about 6.1m high, extends from the N entrance of the inlet NW to Oreste Point.

It was reported that there were several rocky patches W of the mud bank, and less water than charted existed S of the mud bank.

Anchorage.—Good anchorage can be taken, in 7.3m, with the tower on the N side of the entrance of Marsa Baqlah bearing 050°, distant 1 mile.

Maydi (16°19'N., 42°49'E.), on top of a hill about 5 miles SE of Oreste Point, consists mainly of huts, but a square tower, surrounded by a few stone buildings, stands in the middle. A

conspicuous white fort stands on the top of another hill, about 0.7 mile N of Maydi.

It was reported that the coastline in the vicinity of Maydi lies about 2 miles farther E than charted.

7.40 Ashiq Bank (16°25'N., 42°38'E.), with depths of 0.3 to 9.1m, lies on the E side of the Inner Channel. The Ashiq Islands, lying on the S part of this islet, is only a sand cay.

Anchorage.—Anchorage can be taken, in 18.3m, sand, with the N extremity of the N of the Ashiq Islands bearing 300°, distant 0.4 mile.

Jazirat Tawq (Atwaq) (16°19'N., 42°41'E.) has coasts of overhanging cliffs, 3m high. A sandspit, which covers only at HW in winter, extends about 0.5 mile E from the islet.

The coast between **Ras Musaghib** (16°15'N., 42°47'E.) and Al Luhayyah, about 34 miles SSW, is fringed by a reef, which extends as far as 3.5 miles offshore. From about 16 miles S of Ras Musaghib, the coast is bordered by mangroves and backed by sandy slopes covered with scrub.

Habl (16°10'N., 42°48'E.), a village about 6 miles S of Ras Musaghib, stands on a slight elevation. A conspicuous white house stands in the village. A vessel has anchored, in 8.2m, mud, about 2 miles off the coastal reef, with Habl bearing 097°. This anchorage should be approached with the village bearing 100°, which leads S of the reef off Habl and N of a shoal extending about 1 mile off the coastal reef.

Ghurab (16°10'N., 42°40'E.), on the W side of the Inner Channel, is 1.2m high. This islet, along with several others to the S, lies on the E edge of Farasan Bank; numerous rocky heads and shoals lie in this vicinity. Hoot Islet, a small sand cay, lies about 3 miles SE of Ghurab.

Anchorage.—There is reported to be good anchorage, in 9.1m, with the NE extremity of Ghurab bearing 240°, distant about 1 mile, but the approach is difficult.

Abu Shajarah, sandy and awash, lies about 2 miles W of Hoot Islet, and Abu Shadd, covered with bushes, lies about 3 miles farther W.

Jazirat Buhays (Buhais), low and sandy, lies about 7 miles S of Hoot Islet; about midway between these two islets is Uwaf, a small sand cay. A shoal of undetermined depth has been reported to extend from Uwaf in a NE direction for about 1 mile.

7.41 Jazirat ar Raki (15°58'N., 42°38'E.) is a low sand cay fringed by a reef extending about 0.5 mile NW from it. A large stone cairn is located on Jazirat ar Raki and a tomb stands on the NE end of the islet. The cairn was reported missing.

Good anchorage, in 31m, can be taken about 0.3 mile SE of Jazirat ar Raki. Nasib Shoal lies on the S side of the Inner Channel, and extends about 2 miles WSW from a position about 4 miles SSW of Jazirat Buhays.

Jurayb Island, about 1 mile SSE of Jazirat ar Raki, is a sand cay at the NE end of a shoal extending SW. A large stone cairn, reported missing, stands on the island.

Az Zahair (Dahayir Islets) (15°53'N., 42°41'E.) are four small indefinite sand cays, which at times are submerged; each is fringed by a reef. Bryony Shoal, with a least depth of 6m, lies about 7 miles SSW of the N cay; this shoal is difficult to distinguish.

Jazirat Hamar (15°46'N., 42°37'E.) is sandy and has bushes near its center. A reef, the extremity of which is often very difficult to see, extends about 2 miles SW from the island. There is a low shifting sandspit at the NE end of the island.

Anchorage.—Good anchorage for vessels of moderate size can be taken off the SE side of this sandspit, or during strong S winds, off the reef extending from the NW side of the island, at a distance of 0.4 mile off the island.

7.42 Al Khawtamah (Kutamah) (15°40'N., 42°18'E.) has a ridge of hills, about 30m high, in its E part. The W side of the island is low and sandy.

Shoals, with depths less than 10.9m, extend as far as 2.5 miles from the W side of the island and about 1 mile from its NE end.

Al Uqban (15°30'N., 42°23'E.) lies about 8 miles SSE of Al Khawtamah. The N part of the island is flat, with a conspicuous peak, 18.3m high. The middle part is low, sandy, and narrow; the S part is a flat tableland, rising from 5.5 to 20.1m, with steep cliffs on its NE side.

Two rocky islets lie on reefs close off the E side of the N part of the island. A light is located at the SE end of the island.

Anchorage.—Vessels of moderate size can obtain sheltered anchorage, in 14 to 27m, with the 18.3m peak at the N end of Al Uqban bearing 240°, distant 0.4 mile; the bottom is coral and the depths very irregular.

Jazirat Antufish (15°43'N., 42°15'E.), about 5 miles ENE of Al Khawtamah, is flat and covered with low bushes and coarse grass, except at its SW end, where there is a hill, 36m high. The island is fringed by a reef on its N, E, and S sides.

Six Foot Rocks lie about 2 miles S of the SW end of Jazirat Antufish; some of these rocks are above-water and some are sunken. These rocks are black and conspicuous and may resemble the hull of a ship against the gray background of the island.

Anchorage.—There is good anchorage, in 21.9 to 25.6m, about 0.5 mile off the N coast of Jazirat Antufish, except in the vicinity of the shoal extending about 1 mile N from the middle of the island. This anchorage, however, is exposed to NW winds.

7.43 Kusi (Qusur) (15°44'N., 42°30'E.) is flat and bordered by reefs and shoals which extend as far as 0.5 mile offshore.

Another islet, about 0.5 mile SE of Kusi, is 2.1m high, with a few bushes near its center. It is fringed by reefs and shoals which extend as far as 0.5 mile S from the S end of the islet.

Anchorage.—During NW winds, the best anchorage in this vicinity is in 20.1m, about 0.2 mile off the middle of the N side of the above islet.

Jazirat al Bawarid (15°43'N., 42°33'E.), about 4 miles E of Jazirat Antufish, is bare and flat. Its W end is composed of conspicuous dark cliffs, 3m high; its summit, 6.7m high, is near its E end.

Al Murk (15°38'N., 42°36'E.), about 4 miles SSE of Jazirat al Bawarid, is low and sandy, rising to a height of 5m at its NW end. A conspicuous palm tree stands near the center of the island. In the middle of the NE side of the island is a ruined mosque with a wall resembling a tower; there is another ruined mosque on the SW side of the island.

Anchorage.—Anchorage can be taken anywhere off the NE side of Al Murk. A good berth is in 14.6 to 16.5m, with the conspicuous palm tree bearing 227° and the N extremity of the island bearing 304°. This anchorage is well protected from S, but open to NW winds, which sometimes cause a considerable swell.

7.44 Al Luhayyah (15°42'N., 42°42'E.), close to the coast on the W side of a ridge of hills, consists of some stone houses and a mosque with a white minaret.

Hill Fort, a conspicuous mass of ruins with a tower, 11.2m high, stands on the summit of the above ridge of hills. Jabal Qudmiya (Jabal Juda) and Jabal Kusha (Jabal al Milh) lie about 8 miles ESE and 8 miles SE, respectively, of Hill Fort.

These small peaks are conspicuous because they are the only hills near the coast in the vicinity; the high mountains inland are seldom visible. A shallow inlet, entered E of Al Murk, lies between the reefs S of Al Luhayyah. A sandy islet, 7.6m high, lies on the edge of a narrow mangrove swamp, about 2 miles SSW of Hill Fort.

A black rock, 1.2m high, stands on the reef forming the W side of the inlet about 0.5 mile SW of the 7.6m islet. This rock was reported not to be visible.

Anchorage.—In the summer months, when the prevailing wind is between W and NW, there is good anchorage, in 14.6m, with Hill Fort bearing 038°, distant 4.5 miles. The coast in the vicinity of Jahar, about 6 miles S of Al Luhayyah, is a low sandy plain and is probably a swamp in winter.

7.45 Ras Haram (Ras ad Dawabi) (15°34'N., 42°42'E.) is low, sandy, and fronted by mangroves. Three conspicuous mangrove trees stand within 0.5 mile SE of this point; behind them is a ridge of sand hills, 6.1 to 9.1m high, on which a white tomb stands.

A fishing harbor, fronted by a breakwater which shows a light, lies about 3 miles SE of Ras Haram.

Khalij Kamaran (Kamaran Bay) (15°24'N., 42°41'E.) lies between the coast and the E side of the island of Kamaran. A promontory divides the S part of the bay into two arms. The E arm is the head of the bay; the W arm is known as Madiq Kamaran.

Kamaran (15°20'N., 42°35'E.), an island, is generally low and sandy in appearance, but rises a little on its S end, where there are a few hillocks.

Jabal al Yaman, the highest point on the island, rises to a height of 24m, about 2 miles NNW of the SE extremity of the island. This hill is conspicuous. A conspicuous white tomb stands on the N end of the island. A light is shown from Jabal al Yaman.

A light, with an elevation of 10m, is shown from a white round tower in a position about 0.1 mile SW of the white tomb.

Clematis Shoal (15°20'N., 42°24'E.), with a least depth of 7.3m, lies about 8 miles W of Ras Furah, the SW extremity of Kamaran. This shoal is not easy to see.

Dahlia Shoal (15°23'N., 42°29'E.), with a least depth of 3.4m, lies about 5 miles NW of Ras Furah. During strong S winds, the sea breaks on this shoal, which then becomes visible at a considerable distance.

Al Bawdi (Al Badi) (15°30'N., 42°30'E.) is low, sandy, and bordered by reefs, which extend about 0.2 mile from its N side

and 1 mile from its S side. A lagoon, with an islet in its entrance, lies on the S side of the island.

Lansdown Shoal (15°31'N., 42°36'E.), from which a light is shown, lies about 2 miles NE of Al Bawdi, and has a depth of 2.7m. Endeavour Shoal, with a depth of 2.1m, lies about 2 miles further NE.

North West Patches, with depths of 3 to 10.9m, extends about 3 miles S from a position about 1 mile E of the E end of Al Budi. A light, with an elevation of 6m, is shown from the SE end of North West Patches.

7.46 Uqban Saghir (15°25'N., 42°31'E.) is a sandy islet, fringed by a reef, about 5 miles SSE of the W end of Al Budi. A light, with an elevation of 7m, is shown from the summit of Uqban Saghir.

The coast of Kamaran between Douglas Point, about 1 mile S of its NE extremity, and Ras Tuways, about 3 miles farther S, is indented by a shallow bay encumbered with reefs.

Three conspicuous dark-colored islets and a 3.6m rock lie on the reef extending S from Douglas Point. An island, 9.7m high, lies on the coastal reef about 0.5 mile NW of Ras Tuways.

Lazaretto Shoal (15°26'N., 42°42'E.), with a least depth of 9.5m, lies about 3 miles ESE of Douglas Point. Harrison Shoal, lying about 31 miles NE of Douglas Point, has a depth of 2.7m, and also shows a light.

Wickham Patches (15°27'N., 42°43'E.), with a least depth of 2.4m, lie on the E side of the N approach to Khalij Kamaran in a position about 4 miles E of Douglas Point. Barlow Patches, with a least depth of 3.9m, lie about 5 miles ESE of Douglas Point.

The S entrance to Madiq Kamaran is between Ras al Yaman and Ras al Bayad, about 1 miles SE; fringing reefs and shallow depths narrow the navigable channel considerably.

Rishah (15°10'N., 42°34'E.), lying about 5 miles SW of Ras al Bayad, is 3m high, sandy, and partially covered with scrub. The islet is fringed by a reef, except on its N side, which extends about 0.3 mile S.

Shoals, with depths of less than 18.3m, extend about 2 miles N and 1.5 miles SE from the islet. The sea breaks heavily on these shoals during strong winds. Near the S end of the islet is a tomb, visible only from N.

Anchorage.—Temporary anchorage can be taken N of Rishah. At night, it is better to anchor because of the uncertain currents and the difficulty of distinguishing the low land.

7.47 Ras al Bayad (15°15'N., 42°36'E.), fringed by a reef extending as far as 0.2 mile offshore, is low; a white square building stands about 0.5 mile S of the point. A second conspicuous white building stands on the coast about 3 miles S of the point.

A square stone pillar, 6.1m high and painted in black and white bands, stands on an 8m high mound about 0.5 mile SSE of Ras al Bayad. This beacon is obscured by palm trees until within 2 miles of it.

A beacon, 8.2m high, stands on Ras al Yaman, the SE extremity of Kamaran; a similar beacon stands on the opposite shore, about 0.3 mile WSW of Ras al Bayad. Both beacons are in ruins.

Ghubb Diqnah (15°16'N., 42°38'E.) is entered between Ras al Bayad and As Salif, about 5 miles NE. The shores of this bay are low and sandy.

Anchorage.—The best anchorage during strong S winds is in Ghubb Diqnah, in 31 to 37m, off the S shore of the bay, when the water is smooth. The holding ground is reported to be good.

7.48 Salif (As Salif) (Saleef) (15°18'N., 42°40'E.), located on the coast W of Jabal Mahasin, in a natural deep harbor, is rarely seen until inside Madiq Kamaran. There are large rock salt deposits in the vicinity.

Depths—Limitations.—An offshore berth, 93m long and oriented in a NNW/SSE direction, is located about 0.8 mile S of Ras as Salif. The berthing length of the facility is extended by dolphins and mooring buoys. The depth alongside is about 18m. Vessels of up to 50,000 dwt can be accommodated along the outer face.

Deep Water Berth extends about 450m ENE of Ras as Salif. Vessels up to 55,000 dwt, with a maximum length of 220m and a maximum draft of 13m, can be accommodated.

A berth for discharging cement, consisting of two flat-topped barges, is located about 0.3 mile E of Deep Water Berth. Two mooring buoys are moored off the berth. It has been reported that vessels up to 30,000 dwt have used this berth. A cement works, with six conspicuous silos, is located close S of the berth.

Pilotage.—Pilotage is available during the daylight hours only. Pilots board in the anchorage area.

Regulations.—The vessel's ETA should be sent 72 hours, 48 hours, and 24 hours in advance through their agent. The message should contain the vessel's dwt, grt, nrt, length overall, draft, and cargo tonnage.

Vessels should maintain a listening watch on VHF channel 16 from 0800 to 1000 and from 1600 to 1800 after arriving at the port.

Anchorage.—Good anchorage can be taken, in 14.6 to 25.6m, between 0.5 and 1 mile offshore at Salif. This anchorage is sheltered from E and W winds and partially from S winds.

Caution.—Winds usually increase during the day and may delay berthing if greater than force 4.

7.49 Jabal Mahasin (15°18'N., 42°41'E.), 42m high, close E of Salif, consists of two round peaks and is conspicuous on a moderately clear day.

A blockhouse, 8m high, stands on the SW slope of Jabal Mahasin, at an elevation of 39m; a white concrete obelisk, 15.2m high, stands on the coast about 0.2 mile WSW of the blockhouse.

The blockhouse and obelisk, in range 060°, lead through Madiq Kamaran between Ras al Yaman and Ras al Bayad.

Caution.—This range is difficult to discern. Vessels are required to approach Ghubb Diqnah from N and E of Kamaran.

7.50 Ibn Abbas (15°23'N., 42°48'E.), a village, has a mosque with three or four domes. A light, with an elevation of 6m, is shown from a white round tower in a position about 0.5 mile N of the village.

Tides—Currents.—In Khalij Kamaran, the rise and fall of the tide is greatly influenced by the winds. During strong S winds, the level of the water remains unchanged for several hours.

At springs, the tidal currents setting NE in the S entrance of Madiq Kamaran attain a velocity of 1.5 knots; the currents setting SW attain a velocity of 0.5 knot. Both set almost straight through this entrance.

The discoloration of the water in the S entrance of Madiq Kamaran is very noticeable. It usually extends as far S as **Arab Shoal** (11°40'N., 43°40'E.) and Rishah, and as far N as the point about 4 miles NNE of Ras al Yaman.

When the current setting NE is strong, a light area is found right across the channel N of the entrance, and a dark area is found in Ghubbat Diqnah. Sometimes there is a dark area on the shallowest part of Arab Shoal.

7.51 Kamaran (15°20'N., 42°37'E.) (World Port Index No. 48150) is entered between Milton Point and North Point, about 0.3 mile NNE, and is about 0.5 mile in length. There are depths of 16.5m in the middle of the entrance, gradually shoaling to 5.5m.

The shores are fringed by reefs and shoals, with depths of 5.5m extending about 183m from shore; the head of the harbor dries. In the approach to the harbor, a 9.7m patch and an 8.5m patch lie about 0.3 mile SE and 0.3 mile ENE, respectively, of North Point.

Winds—Weather.—The climate of Kamaran is dry, never excessively hot, and healthy. Strong winds, often reaching gale force, prevail during the cool season from October to April.

During the hot season, cool N breezes usually blow in the afternoon. Sandstorms are experienced, mainly with W and NW winds, but occasionally occur with NE winds.

During August and September, electrical disturbances, accompanied by strong winds with a little rain from NE and ENE, take place. They occur without warning, but are usually of short duration. Cyclones are rare, but sandstorms are common during the hot season.

Aspect.—On the N shore of the harbor, there are several buildings, one of which has a conspicuous chimney. Radio masts stand about 0.2 mile NW of North Point; about 0.6 mile WNW of the same point are two radio towers, the positions of which are approximate.

A mosque with three domes stands about 1 mile NW of North Point; about 1 mile farther NE is a conspicuous tower.

Kamaran, on the SW shore of the harbor, has several large brick and stone buildings and a low mosque with a small white dome.

Anchorage.—Good anchorage can be taken, in 13.7m, mud, good holding ground, with the center of the bridge at the head of the harbor bearing 288° and the tall chimney on the N side of the harbor bearing 339°. At this berth 137m of swinging room is available in depths over 9.1m.

In 1959, a vessel anchored, in about 17m, sand and shell, about 0.2 mile ESE of North Point.

Ras Isa to Ras Bab al Mandeb

7.52 Between Ras Isa and Ras Bab al Mandeb, the 15 mile wide coastal plain is backed by a range which is higher than the

range N. South of **Al Mukha** (13°19'N., 43°15'E.), there are a few hills and low hummocks on the coastal plain.

Jabal an Nar is table-topped and stands about 14 miles E of Al Mukha. Jabal ath Thobani, a long wedge-shaped hill, 297m high, stands about 1 mile SW of Jabal an Nar; its N end is a steep bluff. **Jabal Dubaah** (13°01'N., 43°29'E.) is sharp and stands about 6 miles inland.

Zi Hill, 71m high, stands near the coast about 6 miles SW of Jabal Dubaah. This conspicuous wedge-shaped and rocky hill is like no other in the vicinity, and shows up better from S than N. Between Zi Hill and Jabal Dubaah, there are several hills from 27 to 213m high.

Winds—Weather.—Severe sandstorms have been experienced off the coast in the vicinity of the N approach to Bab el Mandeb.

A haze, as a result of sand blown from the land, is frequently experienced during the months of June, July, and August.

From 1400 to 1600, this sandy haze is generally seen setting toward the coast from the sandy plain, even when the wind is NW. The haze extends toward Perim and Djeziret Seba, but it is usually clear about 2000.

Tides—Currents.—The currents in the vicinity of the N approach to Ras Bab al Mandeb are reported to be very variable. In June and July, during strong NW winds, the currents have been observed to generally set SE along the coast at velocities of 0.5 knot to 1.5 knots.

7.53 Ras Isa Marine Terminal (15°07'N., 42°36'E.) (World Port Index No. 48155) is situated 4.8 miles SSE of Ras Isa and operates 24 hours, weather permitting. The terminal consists of the 409,000 dwt Floating Storage and Off-loading Vessel (FSO) "SAFER" moored permanently to a tanker mooring buoy. A submarine pipeline is laid from the mooring buoy NNE to the shore.

In the summer between May and September, prevailing winds are between NE and NW. Winds speeds are generally less than 10 knots and only rarely exceed 20 knots. During the winter, winds are mainly between SE and SW at speeds of 10 to 20 knots, but they can be strong, reaching speeds of 30 to 35 knots and occasionally reaching 40 knots. Calm weather in winter, with wind speeds of less than 6 knots, rarely lasts longer than 2 or 3 days.

Vessels of 80,000 to 307,000 dwt, with a maximum length of 305.6m, a maximum beam of 56.4m, and a maximum freeboard of 18.3m, can be accommodated at the terminal.

A restricted area, the limits of which are marked by lighted buoys and best seen on the chart, and into which vessels on passage are prohibited from entering, surrounds the tanker. The Holding Anchorage, the limits of which are marked by lighted buoys and best seen on the chart, is situated 6.5 miles S of Rishah. Vessels are prohibited from entering the restricted area surrounding the tanker or the Holding Anchorage without prior approval of the terminal authorities.

Vessels should send their ETA upon departing the previous port and also 72 hours, 48 hours, and 24 hours in advance. The following information should be contained in the messages:

1. ETA
2. Nationality.
3. Summer dwt.
4. Length overall.
5. Number of crew and their state of health.

6. Cargo required.
7. Arrival draft fore and aft.
8. Agent's name.

Before proceeding to the anchorage or the terminal, vessels must contact the terminal and Al Hudaydah Port Authority on VHF channel 16 for anchoring and pilot boarding instructions. Pilotage is compulsory. Pilots board about 2 miles S of the terminal.

7.54 Khalij Isa (Isa Bay) (15°05'N., 42°43'E.) is entered between the low and sandy Ras Isa and Ras Katanib, about 17 miles SE. The sandy coast of the bay is backed by sandhills, 6.1 to 18.3m high.

Isa, a village with a conspicuous three-domed mosque, stands about 0.5 mile NE of Ras Isa.

Anchorage.—Good anchorage can be taken, in 14.6m, sand, with the mosque in Isa bearing 270°, distant 1.5 miles. This anchorage is sheltered from N and W winds.

Owing to the frequent discoloration of the water due to the large amount of sand in suspension, the usual indications of shoal water may be misleading and no reliance should be placed on seeing any shoals in this locality.

7.55 Ras Kekenib (Ras Marsa) (15°00'N., 42°53'E.), on the low and sandy coast, has a tall conspicuous tree about 2 miles NW of it. A disused lighthouse, consisting of a black and white framework tower, 22.9m high, stands on the point.

For a distance of about 6 miles SSE from Ras Kekenib, the coast consists of low sand hills sparsely covered with vegetation. A power station with conspicuous chimneys stands about 2 miles SE of the point.

Caution.—Caution should be exercised when passing close off the power station, as cooling water intakes extend up to 0.5 mile off it. A disused lighthouse, consisting of a black and white framework tower, 15m high and not easily seen, stands on Ras ash Shamm, a low point about 5 miles SSE of Ras Kekenib.

7.56 Khawr Kathib (Khawr Katib) (14°54'N., 42°55'E.), entered between Ras ash Shamm and Ras al Kathib, a low and sandy peninsula subject to inundation lying about 3 miles SW, is a shallow lagoon encumbered with numerous islets, reefs and sand banks. A light is shown about 0.9 mile W of Ras al Kethib.

The port of Al Ahmadi (Al Hudaydah) (Hodeidah) lies at the S end of this lagoon and is approached through a dredged channel.

A light is shown about 0.9 mile W of Ras al Kethib.

Lily Shoal (14°51'N., 42°45'E.), with a least depth of 6.4m, lies about 10 miles WSW of Ras al Kathib, and is generally distinguishable. In Khawr Kathib, the numerous islets, reefs, and sand banks divide this lagoon into several basins.

Hajara, about 3 miles E of Ras al Kathib, is a low sand cay. Woody Islet, thickly wooded, lies about 3 miles SSE of Hajara.

Al Ahmadi (Al Hudaydah) (Port of Hodeidah) (14°50'N., 42°56'E.)

World Port Index No. 48165

7.57 Al Ahmadi, at the S end of Khawr Kathib, is the principal port of entry for Yemen.

The port, managed by a government authority, consists of a basin with an area of about 44 acres. There is a concrete quay on its SE side and a tanker berth on its NW side. A large warehouse and a few other buildings stand on the quay.

There is occasional communication by sea with Aden. The town is connected to the general telegraph system, and a radio station is available. Fresh provisions can be obtained.

The port authority can be contacted by e-mail, as follows:

pmac@y.net.ye

Winds—Weather.—The coast has a hot desert climate year round. The average temperature is 33°C in winter with a relative humidity of 58 to 65 per cent year-round. Maximum temperatures may go up to 46°C and minimum may go down to 15°C. Strong SW winds, often reaching gale force, prevail during the cool season, October through April.

During the hot season, cool N breezes prevail in the afternoon, but sand storms and occasional violent squalls blowing off the land are common, occurring most frequently during August and September.

Rainfall is scarce and sporadic from July to September and December to January. During the monsoon period, December through February, wind speeds can exceed 45 knots.

Depths—Limitations.—The approach channel to the harbor was dredged to a depth of 9.7m over a width of 200m. Normally, the maximum acceptable vessel length in the harbor is 200m, with drafts up to 9.75m.

The dredged channel, which is entered in the vicinity of the Fairway Lighted Buoy, located about 5 miles NW of Ras al Kathib, may best be seen on the chart

The L-shaped main quay is 700m in length and can accommodate up to five vessels. The berth locations are best seen on the chart. Berth information is given in the accompanying table.

A oil berth, consisting of dolphins and dredged to 10m, located in the inner harbor, can accommodate tankers up to 15,000 dwt, with a maximum length of 150m, a maximum beam of 23m, and a maximum draft of 9.1m. The oil terminal close SW of the berth is connected to the shore by a submarine pipeline extending along the SW side of the basin.

Al Ahmadi Berth Information			
Berth	Length	Maximum draft	Remarks
No. 1	76m	6.1m	General cargo and bulk grain.
No. 2	165m	9.75m	General cargo and bulk grain.

Al Ahmadi Berth Information			
Berth	Length	Maximum draft	Remarks
No. 3	165m	9.75m	General cargo and bulk grain.
No. 4	156m	9.75m	General cargo and bulk grain.
No. 5	160m	10.0m	General cargo and bulk grain.
No. 6	195m	10.0m	Containers. Can accommodate ro-ro vessels.
No. 7	300m	10.0m	Containers. Can accommodate ro-ro vessels.
No. 8.	150m	9.75m	General cargo. Extends NE from the NW end of Berth No. 7.

A pontoon jetty extending S from Ras al Kethib is 290m long and can accommodate vessels up to 5,000 dwt, with a maximum draft of 5.2m.

Aspect.—A conspicuous cement silo stands at the NE corner of the port area. A vessel reported that the charted wrecks, the power station showing three red lights, and a tall building showing three amber lights located in Al Ahmadi were all conspicuous.

Al Ahmadi appears as a compact mass of buildings from seaward. The houses are high, usually of stone or brick; on their flat roofs are reed huts.

The old town, close to the coast, has a wall on its land side; outside this wall are many houses and sheds. Two forts, one N of the town and one S of the town, are falling into ruins.

The S fort is conspicuous. A blockhouse, 11m high, stands on a 6m high summit about 0.5 mile N of the town. A tomb, about 0.5 mile S of the S fort, is a good landmark in the afternoon and evening, when it appears white. The position is marked by three palm trees.

The stranded wreck lying 0.7 mile WSW of Ras ash Shamm has the appearance of a vessel at anchor. The dredged channel is marked by buoys and ranges, although they may be obscured by dust in the summer.

Pilotage.—Pilotage in the dredged channel is compulsory. Pilots embark in the vicinity of Lighted Buoy No. 2. No vessel should cross this point towards the port without a pilot on board. Violation of this requirement will lead to heavy fines by the port authority. Pilotage is available only during daylight hours.

Regulations.—The vessel's ETA should be sent 72 hours, 48 hours, and 24 hours in advance.

The 24-hour message should contain information requesting a pilot, the vessel's exact ETA, the draft forward and aft, loa, grt, nrt, and dwt, and the quantity of cargo and distribution. Messages can be sent through Al Hudaydah (4WD) or Aden (70A).

Vessels drawing more than 9.45m are forbidden to enter the outer approach channel without a pilot.

Vessels arriving at night should anchor W of Fairway Lighted Buoy and await instructions.

Vessels arriving by day may have to anchor and wait for HW, when a pilot will take them through the channel.

Anchorage.—Vessels awaiting the pilot can take anchorage about 0.5 mile NE of Ras al Kathib, in 9.6m, mud.

Good anchorage may be obtained, in 10.4m, sand, approximately 1 mile NNW of Ras al Kathib.

The roadstead off Al Hudaydah affords good shelter from winds between NE and SE. An island and its surrounding shoals about 10 miles to the S protect this anchorage somewhat from the S and, if proper precautions are taken, a vessel can ride out a S gale here. This anchorage is reported to be unsafe if the wind is strong from W or SW.

7.58 A fishing harbor fronts the town 2 miles SE of **Kitf al Manhalah** (14°49'N., 42°55'E.) and is formed by two breakwaters, leaving an entrance open N. There is a fish landing quay and a boatyard on the SE side of the harbor. Mooring pontoons for small craft extend on the S side of the N breakwater.

Winds—Weather.—Northeast winds prevail from April to September; strong SW winds prevail during the remainder of the year.

In August and September, violent squalls blow off the land and veer quickly to the S; these are frequently experienced and occur usually during the evenings.

These squalls were reported to occur occasionally from May to September.

Anchorage.—A good berth is in 7.3m, coarse black sand, good holding ground, with the light on the W breakwater head of the fishing harbor bearing 074°, distant 2 miles. In good weather, small vessels can anchor closer in.

7.59 **Khawr al Ghalafiqah** (14°32'N., 43°00'E.) affords good shelter for a small craft with local knowledge. Its W side is formed by a narrow peninsula, extending about 7 miles NNW from the head of this inlet. Katif al Makhayish, about 12m high, is a sand hill shaped like a haycock standing on the SW end of this peninsula.

A sandy island, 0.9 to 3m high, fronts the entrance of this inlet; Ras Mujamilah is the N extremity of this island. Between Katif al Makhayish and Ras Mutaynah, about 27 miles SSE, the coast consists of low hills backed by mountains. Depths of less than 10.9m lie from 2 to 6 miles offshore along this part of the coast.

Katif Quraysh (14°14'N., 43°04'E.) lies about 13 miles SSE of Katif al Makhayish and about 1 mile inland. It has a conical summit and a wedge-shaped piece of land close to its N side. It is lower and darker than the other coastal hills in the vicinity, and from S, and even abreast of it, it appears as an island.

A small rocky patch, on which the sea breaks, lies about 0.5 mile W of **Ras Zabid** (14°07'N., 43°05'E.). **Ras Mutaynah**

(13°59'N., 43°08'E.), about 9 miles S of Ras Zabid, is low and rounded. It is reported to lie 2 miles farther E than charted.

Within 3 miles NW of Ras Mutaynah, there are several rocky patches, on which the sea breaks.

7.60 Zahari (13°51'N., 43°14'E.), about 10 miles SE of Ras Mutaynah, consists of a few inconspicuous brown huts and a mosque with three domes.

Open anchorage can be taken off Zahari, but it is exposed to S winds. Between Zahari and Al Mukha, there are numerous villages on the coast. They each have one or two mosques and are usually surrounded by trees.

Al Khawkhah (13°38'N., 43°15'E.), about 3 miles SE of Zahari, has numerous white buildings and a high tower, which are conspicuous against the dark background of palm trees. Two white factories and some huts stand about 3 miles SE of the village.

Mawshij (13°43'N., 43°16'E.) has some conspicuous buildings, one of which is a mosque with a cupola and several minarets.

Jabal Musa (13°40'N., 43°25'E.), about 8 miles ESE of Mawshij, consists of three small black hills, which must not be confused with the distant high land. On a SE bearing, Jabal Musa appears as two peaks.

Marsa Fajrah (13°36'N., 43°17'E.), about 6 miles S of Mawshij, is a small bay that affords sheltered anchorage to small craft with local knowledge, in a depth of about 5m.

Between Marsa Fajrah and Yakhtul, about 9 miles S, there are numerous sand and coral patches found near the coast; these patches give the sea a dark gray color.

Yakhtul, at the head of a small shoal inlet, consists of a few white houses, some huts, and a mosque.

7.61 Al Mukha (13°19'N., 43°15'E.) has an open roadstead exposed to all but E winds. There are depths of 5.5 to 10.9m in the road lying from offshore. Caution is necessary, however, as there are many dangers in the approach.

The port authority can be contacted by e-mail, as follows:

pmac@y.net.ye

Winds—Weather.—From May to September, winds are light with occasional violent squalls and sandstorms off the land. The latter, occurring usually in the evening, are more frequent during August and September.

From October to April, S winds predominate, with strong SW winds causing rough seas. The heat and humidity are, at times, excessive.

Tides—Currents.—At springs, there is often only one HW and LW every 24 hours. At neaps, two tides are experienced every 24 hours, but their times are irregular.

The tidal currents set N with a rising tide and S with a falling tide; they attain a velocity of 1 to 2 knots. A current of about 2 to 3 knots has been experienced in the vicinity. The duration of the current is much affected by the winds.

Close inshore, during strong S winds, the S current often runs for 16 hours and the N current runs for 6 to 8 hours. In the deep water seaward of the shoals off Al Mukha, a current sets N during winter and spring.

Depths—Limitations.—There are several shoals in the approaches and care is necessary when proceeding to the anchorage.

Stranded wrecks, best seen on the chart, lie SW of the approach channel. The entrance channel has been dredged to a depth of 7.9m over a width of 110m but it has been reported more recently that there are depths of 9 to 9.2m in the channel.

A jetty projects NNW from the coast about 1 mile SSW of North Fort; the jetty is protected on its W side by the breakwater. The jetty is 150m long, 45m wide, and has depths of 8.5m on each side. Vessels up to 15,000 dwt, with a maximum length of 175m, can be accommodated.

Ro-ro vessels can be accepted at the head of the jetty. The E side of the breakwater was dredged to 3.5m and was used to berth coastal vessels.

It was reported that tankers up to 12,000 dwt could secure to buoyed anchors laid E of the breakwater and discharge to a pipeline on the breakwater.

It has been reported that there is a tanker berth, with depths of about 9m, which serves the power station situated 2 miles NNE of North Fort.

Aspect.—The town stands on the E shore of a small bay and is entered between two low points; the conspicuous ruins of a small fort, known as North Fort, stand on the N point.

A 36m high minaret, standing 0.7 mile SE of North Fort, is conspicuous.

Four tanks stand on Jazirat Ziadi, close S of the S entrance point. Four floodlight towers, each 30m high, lie on the jetty and are reported to be visible up to 20 miles at night.

A large power station, with four tall chimneys and power cables clearly visible extending E, stands on the coast about 2 miles NNE of North Fort.

The power station and the power cables are radar conspicuous.

Pilotage.—Pilotage is compulsory. The pilot boards at Fairway Lighted Buoy.

Regulations.—Vessels should send their ETA 72 hours, 48 hours, and 24 hours in advance through their agent. The message should contain the vessel's ETA, loa, draft, dwt, grt, nrt, quantity of cargo, and cargo distribution.

Anchorage.—Vessels can anchor, in 6 to 7m, SW of the entrance channel, or further out according to draft.

From October to April, cargo operations may be limited to the early morning, because of strong winds and rough seas later in the day. Vessels are advised to moor because of the tidal currents in the roads.

7.62 Dhubab (12°56'N., 43°25'E.), a village located about 26 miles SE of Al Mukha, lies on a small rocky projection. A white sand hill, 20.1m high, stands on the inner part of the N side of the projection.

Conspicuous white forts, the positions of which are approximate, stand on Zi Hill and the white sand hill about 1 mile S of Zi Hill.

The white fort on Zi Hill is reported to give a good radar return up to a distance of 12 miles.

7.63 Perim (Barim) (12°40'N., 43°25'E.), lying in Ras Bab al Mandeb, is bare, rocky, and rather flat in appearance; the

surface is broken into a dense layer of boulders and stones, and covered in places with windblown coral sand. It is devoid of vegetation and is grooved with watercourses.

This island is even and unbroken and should not be mistaken for the high and irregular land of Ras Bab al Mandeb. Perim is reported to give a good radar return up to a distance of 18 miles.

Perim is contained within an area, best seen on the chart, that is prohibited to navigation.

Perim Harbor (Barim Harbor) (12°39'N., 43°25'E.), on the S side of Perim, is easily entered between Lee Point and Pirie Point.

It is divided into two branches by a peninsula terminating in Murray Point. The E branch is encumbered with shoals; the W branch forms the port.

Winds—Weather.—The prevailing NW winds in summer bring a fine dust. In September, the weather is unpleasant and damp, especially at night, when low clouds form overhead and render the atmosphere oppressive.

A cold current from the Gulf of Aden lowers the water temperature below the temperature found N of Perim.

Tides—Currents.—The tidal current during the rising tide sets N into the harbor, the main part of this current turning NW into the W branch. A small part sets into James Bay, then turns W and rounds Murray Point at a close distance, and then sets into Murray Bay. It then turns in this bay and runs SE along the peninsula. The tidal currents are weak and are greatly affected by the wind.

Depths—Limitations.—The entrance channel between Lee Point and Pirie Point has a width of about 0.3 mile, with a least charted depth of 4.1m, and general depths of 16 to 23m. Inside

the entrance the depths gradually shoal to 9.1m and less farther in.

A dangerous wreck, with a depth of 4.2m, lies sunk about 0.1 mile ESE of Pirie Point. A 5.5m shoal lies about 183m E of the same point. There are several small piers here capable of accommodating boats.

Aspect.—Two cairns NE of Lee Point, the E entrance point of the harbor, and a barracks with a flagstaff about 0.5 mile N of Murray Point, at the head of the harbor, are good marks. A conspicuous house stands about 0.1 mile NW of Pirie Point.

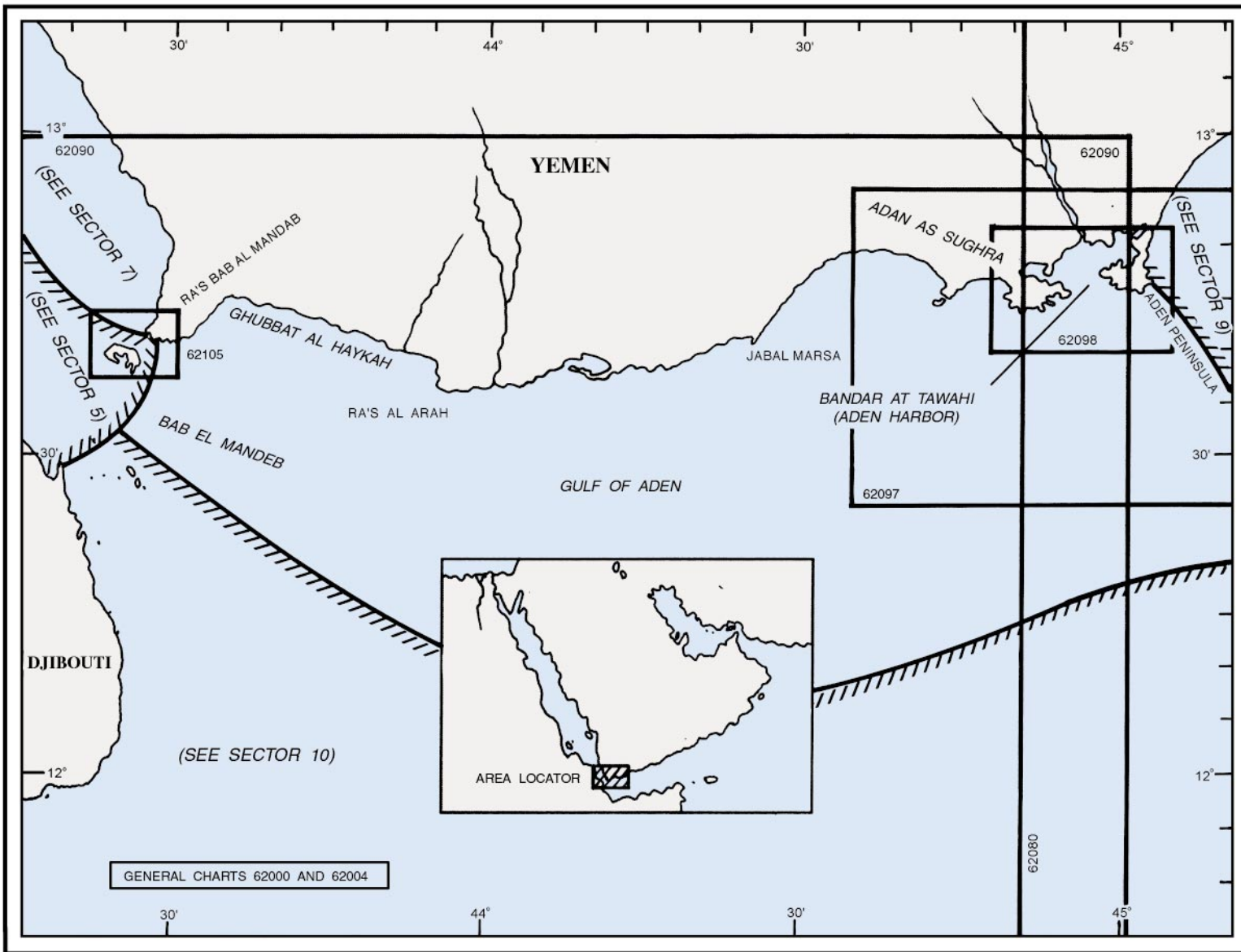
Two fuel tanks stand NW of the conspicuous house. Two white stone cone-shaped beacons, in range 343°, stand on Murray Point.

Anchorage.—Anchorage can be taken, in 10.1m, about 0.2 mile SSW of Murray Point, with about 183m of swinging room, in a least depth of 8.2m.

Anchorage can also be taken farther NW in lesser depths, but the holding ground is poor.

Caution.—Caution is necessary when entering Perim Harbor, as the current occasionally sets across the entrance according to the wind.

Off **Liverpool Point** (12°38'N., 43°25'E.), about 0.2 mile NNE of Lee Point, during strong S or SW winds, there is often a considerable swirl, which tends to turn a vessel to starboard when entering. A vessel with poor maneuverability should enter at a fair speed, and if this tendency is still not checked, it would probably be well for a vessel to go full ahead and avoid going full astern until as late as possible. This swirl occurs with a rising tide and during strong winds with a falling tide.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 8 — CHART INFORMATION

SECTOR 8

YEMEN—RAS BAB AL MANDEB TO ADEN HARBOR

Plan.—This sector describes the coast of Yemen along the N side of the Gulf of Aden from Ras Bab al Mandeb, up to and including Aden Harbor (Bandar at Tawahi). The sequence of description is from W to E.

General Remarks

8.1 The general characteristic of the W part of the Arabian coast between Ras Bab al Mandeb and Ras al Hadd is a low and narrow coastal plain backed by a rocky and precipitous range of mountains.

These mountains, rising between 1,219 and 2,438m, attain their greatest height in the SW, then they decrease in elevation and complexity of structure toward the E.

These mountains are succeeded E by lower table-topped and scarp-bounded uplands decreasing to about 610m. Numerous wadies drain from the highlands and cultivation is carried on near their channels.

Farther E the foothills of the coastal ranges form bold headlands and small rocky islets.

Along the eastern third of this coast steep-to cliffs form the seaward edge of extensive tablelands, which average about 183m in elevation. The remaining coast to the S entrance of the Gulf of Oman is generally low.

Jabal Haikah is a small range of irregular outline, rising to 163m, about 3 miles NE of Ras Bab al Mandeb.

Jabal Arar, a range of mountains, extends about 14 miles S from a position about 35 miles NNE of Ras Bab al Mandeb, then about 21 miles SE. Jabal am Wusid (Barn Hill), the SE peak of this range, is square-shaped and conspicuous, with a peak in the middle.

Jabal Hajar, dark and irregular in outline, extends about 15 miles ESE from a position about 17 miles NE of Ras Bab al Mandeb. This range rises to heights of 335m but actually appears low, as the sandy plain rises gradually to between 122m and 152m at its base.

Jabal Kharaz (12°44'N., 44°09'E.) is a mountainous range of limestone and granite formations extending to within 1 mile of the coast. The summit, 850m high, rises about 15 miles NE of Ras al Arah (12°36'N., 43°55'E.). A ruin of roughly hewn stone stands on the W side of the summit.

Notch, a 2,051m high peak, stands about 2 miles N of Jabal Kharaz. A range which extends about 65 miles E from Notch lies from 20 to 25 miles inland and attains heights of 914 to 1,981m.

Depths in the approach to this part of the Arabian coast are deep and clear. The 20m curve generally parallels the coast at distances of from 90m to 4 miles offshore.

Rambler Knoll (12°32'N., 44°10'E.), with a least depth of 18.3m, lies about 5 miles offshore and is the only known danger lying outside the 20m curve.

Caution.—Numerous oil and gas exploration rigs, with associated pipelines and structures, may be encountered in the waters described in this sector.

Gulf of Aden Voluntary Reporting System.—A voluntary reporting system in support of Operation Enduring Freedom has been established to support surveillance and anti-terrorist operations in the Gulf of Aden and its approaches. For further information, see Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean, Indian Ocean—Navigational Information.

Ras Bab al Mandeb to Adan as Sughra (Little Aden Peninsula)

8.2 Ras Bab al Mandeb (12°41'N., 43°28'E.) is a prominent wedge-shaped headland. Shaykh Malu (Oyster Island), 23m high, lies on the coastal reef close WSW of the headland. It is connected to the mainland by a rocky ledge.

A shoal, with depths of less than 10m, fronts the SSW side of Shaykh Malu.

The coast between Ras Bab al Mandeb and Warner Point, 2 miles E, is indented with small bays. A square and dark hill stands about 0.5 mile NNE of Warner Point. It is 153m high and surmounted by the ruins of a fort.

Ghubbat al Haykah (12°39'N., 43°45'E.) is entered between a point located 2 miles ENE of Warner Point and Ras al Arah, 24 miles ESE. The coast of this bay is low and sandy. The shore is fringed by a reef, and depths of less than 5.5m extend up to 1.5 miles seaward.

Caution.—Vessels in this vicinity should stay outside the 20m curve by day and proceed in depths of not less than 25m at night.

8.3 Ras al Arah (12°36'N., 43°55'E.), low and sandy, is rounded and difficult to distinguish. A large house stands near the coast about 2 miles N of this point. An isolated shoal patch, with a depth of 32m, was reported to lie about 10 miles SW of Ras al Arah.

Between Ras al Arah and Jabal Marsa, 30 miles E, the coast is low and sandy with a few shrubs, but in places there are some rocky points and cliffs of sand, 6 to 9m high.

A shoal bank of hard sand, with depths of 3.9 to 10.9m at its outer edge, extends up to 3 miles offshore between Ras al Arah and Khawr al Umayrah, 12 miles E. This bank is steep-to at its outer edge and the sea breaks in places during heavy weather.

A conical hill stands near the coast, about 2 miles NW of the entrance to Khawr al Umayrah. This hill, reported to be conspicuous from SE, is black on its summit and E side.

Several vessels have been wrecked between Ras al Arah and Khawr al Umayrah. Vessels should stay in depths of not less than 30m by day and proceed in depths of not less than 40m at night. Discolored water has often been seen in this locality.

8.4 Khawr al Umayrah (12°38'N., 44°09'E.) is almost landlocked by a long and narrow spit. This sandy spit, which nearly covers at HW, extends WNW from the SE end of the inlet. The narrow entrance to the inlet has a least depth of 0.9m

and is only used by local small craft and boats. Foul rocky ground extends up to 2 miles W of the entrance.

Anchorage.—Good anchorage can be taken, in a depth of 11m, mud and sand, within the bight lying NW of Ras al Arah. The coast here is rather steep and the anchorage is sheltered from the strong winds of the Northeast Monsoon. Jabal am Wusid (Barn Hill) bearing between 003° and 007° leads to this roadstead.

8.5 Jabal Marsa (Ra's Qa'wah) (12°40'N., 44°25'E.) is a small projection, 44m high, which appears as a black, well-defined bluff.

Jabal al Birkah and Jabal Sunamma are two conspicuous sandhills, with dark summits, standing about 4 miles NW and 5 miles WNW, respectively, of Jabal Marsa. Jabal al Birkah, a double-peaked saddle hill, rises to heights of 190 to 208m. Jabal Sunamma is 168m high.

Bandar Imran (12°45'N., 44°35'E.) is entered between Jabal Marsa and Ras Imran, 19 miles ENE. Ras Imran is a rocky promontory, 224m high. A sandy plain covered with bushes backs the low shore of this bay for a distance of about 10 miles.

The bay is free from dangers, with the exception of a 4.3m patch lying about 6 miles NW of Ras Imran and 1 mile offshore.

Anchorage, sheltered from E winds, can be taken, in depths of 4 to 9m, sand and shells, NW of Ras Imran, between 0.5 mile and 2 miles offshore.

Jazirat Aziz (12°44'N., 44°43'E.), a small rocky island, lies close SW of Ras Imran and is separated from the latter by a narrow channel encumbered with rocks. This island is 107m high and radar prominent.

Bandar Fuqum (12°45'N., 44°46'E.) is entered between Ras Imran and Ras Fuqum, the W extremity of Adan as Sughra, about 6 miles E. The shores of this bay are low and swampy. A tomb with a few fishermen's huts nearby stands on the W side of the bay. A small, dark islet lies close offshore in the vicinity of the tomb and forms two boat anchorages at its W side.

Jazirat al Juhub (12°44'N., 44°46'E.), lying about 2 miles E of Ras Imran, is a round islet. A drying rock lies about 0.3 mile ESE of this islet.

Adan as Sughra (Little Aden Peninsula) to Aden Harbor (Bandar at Tawahi)

8.6 Adan as Sughra (Little Aden Peninsula) (12°45'N., 44°52'E.) is a mountainous mass that resembles the Aden Peninsula to the E. From a distance, both these two peninsulas appear as islands.

Jabal al Muzalqam (12°45'N., 44°52'E.), the summit of Adan as Sughra, stands in the center of the peninsula and is conspicuous. Jabal Ihsan is a conspicuous granite double peak, 215m high, rising on the E end of the peninsula, 2 miles E of the summit. A deep ravine winds for 3.5 miles through the center of Adan as Sughra from Ra's Fuqum (12°44'N., 44°49'E.), the W end of the peninsula.

Bandar Shaykh (12°44'N., 44°53'E.), a bay, is entered between Ra's Mukallab Hadi and the S extremity of a small peninsula, 0.6 mile ENE. The bay provides anchorage, in depths of 5.5 to 10m, during offshore winds.

Ras Abu Qiyamah (12°44'N., 44°54'E.) is located 1 mile ENE of Ra's Mukallab Hadi. This point can easily be recognized by the conspicuous fort standing on a hill, about 0.3 mile NNW of its S end.

The tomb of Sheikh Ghadir, with a white temple, stands about 0.5 mile NNW of Ras Abu Qiyamah.

Khawr Ghadir (12°44'N., 44°54'E.) is entered between Ras Abu Qiyamah and a promontory, 1 mile NE. An islet, 22m high, lies 0.3 mile S of the promontory and is connected to it by a shallow spit. The bay affords anchorage, in depths of 5.5 to 16m, sand.

Four conspicuous chimneys stand near the NW shore of Khawr Ghadir; a prominent flare is situated about 0.4 mile W of them.

8.7 Jazirat Salil (12°44'N., 44°55'E.), an islet, 18m high, lies 0.3 mile offshore and is fronted by a shallow bank, with rocks, awash, on its E side. A light is shown from a framework tower, 4m high, standing on the summit. The light structure is reported to be very difficult to distinguish because its dark color blends with the brown background of the surrounding mountains on the mainland.

Square Island (12°45.4'N., 44°55.1'E.), 43m high, lies 1 mile N of Jazirat Salil and close off the E side of Adan as Sughra, to which it is connected by a shallow bank. A beacon stands on the E part of this island.

Pinnacle Rock lies on a shallow rocky bank, 0.4 mile NE of Square Island, and is prominent. It is 21m high and marked by a beacon.

Peaked Rock, 7 m high, lies close S of Pinnacle Rock, on the S part of the bank.

The **Aden Peninsula** (12°46'N., 45°01'E.), connected to the mainland by a low isthmus, is high, rocky, and volcanic. It is also radar conspicuous.

Several precipitous peaks stand near the center of this peninsula. Jabal Shamsan (12°46.6'N., 45°00.5'E.), 522m high and surmounted by a disused signal station, is conspicuous. Shamsan South, 531m high, stands 0.5 mile SSE of Jabal Shamsan and is also conspicuous.

The Aden Peninsula is connected to the mainland by a low isthmus, on which stands the town of Khormaksar and an airport. Several radio masts, 41 to 183m high, stand on the isthmus and display warning lights when night flying is taking place.

8.8 Sirah (12°47'N., 45°03'E.), with a round tower on its summit, is a small rocky island, 80m high, lying off the E side of the Aden Peninsula. A narrow causeway connects the SW side of this island to the peninsula.

Front Bay, encumbered by a sandbank, lies W of Sirah and is backed by the town of Aden. The town, a main business center, consists of a large number of whitewashed houses built on a plain, with steep hills on all except the seaward side.

Ras Marshaq (12°45'N., 45°03'E.), lying 1.3 miles S of Sirah, is the S extremity of a narrow, radar conspicuous promontory. A light is shown from a tower, 26m high, standing 0.2 mile N of the point.

Jazirat Denafa (Round Island) (12°45'N., 45°00'E.), 34m high, lies close off the S side of the peninsula and is connected to the shore by a reef and a shallow bank.



Aden Harbor—Inner Harbor

Elephant's Back (12°46'N., 44°59'E.), a small promontory, extends from the SW side of the peninsula. A light is shown from a round building, 4m high, standing on the summit of this promontory.

Tides—Currents.—Between the Aden Peninsula and the 200m curve, the current appears to set WNW at a velocity of about 2 knots during the Northeast Monsoon. The current sets N off the E side of the Aden Peninsula during both monsoons.

Anchorage.—Anchorage can be taken off the E side of the Aden Peninsula, in regular depths of 9 to 33m, NE of Sirah and the town of Aden.

During the Northeast Monsoon, a heavy swell sets in, but from June to August, during W winds, there is good anchorage and smooth water under the lee of Sirah.

Caution.—Several submarine cables, which may best be seen on the chart, extend seaward from a point located at the W end of the Aden Peninsula, about 0.3 mile N of Elephant's Back Light.

A wreck, with a depth of 15.3m, lies in the approach to Aden Harbor in the vicinity of the pilot boarding position, about 1.9 miles ESE of Jazirat Salil Light.

A spoil ground area, the limits of which may best be seen on the chart, lies centered 5 miles S of Elephant's Back Light.

An ammunition dumping ground area, the limits of which may best be seen on the chart, lies centered 11 miles SE of Ras Marshaq Light.

Incidents of armed robbery have been reported against ships proceeding in the W and SE parts of the Gulf of Aden. Vessels of any size should be aware of the risks involved when navigating in these waters at speeds of less than 12 knots.

Aden Harbor (12°47'N., 44°57'E.)

World Port Index No. 48190

8.9 Aden Harbor (Bandar at Tawahi) is a fine natural harbor and a port of entry located between Adan as Sughra (Little Aden Peninsula) on the W and the Aden Peninsula on the E.

The port, consisting of an Outer Harbor and an Inner Harbor, is essentially a transshipment port and an important fueling station. It affords shelter from all directions except from the S.

Port of Aden Home Page

<http://www.portofaden.com>

Winds—Weather

Sandstorms occur from May to August. They come at sunset from a N or NNW direction and at times blow hard until about 2200. The air is then so thick with sand that it is impossible to see more than a short distance.

Except for a dense cloud of sand banking up from the N and NW 1 or 2 hours before sunset, little forewarning is given.

About 2 hours after the beginning of the storm, there is a calm, and after a short interval, the wind blows hard from the S for another 2 hours; the sand then clears and the wind lessens.

During August, dense mists occur at times; the high land is only visible then for a short distance.

During the Southwest Monsoon, hot sandy winds prevail, but on the W side of the peninsula, cool breezes are from seaward.

During the Northeast Monsoon, the climate of Aden is cool and pleasant, especially from November to January. During the Southwest Monsoon, it is very hot, damp, and oppressive. The settlement is exceptionally free from infectious diseases and epidemics.

Tides—Currents

Within the Gulf of Aden, the tides are generally diurnal and rise to a maximum height during springs of about 2.2m at Aden. The tidal range is about 1.3m. However, at times, the tides may be subject to a large diurnal inequality, which may increase or diminish the rise.

About the time of the moon's quarter, there is frequently only one HW and one LW in the 24 hours.

The tidal current on the flood tide, during both monsoons, sets strongly NE past Ras Marbut until it is checked by the drying bank on the NE side of the harbor. It is then deflected E and NE into the upper reaches of the harbor. At about half flood, a distinct E set is experienced between Aliya Island and the mainland NW.

On the ebb tide, the current curves W by Jerama Beacon (12°48'N., 45°00'E.) and then flows along the S side of the harbor. It has a more S set when past Ras Marbut.

The estimated average maximum velocity at springs is 1.5 knots, but it depends on the strength and direction of the monsoon.

Depths—Limitations

The port limit, which may best be seen on the chart, is represented by a line extending SSE from Ras Abu Qiyamah (12°44'N., 44°54'E.), then extending E along the latitude of 12°42'N, and finally extending NNE to Jazirat Denafa (Round Island) (12°45'N., 45°00'E.).

The facilities of Aden Harbor are initially approached through an entrance channel, 200m wide and dredged (1998) to a depth of 15m, beginning about 2 miles E of Jazirat Salil Light.

Outer Harbor.—The Outer Harbor includes all waters lying between the port limit and a line extending 308°40' from the head of the breakwater at Ras Marbut.

The port facilities initially are approached through the above-described entrance channel. A channel, dredged to a depth of 14.7m (1987), branches NW from the entrance channel and leads to the Oil Harbor.

The Outer Harbor has four oil berths situated on its SW side. A dry cargo berth and an LPG berth are located W of the oil berths. Information on these facilities is given in the accompanying table.

Inner Harbor.—The Inner Harbor includes all waters NE of a line extending 308°40' from the head of the breakwater at Ras Marbut.

The port facilities in the Inner Harbor are initially approached through the above-described entrance channel. The channel continues NE past the Oil Harbor channel until reaching the Inner Harbor facilities.

Maalla Terminal, Home Trade Quay, and Aden Container Terminal are the main facilities located in the Inner Harbor. Information on these facilities is given in the accompanying table.

In the Inner Harbor E of the Home Trade Quay are 800m of lighter and dhow moorings, with depths of 1.8 to 2.7m alongside.

There are also several mooring buoy berths, for bunkering or working cargo, within the Inner Harbor. A few of these can accommodate vessels up to 50,000 dwt, with maximum lengths ranging from 180 to 274m and a maximum draft of 10.7m, depending on the height of the tide.

Aden—Outer Harbor Berthing Facilities			
Berth	Length	Depth	Remarks
Oil Berth No. 1	270m	13.5m	Loading refined products. Vessels up to 85,000 dwt, with a maximum length of 260m and a maximum draft of 12.25m at HW, can be accommodated alongside.
Oil Berth No. 2	220m	11.5m	Loading refined products. Vessels up to 65,000 dwt, with a maximum length of 180m and a maximum draft of 11.0m at HW, can be accommodated alongside.
Oil Berth No. 3	250m	11.5m	Loading refined products. Vessels up to 65,000 dwt, with a maximum length of 235m and a maximum draft of 11.0m at HW, can be accommodated alongside.
Oil Berth No. 4	300m	15.85m	Discharging crude oil and loading refined products. Vessels up to 110,000 dwt, with a maximum length of 286m, can be accommodated alongside. Vessels over 85,000 dwt may only maneuver during daylight hours, except with prior permission from the harbormaster.
Berth No. 5	175m	11.0m	LPG and dry cargo. Located W of Oil Berth No. 4. Vessels up to 25,000 dwt, with a maximum length of 150m, can be accommodated alongside.
Berth No. 6	175m	11.0m	LPG berth. Located close W of Berth No. 5. Vessels up to 25,000 dwt, with a maximum length of 150m, can be accommodated alongside.
Ro-ro berth	120m	11.0m	Located in the NW corner of the basin. Vessels up to 3,500 dwt, with a maximum length of 110m, can be accommodated alongside.

Aden—Inner Harbor Berthing Facilities (2005)			
Berth	Length	Depth	Remarks
Maalla Terminal			
Berth No. 1	187.5m	11.0m	Container berths. Vessels up to 40,000 dwt, with a maximum length of 190m and a maximum draft of 10.4m, can be accommodated alongside.
Berth No. 2	187.5m	11.0m	
Berth No. 3	187.5m	11.0m	General cargo and bulk cargo berths. Vessels up to 40,000 dwt, with a maximum length of 190m and a maximum draft of 10.4m, can be accommodated alongside.
Berth No. 4	187.5m	11.0m	
Ro-ro berth	150m	7.6m	Located at the W end of Maalla Terminal. Vessels up to 14,000 dwt, with a maximum length of 135m and a maximum draft of 7.0m, can be accommodated alongside.
Home Trade Quay			
Berth No. 5	125m	6.7m	Located E of Maalla Terminal. Vessels up to 10,000 dwt, with a maximum length of 150m and a maximum draft of 6.1m, can be accommodated alongside.
Berth No. 6	125m	6.7m	
Aden Container Terminal			
Berth No. 1	350m	16.0m	Located on the N side of the Inner Harbor. Vessels up to 100,000 dwt, with a maximum length of 350m and a maximum draft of 14.0m, can be accommodated alongside.
Berth No. 2	350m	16.0m	

Aspect

Adan as Sughra and the Aden Peninsula are very prominent; there is little difficulty in identifying the approach to the port.

Ras Marbut (Steamer Point) (12°47.2'N., 45°58.4'E.), from which a breakwater extends, is located 1.6 miles NW of Elephant's Back Light. A stranded wreck, 7m high, lies close NE of the breakwater head.

A conspicuous signal station tower, 46m high, stands close E of Ras Marbut. A prominent clock tower is situated on a hill, 43m high, about 0.5 mile ENE of the signal station tower.

The entrance channels are marked by lighted buoys and beacons, and are indicated by lighted ranges.

Pilotage

Pilotage is compulsory for vessels over 200 grt and is available 24 hours. Pilots can be contacted by VHF and board all vessels 0.4 mile S of the seaward entrance to the dredged channel, about 2 miles ESE of Jazirat Salil Light.

In normal circumstances, pilotage presents no special difficulties, but during the Southwest Monsoon, sand storms may occur suddenly and violently.

Aden Harbor—Traffic Signals		
Day	Night	Meaning
Outer Harbor		
Two black balls, vertically disposed	Two red lights, vertically disposed	The channel is clear to enter.
Cone, point up	One green light	The channel is clear to leave.

Aden Harbor—Traffic Signals		
Day	Night	Meaning
Inner Harbor		
3rd Substitute	One white light over one red light	A vessel is entering.
2nd Substitute	One red light over one white light	A vessel is leaving.

Signals

Signals controlling traffic in the dredged channel leading through Outer Harbor are shown from the top mast of the signal station at Ras Marbut. Signals controlling traffic entering or leaving the Inner Harbor are shown at the yardarm or triatic stay. The signals are given in the accompanying table.

Regulations

Vessels should send their ETA at least 48 hours prior to arrival. The ETA message should include the following information:

1. ETA.
2. Master's name.
3. Vessel's nationality.
4. Vessel's name and call sign.
5. Gross tonnage and dwt.
6. Maximum draft
7. Type of cargo.
8. Reason for call.
9. Security level on board (if not level 1).
10. Declaration of any cargo on board.

The Port Authority can be contacted by e-mail, as follows:

ypa@y.net.ye
info@portofaden.com

All vessels underway in the Inner Harbor or entrance channel are not to pass each other.

If more than one vessel is entering or leaving the Inner Harbor or Oil Harbor, or navigating in the dredged channels leading into those harbors, every following vessel shall keep at least 0.4 mile astern of the ship ahead.

No vessel shall, except with the permission of the port officer, be navigated in the Inner Harbor, Oil Harbor, or the dredged channels leading to those harbors without a depth of 0.6m or more below the keel, or, in the case of a vessel with a draft over 11.3m, without a depth of 1.2m or more below the keel.

Vessels with a draft of 3.7m or more must not remain at single anchor in the Inner Harbor without permission.

Tankers carrying petroleum products with a flashpoint below 73°F and those not gas free are not allowed to enter or leave the Inner Harbor during the hours of darkness. It is reported that other restrictions may apply and vessels should contact the port authorities prior to arrival.

Generally, tankers with drafts over 9.1m are not allowed to enter the harbor at night.

Anchorage

The Outer Harbor provides anchorage for a number of vessels, in depths 6 to 20m, clear of the dredged entrance channels and the prohibited area.

Vessels are cautioned that disused submarine cables may exist SE of a line extending NE from Jazirat Salil Light to **Ras Tarshayn** (12°46.6'N., 44°58.3'E.) and passing through position 12°45'N, 44°57'E.

An anchorage designated for deep-draft vessels, which may best be seen on the chart, has been established, in depths of 13 to 15m, about 0.8 mile ENE of Jazirat Salil Light.

Directions

When approaching from W, vessels should pass 1 mile S of Adan as Sughra and then steer for the entrance of the dredged channel. At night, vessels should steer with Elephant's Back Light bearing not greater than 061° (white sector) for the entrance.

When approaching from E, vessels should pass 1 mile S of the Aden Peninsula and then steer for the entrance of the dredged channel. At night, vessels should pass 1.5 miles S of Ras Marshaq Light and then head W for the entrance channel.

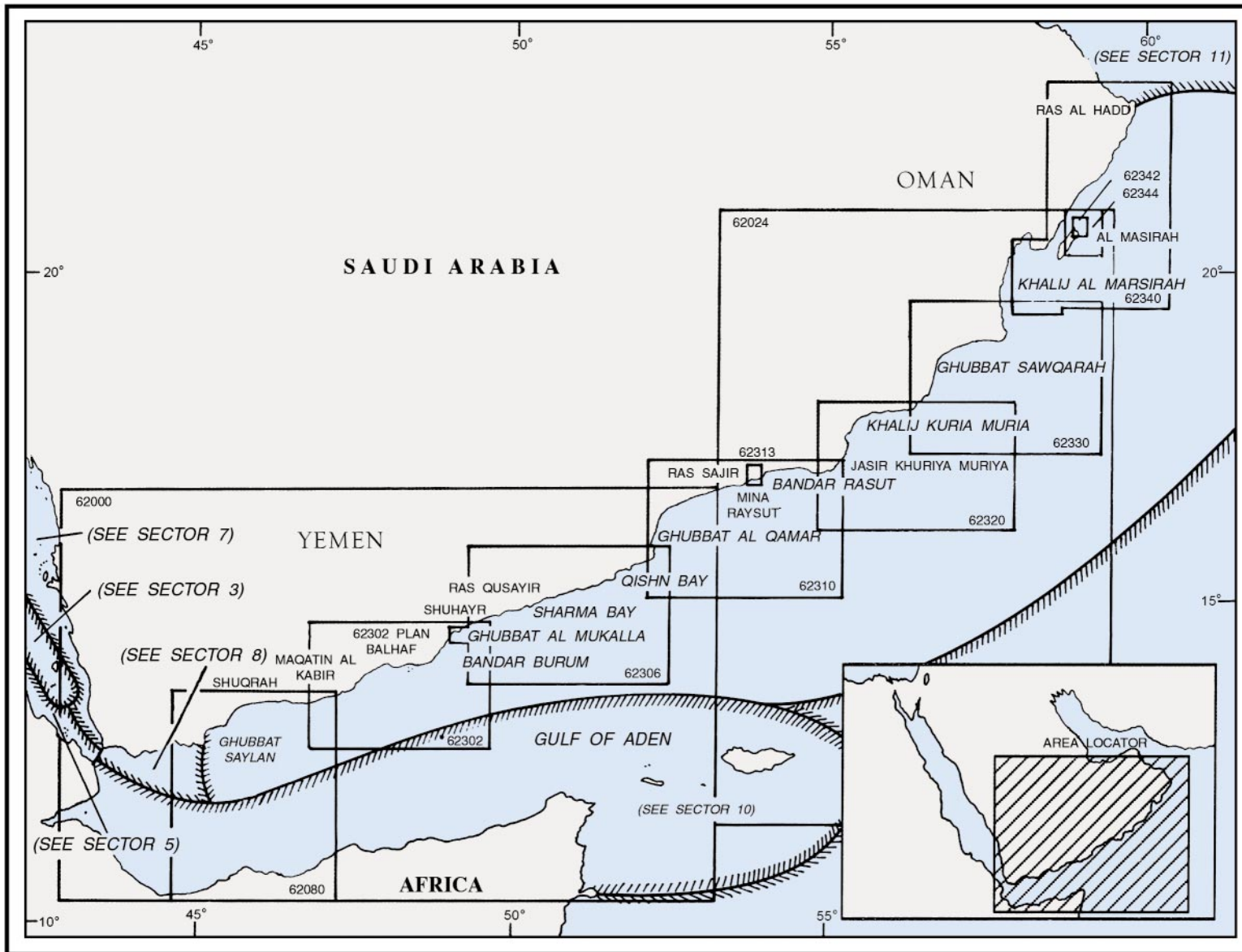
A forked channel lies 1 mile inside the outer entrance. The channel continues WNW towards Little Aden Oil Terminal or NNE towards the Inner Harbor and the Aden Peninsula. Range lights, in line bearing 300°, lead towards Aden Oil Terminal.

Caution

A prohibited anchorage area, with a radius of 0.5 mile, lies in the vicinity of the seaward entrance to the dredged channel, about 2 miles E of Jazirat Salil Light.

A wreck, with a depth of 4.5m, lies about 1 mile W of Ras Marbut (Steamer Point) and is marked by a lighted buoy.

Another wreck, with a least depth of 8m, lies about 0.8 mile SSW of Ras Tarshayn.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 9 — CHART INFORMATION

SECTOR 9

YEMEN AND OMAN—ADEN HARBOR TO RAS AL HADD

Plan.—This sector describes the coasts of Yemen and Oman along the N side of the Gulf of Aden from Aden Harbor (Bandar at Tawahi) to Ras al Hadd, the S entrance point of the Gulf of Oman. The descriptive sequence is from W to NE.

General Remarks

9.1 Winds—Weather.—In the Gulf of Aden, the Northeast Monsoon begins early in November; the steadiness of wind and weather offers a great contrast to the Southwest Monsoon. Winds from the ENE, and E prevail, turning SE near the entrance of the Red Sea.

In late December and early January, it frequently attains moderate gale force and may be accompanied by heavy rain.

During the remainder of January, February and March, E and ENE winds prevail. These are the 3 months of heaviest trade in this region and the weather is generally clear and cool with occasional rain.

The Southwest Monsoon begins about the middle of April, somewhat earlier in the W than in the E part of the Arabian Sea. From its inception and through the whole of May, the monsoon is feeble and variable with calm periods, but on the whole SW winds predominate during June; these winds increase progressively and prevail with great regularity through the months of June, July, and August.

During September, the winds remain predominately SW, but with some variable winds and periods of calm interspersed.

In the intervals between monsoons, which are known here as tangambili, the light and variable winds are often interrupted by atmospheric disturbances and squalls.

During the beginnings and ending of the transition periods, there is frequently a brief but violent resumption of the monsoon, often accompanied by rain and lightning.

The Southwest Monsoon is very strong and is accompanied by thick hazy weather over the area between Ras Air and Suqutra, while the Northeast Monsoon brings much lighter winds and fair weather.

Along the N coast of the Gulf of Aden, the winds in summer are often light and variable, and are somewhat fresher by day than by night. On the Arabian coast, to the E of Ras Qusay'ir, the winds of the Southwest Monsoon are much stronger than they are in the Gulf of Aden.

They are strongest between Mirbat and Al Misirah and reach their greatest force in Kuria Muria Bay during the month of July.

The Khamsin of Egypt is a dry wind, although the name is also applied to a dry N wind which occasionally blows in the Gulf of Aden during the Southwest Monsoon.

As the monsoon fails, this wind, without warning, sets in from the N with great violence and usually continues for 3 or 4 hours. It is accompanied by clouds of sand and lighting. The barometer rises quickly about 4 millibars.

Near the end of the Southwest Monsoon, squalls occur near Aden which, though accompanied by thick weather, differ

from the Khamsin in that they carry no sand and the barometer doesn't rise.

The Shamel, which occurs in the Gulf of Aden, is a wind primarily of the Southwest Monsoon period. It is usually N, but may come from the E or W, and prevails periodically during successive days. In the Gulf of Aden, the wind rarely last more than 3 days.

The E coast of Arabia, near the Gulf of Oman, is reached by the Great Shamal of the Persian Gulf. This very hot and dry wind is from the NW and blows almost without cessation during June and the first half of July. Skies are in general cloudless, but the air is hazy and filled with very fine dust which, at times, reaches far out to sea.

A strong land wind, known locally as the Belat, occasionally affects the Arabian coast between Ras Sajir and Al Masirah, usually occurring between the middle of December and the middle of March. This wind is N or NNW. It blows for 1 to 3 days, occasionally longer, and is accompanied at first by the dark red clouds of a heavy sandstorm, and throughout its course by hazy atmosphere.

The Belat nearly always begins between midnight and 0400 with a light breeze, which increases to a moderate gale in about an hour. It blows hardest on succeeding nights between 2100 and 2200, and usually dies out suddenly about the middle of the day.

In some years, this wind is rare, while in other years it occurs frequently. A faint hazy arch over the land in the evening, or the wind shifting toward the land, sometimes in sudden gusts, early in the night, generally indicates the Belat's approach.

Thunderstorms are infrequent in these waters. Vessels observe them occasionally in all months during infrequent rains.

Over the Gulf of Aden and the S part of the Red Sea occur the highest air temperatures known on any water surface, except the Persian Gulf. On the open water of the two S areas, air temperatures rarely exceed 38°C.

There is little fog observed within the area described in this sector. What little fog that does occur is rarely dense and usually disappears rapidly during the morning.

In the Gulf of Aden, haze is infrequent, except in the summer, when it occurs in 12 to 15 per cent of the observations.

Exceptional visibility is recorded in 1 out of 4 to 6 of the observations except in July, when it occurs in 1 out of 10 observations.

Dust storms may reduce the visibility to 1 mile. Refraction phenomena in all forms are comparatively common in the Gulf of Aden.

The mirage may be of a simple type or may be any of the complicated types of looming, sinking, distortions, and multiple images common to hot coasts and their adjacent waters.

Tides—Currents.—Surface current speeds and directions throughout the area of this sector are mainly influenced by the Northeast Monsoon and the Southwest Monsoon.

In the Gulf of Aden, during October through April, the currents set SW at speeds ranging from 0.2 to 1 knot, depending on the strength of the wind.

During June, July, and August, the currents set ENE at speeds of about 1 knot near the middle of the Gulf, and up to 2 knots close to the Arabian coasts. Maximum speeds of about 3 knots have been observed along the coast in July and August.

Depths—Limitations.—The depths in the approach to this part of the coast are deep and clear. The 200m curve lies between 1.5 miles and 10 miles offshore, except in the vicinity of Aden, where it extends up to 17 miles seaward, and S and SW of Ras Fartak, where it extends about 23 miles seaward.

Aspect.—Jabal Maufaja (13°40'N., 45°18'E.), 2,240m high, rises about 36 miles N of **Ras Saylan** (13°03'N., 45°24'E.) and is the W extremity of a range that extends about 60 miles E. This range then continues with an irregular outline for 80 miles to the NE.

Jabal al Fadhlī, a lofty range broken into peaks and bluff points, stands 5 miles inland and extends 35 miles E from a location about 30 miles ESE of Jabal Maufaja. Jabal al Urus, 1,730m high, is the highest part of this range. From the S, this peak is easily identified as a fairly sharp top, but from the E it appears as a concave summit standing well to the left of the apparent highest part of the range.

Knob (13°36'N., 46°07'E.), a conspicuous peak, rises about 14 miles W of the E end of Jabal al Urus to a height of 1,219m. It has steep sides and is separated from the main range by a deep cleft. A barn-shaped peak, 1,204m high, stands 6 miles E of Knob and is more conspicuous from the E.

The valleys in this vicinity are thickly covered with vegetation.

Black Hill (13°46'N., 46°59'E.) has two well-marked peaks, with the E peak being the highest. Jabal Humairi, rising about 24 miles ENE of Black Hill, is a rugged range extending about 16 miles to the E. Its 1,611m high summit can be easily identified when viewed from the SE or SW.

A peak, 914m high, stands about 58 miles E of Jabal Humairi, near the seaward end of a mountain range, and is a good landmark when seen from the WSW. From the S, this peak appears to be the W summit of the range.

From a position N of **Al Mukalla** (14°13'N., 49°07'E.), a high range of mountains extends to the E, paralleling the coast about 10 to 15 miles inland.

Jabal Dhuba is isolated, oblong, and table-topped. It stands 20 miles ENE of Al Mukalla and 1 mile inland. This mountain is a good mark.

Jabal Yucalif, rising about 13 miles ENE of Jabal Dhuba and 3 miles inland, is a conspicuous isolated hill. The ruins of a wall and terrace stand on this hill.

Jabal al Hamum, a sand hill topped by a few trees, stands 7 miles NNW of Ras Ba Ghashwah, about 60 miles ENE of Al Mukalla.

One of the most noticeable features of the S coast of Arabia is a series of three horizontal outcroppings of black basalt on the plains between **Raydat Ibn Abd al Wadud** (15°26'N., 50°26'E.) and Wadi Masila, 36 miles E. Each outcropping has one or more cones about 30m above the level of the ground. Around each cone is a low field of basalt, which contrasts markedly with the light color of the plains. Some of the basalt

has made its way to the coast through the watercourses and appears as black rocks. These show up well against the white limestone on either side.

The second cone stands 9 miles E of the first and 3 miles inland. The E cone stands near Wadi Masila. The discharge from these two connect and the discharge from the latter nearby extends almost to the Wadi Masila. Jabal Asad, 1,219m high, stands about 22 miles NE of Raydat Ibn Abd al Wadud.

There is a remarkable gap in the mountains SW of Jabal Asad and 10 miles inland. Jabal Jaihun, 914m high and detached, stands 50 miles ENE of Jabal Asad. This peak is conspicuous from the E and SE. A conspicuous conical peak, 579m high, stands near the coast about 17 miles SSE of Jabal Jaihun.

The Asses Ears, two conspicuous sugarloaf peaks, 561m high, stand on the W shoulder of this peak. These peaks appear as ears when bearing less than 022° but are obscured when bearing less than 295°. Behind the above peaks, the land rises gradually until it reaches the coastal range.

The Fartak Range, 609 to 914m high, extends W from **Ras Fartak** (15°38'N., 52°16'E.). Vertical cliffs rising to heights of about 580m extend 8 miles N from Ras Fartak and form the greatest escarpment on the SE coast of Arabia. The cliffs are barren except near the summits, where the vegetation is mainly on the W side. Jabal al Fatk, 609m high, extends W from a position about 55 miles NNE of Ras Fartak and joins the Fartak Range.

To the E of Jabal al Fatk, the Athub Range and Jabal Qamar, 914 to 1,219m high, extend irregularly E and approach the coast. Jabal Qamar, although apparently seen to be barren from a distance, is tree-covered.

Caution.—For details of Firing Practice Areas lying off the coast of Oman, see Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean.

Numerous oil and gas exploration rigs, with associated pipelines and structures, may be encountered in the waters described in this sector.

Incidents of armed robbery have been reported against ships proceeding in the W and SE parts of the Gulf of Aden. Vessels of any size should be aware of the risks involved when navigating in these waters at speeds of less than 12 knots.

Gulf of Aden Voluntary Reporting System.—A voluntary reporting system in support of Operation Enduring Freedom has been established to support surveillance and anti-terrorist operations in the Gulf of Aden and its approaches. For further information, see Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean, Indian Ocean—Navigational Information.

Ghubbat Saylan to Ras Sajir

9.2 Ghubbat Saylan (Ghubbat Sailan) (12°55'N., 45°13'E.), entered between the Aden Peninsula and Ras Saylan about 26 miles NE, is bordered by a flat, sandy coast which gradually rises toward the latter point.

A low plain, with numerous hummocks, backs this section of coast for some distance inland. This plain is partially covered by stunted bushes with a few low trees in places but has no prominent features.

Ras Saylan (13°03'N., 45°24'E.), low, round, and sandy, is marked by some palm trees. Several villages stand in the vicinity. Wadi Bana, dry during most of the year, flows into the sea at this point. A detached patch, with a depth of 6.5m, lies about 12 miles WSW of Ras Saylan and 2 miles offshore.

During both monsoons, a current sometimes rounds Ras Marshaq and sets N into Ghubbat Saylan at a rate of 2 to 4 knots. Care should be observed by vessels, especially those bound W, because in the past several vessels have been wrecked because of this set.

Between Ras Saylan and Shuqrah, 25 miles NE, the coast is sandy. Saddle Hill, rising 5 miles W of Shuqrah and 0.5 mile inland, is a good landmark.

Barrow Rocks (13°17'N., 45°38'E.), two rocky patches located about 5 miles apart and with depths of less than 2m, lie 4.5 to 7 miles SW of Shuqra and 1.5 miles offshore.

Shuqrah (13°21'N., 45°42'E.), a district capital and port for the area, is divided into three sections by a strip of sand and scrub. The principal buildings stand in the middle part. These include the Shaikh's house and the largest mosque. A white mosque with a conspicuous minaret, 20m high, stands close W of the Shaikh's house. A small minaret stands at the E end of the town, near the foreshore. A large brown building, known as the Sultan's House, is situated midway between the E minaret and the Shaikh's house. A saltworks, well lighted at night, stands about 1 mile E of the town.

Good anchorage can be taken, in depths of 12 to 16m, about 1 mile offshore, with the Sheikh's house bearing about 010°. The current off the anchorage sets W on a rising tide. A break in the coastal reef, which is clearly visible from seaward, forms a boat harbor at Shuqrah and has depths of 1.8 to 4.6m. The current off Shuqrah sets to the W on a rising tide.

The coast between Shuqrah and **Maqatin al Kabir** (13°25'N., 46°26'E.), 43 miles E, is backed by a plain extending inland to the mountain ranges.

Maqatin Saghir, a small boat anchorage, lies about 6 miles W of Maqatin al Kabiris and is formed by a projecting point. A spit, with a sunken rock, extends about 0.5 mile SSW from the point.

Maqatin al Kabir provides anchorage for small vessels with local knowledge on the W side of a rocky spit extending 0.4 mile S from the coast. This anchorage is sheltered from NE winds. Four above-water rocks stand on this spit and appear white from bird droppings. A black ruin, which appears as stones, lies about 0.2 mile N of the inner end of this rocky spit. The ruin is all that remains of the former settlement.

Maqatin al Kabir can be easily identified by two black hills standing close E and near the coast. A group of hills stands about 5 miles ENE of Maqatin al Kabir and forms a good mark, especially in hazy weather. The group appears as one hill when viewed from the E.

A vessel of 1,300 tons approached the anchorage by steering for the S extremity of the innermost above-water rock on a course of 045°. This vessel then anchored on this bearing, in a depth of 11m, at a distance of about 0.4 mile from the rock. The current off the anchorage sets W on a rising tide.

An obstruction was reported (1991) to lie about 23 miles SSW of Maqatin al Kabir.

Between Maqatin al Kabir and Ras al Qusaym, 84 miles ENE, the coastal plain is low and sandy and extends about 35

miles inland to the mountains, which are very irregular in outline.

9.3 Sambahiyah (13°23'N., 46°32'E.), located 6 miles E of Maqatin al Kabir, is a rocky point.

Ahwar, a town standing 10 miles NE of Sambahiyah, consists of a series of villages situated on a broad plain with high mountains rising to the N. Only the tops of the houses are visible from seaward.

Ras Aulaqi (13°24'N., 46°44'E.), located 13 miles E of Sambahiyah, is low and sandy. A conspicuous white rectangular guard house was reported (1964) to stand near the shore, about 4 miles W of Ras Aulaqi.

Al Hauta is situated on the coast close E of Ras Aulaqi; about 3 miles farther E is a large square tower, with a few houses near it.

Dives Shoal (13°26'N., 47°04'E.), lying about 19 mile E of Ras Aulaqi and about 3 miles offshore, has a least depth of 4.6m, sand. A shoal depth of 33m was reported to lie about 4.5 miles ESE of Dives Shoal.

Sheikh Hurba Tomb (13°36'N., 47°06'E.) stands on the bare shore about 23 miles ENE of Ras Aulaqi. It appears dark brown and is conspicuous from up to 12 miles offshore. Wadi Sanam, 12 miles E of the above tomb, cannot be seen beyond a distance of 3 to 4 miles.

9.4 Al Irqah (13°39'N., 47°21'E.), which consists of a village and a small mosque, stands 15 miles E of Sheikh Hurba Tomb. A fairly small square tower, situated about 2 miles E of the village, is conspicuous. The village, the mosque, and the tower all stand on a low, round projection.

Ras Safwan (13°49'N., 47°36'E.), a slightly projecting point, is located about 15 miles NE of the tower at Al Irqah. It is thinly covered with bushes at the outer edge.

Al Hawarh, a small village situated about 2 miles NE of the point, has two square towers standing on a mound, each about 15m high. Small vessels with local knowledge can anchor in the slight coastal indentations between Ras Safwan and Jabal Makanati, about 6 miles NE.

Jabal Makanati (13°53'N., 47°40'E.), 61m high, is a projecting, whitish-colored bluff, veined by dark strata and terminating in sand hills. A sunken rock lies close SW.

Ras Safwan, Al Hawrah, and Jabal Makanati are all reported to be good landmarks, especially in hazy weather. However, they are somewhat difficult to identify, particularly if the sun is shining from their direction.

9.5 Ghubbat al Ayn (13°59'N., 48°00'E.) is entered between Ras al Qusaym, located about 8 miles ENE of Jabal Makanati, and Ras al Usaydah, 22 miles E. Ras al Qusaym is a low, round, and sandy point.

Ayn Ba Mabad, with a mosque, and Ayn al Juwayri are two villages standing close inland on the N side of the bight. These villages are difficult to identify from a distance because other villages are located in the vicinity. Jilah is a village standing on the NE side of the bight.

The bight is clear, except for some rocky patches, which extend up to 0.6 mile offshore near Jilah, and a shoal bank, which extends up to 0.5 mile offshore in the NE side. In places within the bight, depths of less than 20m extend up to 3 miles

seaward. Ras al Usaydah, the E entrance point, rises 0.3 mile inland to a conspicuous dark, conical hill, 50m high. Three small rocky points project from this headland.

Black Barn, a prominent hill, stands 2 miles N of Ras al Usaydah. A conspicuous radio mast stands about 3 miles NE of the headland.

Balhaf, a small town, stands at the head of a small bay on the W side of Ras al Usaydah. It is conspicuous from the W, but not visible when bearing less than 040°. A prominent tower stands in the town, with a smaller one situated close S of it. Another tower stands near the coast, about 0.4 mile N of the town. Good anchorage can be taken W of the town, in a depth of 16.5m, with the N tower in the town bearing 077°, distant about 0.2 mile.

Rudum Terminal (13°58.7'N., 47°54.6'E.), located at the W side of Ghubbat al Ayn, consists of an SPM buoy, which can handle tankers up to 20,000 dwt. A submarine pipeline extends N from the berth to the mainland.

9.6 The coast extending E of Ras al Usaydah is very irregular, with many small projecting points.

Ras ar Ratl, located about 3 miles E of Ras al Usaydah, is a conspicuous, round volcanic promontory of considerable height with an apparently extinct crater in the middle. Small boats with local knowledge can anchor in the bays lying on either side of the point.

Bandar Husn al Ghurab (14°01'N., 48°21'E.) is entered E of Jabal Husn al Ghurab, a 139m high, steep-sided, square, and black hill standing about 6 miles ENE of Ras ar Ratl. Some ruins stand on the summit of this hill. The W side of the bay is clear of dangers but the E side is fouled by a shallow shoals. Bir Ali, a village with a square tower, is situated at the head of the bay.

Hillaniyah (13°59'N., 48°19'E.), an islet with several rocky points, lies about 1 mile S of Jabal Husn al Ghurab. A shoal bank, with a least depth of 3.7m, extends about 0.4 mile E from the E side of the islet. Small vessels with local knowledge can find moderate shelter from E winds off the W side of the islet.

Small vessels with local knowledge can also anchor, in a depth of 7m, about 0.5 mile off the W side of Bandar Husn al Ghurab. During the Southwest Monsoon, anchorage should be taken farther W with Jabal Husn al Ghurab, 139m high, bearing 180°.

Directions.—Vessels from the W should pass S of Hillaniyah in depths of not less 37m. They should then pass about 1 mile E of the islet in order to avoid the shallow water in the E part of the bay. Vessels from the E should not approach the E entrance point of the inlet in depths of less than 31m. They should also avoid the shoal water in the E part of the inlet prior to changing course for the anchorage.

9.7 Ghadarayn (14°00'N., 48°23'E.), consisting of two small islets lying about 0.5 mile apart, is situated 3.5 miles ENE of Hillaniyah. The passage leading between these islets and the coast is clear but the channel lying between the islets almost dries.

Sharan is a circular, table-topped hill standing close NW of Ghadarayn. This hill has a crater full of salt water, which is fringed by prominent overhanging mangroves.

Sikha (13°55'N., 48°23'E.), lying 4 miles S of Ghadarayn, is 111m high, hump-backed, and covered with white guano on its summit. This island has been reported to be radar prominent.

A detached bank, with a depth of 26m, was reported (1964) to lie about 7 miles SE of Sikha.

A detached bank, with a depth of 14.5m, was reported (1979) to lie about 7.5 miles SE of Sikha.

Maqdaha Bay is entered between Ghadarayn and Ras Mijdahah, 3 miles E, and provides good anchorage to small vessels with local knowledge. Except for a shallow rock lying in the middle of the head, about 0.5 mile offshore, the bay is free from dangers.

The horns of a crescent-shaped half crater extend 0.3 mile from the head of the bay. Ras Mijdahah, dark and fairly high, is the extremity of a broken range, which extends about 10 miles inland.

A square white tower, conspicuous from NW, stands on the W side of Ras Mijdahah. Good anchorage can be taken by small vessels with local knowledge, in a depth of 14.7m, sand, with the tower bearing 055°, distant 0.3 mile.

Barraqah (13°59'N., 48°28'E.), a small islet, lies 0.4 mile S of Ras Mijdahah and is reported to be radar prominent. It is 180m high and steep. The summit, a crater, is covered by white guano. From the S, this islet appears square, with a flat top, and steep. From E or W, it appears to slope from the S cliff to the summit at the N end.

The coast between Ras Mijdahah and Ras al Kalb, 13 miles ENE, is low and sandy. Ras al Kalb is low, round, and sandy. This point is not easily identified, but a radar conspicuous stranded wreck, position approximate, was reported (1985) to lie close off it. The superstructure and one mast were visible.

The first part of the coast lying between Ras al Kalb and Al Mukalla, 38 miles NE, is barren, with sandhills extending some distance inland. The irregular peaks and bluffs of the interior mountains are sometimes covered with snow during the winter. The heights of these peaks range from 609 to 1,219m.

The current off this part of the coast sets to some extent toward the shore.

Kalb, a village, stands 3 miles NE of Ras al Kalb and behind some sand hills in a large break in the coastal range. A large fort is situated at its W end and four conspicuous white two-story buildings stand near the coast at its E end. A gray stone tomb stands on a small hill ENE of village. Although inconspicuous, the tomb is useful in identifying Ras ar Rujaymah, close E of it.

9.8 Ras ar Rujaymah (14°08'N., 48°48'E.), located 8 miles NE of Ras al Kalb, is 91m high and has a dark-peaked outline. Conspicuous from seaward, this point is the W end of the bold, dark, precipitous land extending to within 15 miles of Al Mukalla.

Al Ghaidha, a town, stands 2 miles inland among luxuriant date groves in a valley between Ras ar Rujaymah and Ras al Hasah al Hamra.

Ras al Hasah al Hamra (14°12'N., 48°52'E.), located 16 miles NE of Ras ar Rujaymah, is the outer end of a rugged range of hills extending some distance inland. A village stands in a grove of trees midway between these two points.

Ras al Himar, a low bluff, is located 4 miles NE of Ras al Hasah al Hamra. A village stands on the shore of the small bay formed between these two points.

Ras Barum (Ras Burum) (14°19'N., 49°00'E.), located 5 miles NE of Ras al Himar, is the E end of a bold, dark, craggy promontory, which rises to a height of 335m. A rocky, steep-to spit, with an above-water rock at its inner end, extends about 0.3 mile E from this point.

Small vessels with local knowledge can anchor, in depths of 5.5 to 12m, within a small bay on the SW side of Ras Barum.

9.9 Bandar Barum (Bandar Burum) (14°20'N., 48°57'E.) lies between the NE side of Ras Barum and Radham Bluff, about 2 miles NNW. This bay provides safe anchorage during the Southwest Monsoon, but it is exposed to E and NE winds.

The small town of Barum (Borum) stands in a grove of trees on the NW side of the bay. A tomb stands about 1 mile W of the S end of the town, but is obscured by hills when near the anchorage.

During the Southwest Monsoon, vessels can anchor, in depths of 9 to 12.8m, good holding ground, SE of the town. However, a ground swell sometimes rolls into this anchorage.

During the Northeast Monsoon, a vessel anchored close inshore, in a depth of 12.8m, with the S side of the town bearing 280° and the E end of Radham Bluff bearing 008°. Vessels roll heavily at times in this anchorage but strong dangerous winds are rare.

A vessel also anchored, in a depth of 20m, with the SE extremity of Radham Bluff bearing 329° at a distance of about 0.5 mile.

The coast between Radham Bluff and Al Mukalla, 14 miles NE, continues low and sandy, with high mountains rising in the interior. The shore is fringed by a shallow bank which extends up to 1 mile seaward.

Ras Marbat (14°30.5'N., 49°09.6'E.) is the SW extremity of Mukalla Promontory. A conspicuous white house, in ruins, stands on this point. The sea in the vicinity of this point is very clear, when smooth and calm, and the bottom is plainly visible in depths of 22 to 27m.

Mukalla Promontory, which forms the E side of the bay, is hilly. The hills extend inland, attain heights of over 1,000m, and slope to within 0.2 mile of the coast, which is low.

Rocky Bank, a shoal area with a least depth of 4.5m, lies about 0.6 mile S of the S end of Mukalla Promontory and may best be seen on the chart.

Jabal al Qara (14°32'N., 49°08'E.), a conspicuous hill, rises 2 miles NW of Ras Marbat. It is 390m high and has a radio mast situated near the summit.

A conspicuous minaret stands about 0.7 mile WSW of Jabal al Qara, near the foreshore.

Al Mukalla (14°30'N., 49°09'E.)

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9.10 Al Mukalla (Khalf Harbor) is second only to Aden as the principal port on the S coast of Yemen. A considerable amount of cargo is lightered to and from the anchorage. During the Southwest Monsoon, a considerable part of this cargo is diverted to the secure anchorage off Bandar Barum.

Winds—Weather.—The Southwest Monsoon blows fresh, but when the sun declines, the wind and sea abate; in the morning at this season strong NW winds often blow. It is exceedingly hot in the middle of the day, but from October to April, and often in June and July, the land and sea breezes, accompanied by occasional showers, bring relief.

Tides—Currents.—The diurnal rise of the tide is 0.7m, while the spring rise is 1.2m. Currents in Mukalla Bay usually set SW on rising tide, but caution should be exercised when lying at the anchorage. A vessel reported that after experiencing a weak W current, an E current set in suddenly, with considerable strength, causing it to drag and ground.

Depths—Limitations.—Khalf Harbor, entered 0.9 mile NW of Ras Marbat, is protected by breakwaters. It has a depth of 11m in the entrance.

There are two main commercial berths. Berth No. 1, on the NE side of the S breakwater, is 177m long and has a depth of 9.1m alongside. Berth No. 2, on the SE side of the harbor, is 184m long and has a depth of 9.1m alongside. Vessels up to 17,000 dwt, with a maximum length of 145m and a maximum draft of 8.5m, can be accommodated. It is reported that vessels are limited to a length of 75m during the Southwest Monsoon.

There is also a fishing quay, 160m long, with a depth of 4.5m alongside.

An oil terminal lies SE of the harbor. It consists of a submarine pipeline extending about 0.2 mile SW from a point on the shore 0.5 mile NNW of Ras Marbat. Tankers moor heading SW, with two anchors down and their stern secured to two mooring buoys situated near the seaward end of the pipeline. The depth in the anchorage position is about 37m.

Wind and current conditions are most favorable for berthing early in the morning. The oil terminal is used only from the beginning of October to the middle of May.

Aspect.—The town is situated at the head of the bay, partly on a rocky projection and partly on the mainland close N of it. The part on the mainland stands on a series of terraces on a slope, at the base of a range of reddish limestone cliffs. These cliffs are about 90m high and rise immediately at the back of the town.

Several high towers of ruined forts stand NE and NW of the town. The N part of the town is enclosed on the W side by a wall, which extends from the cliffs to the coast. The houses in the town are mostly built of stone and are four or five stories high. The land close to the town is barren but, 1 mile inland and W of it, there are large date groves and gardens.

Several prominent structures stand in the vicinity of the harbor, including a small village, a minaret, a mosque, a small fish cannery, and some oil tanks.

Two conspicuous stranded wrecks lie close apart, about 0.3 mile W of the rocky projection on which the town stands. The S wreck was reported to resemble a vessel at anchor working cargo.

Pilotage.—Pilotage is compulsory for all vessels over 200 gross tons and is available 24 hours.

The pilot can be contacted on VHF channel 16 and boards off the breakwater.

Regulations.—Vessels should send an ETA 24 hours in advance, and include the following information:

1. ETA.
2. Master's name.

3. Vessel's nationality.
4. Vessel's name and call sign.
5. Gross tonnage and dwt.
6. Maximum draft
7. Type of cargo.
8. Reason for call.
9. Security level on board (if not level 1).
10. Declaration of any cargo on board.

Anchorage.—The best anchorage, in a depth of 31m, is about 0.8 mile WSW of the head of the S breakwater and 0.4 mile S of the rocky projection on which the town stands. This anchorage is used by vessels up to 10,000 dwt to discharge cargo into lighters.

The anchorage is exposed to the Southwest Monsoon and may be closed from May to October.

Directions.—The oil terminal berth should be approached on a course of 117°, with Ras Marbat just open on the port bow. The anchors are dropped on the alignment of two sets of beacons. The starboard anchor is dropped when a rear beacon, situated near the shore about 0.5 mile NNW of Ras Marbat, is in line with the NW of two front beacons, bearing 042°. The port anchor is dropped with the same rear beacon in line with the SW front beacon bearing 025° and with two beacons, situated near the shore about 0.2 mile NNW of Ras Marbat, in line, bearing 085°. Better positioning in the berth may be achieved by overrunning slightly the transit as seen from the forecabin before letting go the anchors.

Caution.—Anchorage is prohibited within 350m of a submarine pipeline, which extends 0.4 mile SSW from a point on the shore at the W side of the town. Diffusers, which protrude above the seabed, are located at the extremity of this pipeline.

In the vicinity of the oil terminal berth, vessels have experienced difficulty with jellyfish choking the main engine intakes, though this normally only occurs at the beginning of the Northeast Monsoon.

A dangerous wreck is reported (1998) to lie, position approximate, about 0.6 mile SW of the S breakwater head.

9.11 Between Mukalla Promontory and Sharma Bay, 49 miles ENE, the coast is mainly formed by an almost unbroken line of low sand.

Bandar Ruwayni (14°32'N., 49°10'E.), extending NE of Mukalla Promontory, provides anchorage, sheltered from the Southwest Monsoon, to vessels with local knowledge, in depths of 7 to 11m. The depths increase rapidly to seaward of this bay.

A large mosque stands in the village of Ar Rukaib, about 3.5 miles NE of the E side of Mukalla Promontory. Buwaysh, another village, stands in a valley surrounded by date groves, about 3 miles farther NE.

Ash Shuhair (Shuhayr) (14°39'N., 49°22'E.), standing near the coast 12 miles NE of Ar Rukaib, is in ruins but a conspicuous fort is situated in this vicinity.

Suq al Basir, a town standing 4 miles N of Ash Shuhair, has some mosques, which are visible from seaward.

Ash Shihr (14°45'N., 49°34'E.), a small town, is situated 13 miles ENE of Ash Shuhair and has a conspicuous castle standing in it. Two customs houses and a mosque, with white domes, are also prominent from seaward.

A shoal patch, with a depth of 10m, was reported to lie (position approximate) about 1.5 miles S of the town.

Anchorage can be taken, in depths of 12 to 21m, sand and shells, between 0.7 mile and 1 mile off the town.

9.12 Ash Shihr Oil Terminal (14°42'N., 49°29'E.), located about 5 miles SW of the town, consists of two SPMs, each moored about 2 miles offshore and connected to the coast by a submarine pipeline. The facilities on the shore are fronted by a boat harbor, which is protected by an L-shaped breakwater.

There is a least depth of 36m in the vicinity of the SPMs. Buoys are moored between the SPMs and the shore in order to mark the 30m depth contour. The terminal can handle tankers in the 80,000 to 400,000 dwt range; tankers greater than 265,000 dwt can only be partially loaded.

Pilotage is compulsory. A mooring master with an assistant board, as follows:

1. About 2 miles SW of SPM1.
2. About 2 miles S of SPM2.

During the Southwest Monsoon, berthing may be restricted to daylight hours only.

Vessels must send an ETA 10 days, 72 hours, 48 hours, 24 hours, and 12 hours in advance. Any change to the ETA of over 3 hours must also be reported. The information can be sent by e-mail, as follows:

manager_yemterm@nexeninc.com

The terminal can be contacted on VHF channel 9 or 16. Vessels should maintain a listening watch on VHF channels 9 and 16.

Caution.—The terminal is surrounded by a restricted area. Only vessels using the terminal are permitted to enter the restricted area. Anchoring is not permitted in this area.

Vessels that are 20 years of age or older will not be allowed to load at the terminal.

9.13 Hami (14°47'N., 49°49'E.), a village with a date grove and cultivated ground in the vicinity, stands at the base of a dark double hill about 14 miles ENE of Ash Shihr.

Anchorage can be taken by small vessels with local knowledge, in depths of 12 to 14m, about 1 mile off this village.

Sharmah Bay (14°48'N., 49°56'E.) is entered between a point near the E end of the cliffs, about 2 miles ENE of Hami, and Ras Sharmah, 7 miles E. Husn al Musaina'a, an old fort in ruins, stands on a rocky hill on the N shore of the bay, about 5 miles WNW of Ras Sharmah.

Dis, a walled town, stands 2 miles NNE of the fort. Al Qarn is a small village situated on the NE side of the bay, about 2 miles NNW of Ras Sharmah.

Northwest Bluff, 52m high, stands 1.5 miles N of Ras Sharmah. It is the NW extremity of Moshar Sabir Hills, which extend from a position about 0.5 mile NE of Ras Sharmah.

Jazirat Sharmah, a 21m high islet, lies about 0.3 mile W of Ras Sharmah.

Good anchorage can be taken, in depths of 7 to 9m, with Ras Sharmah bearing 157°, distant 0.5 mile. Small vessels can anchor off the village of Al Qarn, in depths of 3 to 7m. The current in the bay sets W with a rising tide.

The coast between Ras Sharmah and Ras Ba Ghaswah, 9 miles E, is formed by a succession of limestone and chalk cliffs, which rise almost vertically to heights of 90 to 120m. From there to Ras Qusayir, 13 miles ENE, the coast is low and sandy.

Ras Ba Ghaswah (14°50'N., 50°05'E.), with a village standing close E of it, is reported to be a radar-prominent point. It is surmounted by some conspicuous ruins. Another village, situated 4 miles W of the point, stands in a gap in the cliffs and is fronted by a sandy beach.

Ras Qusayir (14°54'N., 50°17'E.) is low and rocky. A rocky shoal, which partly dries, extends about 0.4 mile S from this point. Two rocky islets lie on this shoal about 0.2 mile WNW of the point.

9.14 Qusayir (14°56'N., 50°17'E.), a town walled on all except its seaward side, stands 1 mile NNE of Ras Qusayir. A square fort in ruins and a grove of trees stand close NNW of the town. A scattered village is situated 1.5 miles W of the fort.

Anchorage can be taken, in a depth of 12m, W of Ras Qusayir and the rocky shoal, but the depths rapidly decrease toward the coast. Unsheltered anchorage can be taken, in depths of 22 to 26m, S of the rocky shoal. Small craft with local knowledge can obtain shelter E of the two rocky islets lying on the shoal and in the lee of a reef, 0.7 mile NE of the point. A heavy surf rolls in even in fine weather, and landing is difficult.

The coast extending ENE of Ras Qusayir is low and sandy for a distance of 35 miles to Thamnun (Tanum). From there to Ras Aqaba (Ras Akwab), about 30 miles farther ENE, the coast is straight, with a low coastal ridge, which appears black against the sandy mountains inland. Black Peak, 76m high, and Cone, 152m high, are the tallest points on this ridge and stand 5 miles W and 6 miles NE, respectively, of Thiamine.

The depths off this stretch of coast, between Ras Quasar and a point 23 miles ENE, are irregular and the bottom is rocky with overfills. Harry and Soarer are two small villages standing about 5 miles and 7 miles NE, respectively, of Ras Quasar. A prominent round tower stands at Harry and numerous trees are located in the vicinity of Soarer.

Radiate al Bad al Waded (Raid) (15°01'N., 50°26'E.), located about 12 miles NE of Ras Quasar and about 1 mile inland, has a large white watch tower, marking the landing place, close W of it. Husn al Kithira, a ruined fort, stands 2 miles NW of the town. There is no safe anchorage in this vicinity.

Musayniah (15°03'N., 50°39'E.), the site of a town in ruins, is situated 12 miles E of Raydat al Abd al Wadud. The swampy land in the vicinity is marked by numerous mangrove trees. A conspicuous white fort stands in the village close inland.

Temporary anchorage can be taken, in a depth of 11m, mud and sand, about 2 miles offshore.

Palinurus Shoal (14°55'N., 50°41'E.), lying about 8 miles offshore, has a least depth of 4.5m, rock and coral. Depths in the vicinity of this shoal are irregular.

Vessels are advised to keep clear of this danger by staying well inshore or at a distance of at least 12 miles from the coast.

Wadi Masila, a large well-watered valley with numerous villages and palm trees, is located E of the Jabal Asad mountain range and is the continuation to the sea of another wadi. Wadi Masila appears to divide the mountains into dis-

tinctly separate tracts; their sides are high and the summits are usually obscured by clouds. A ruined fort stands on each side of the entrance.

9.15 Sayhut (15°13'N., 51°14'E.), located about 35 miles ENE of Musayniah, consists of some stone houses and mosques. Good anchorage can be taken off the village, in a depth of 10m, mud, with a large white house in the village bearing 315° and the S end of the promontory, of which Ras Sharwayn is the E extremity, bearing 070°, and a little open of Ras Uqab.

Ras Uqab (Ras Akab) (15°14'N., 51°19'E.), located about 7 miles ENE of Sayhut, is high, red, sloping, and rocky. Ras Rakhwayt and Ras al Kafir, two bluffs, stand between Ras Uqab and Ras Itab, about 7 miles ENE. During the Northeast Monsoon, small craft can shelter in the bays which indent this coast.

Ras Itab (15°17'N., 51°26'E.) is fairly high and terminates in a low point which forms the W entrance of Bandar Itab.

Bandar Itab (15°18'N., 51°33'E.), a slight indentation between Ras Itab and Ras Sharwayn, 14 miles ENE, provides some shelter from NE winds. With a fresh sea breeze, a considerable surf breaks on the beach along the shore.

Itab (15°20'N., 51°28'E.), standing about 3 miles NNE of Ras Itab, has three mosques, with a minaret on the W. A grove of trees stands W of this village.

Qishn Bay (15°25'N., 51°47'E.) is entered between Ras Sharwayn, the E end of a steep-to promontory, and Ras Darjah, 14 miles ENE. These two similar points have a quantity of sand blown up on their W sides. Ras Darjah consists of steep cliffs, 60 to 120m high.

During the Southwest Monsoon, the breaking seas have formed coves at the bases of these cliffs. It has been reported that Ras Sharwayn and Ras Darjah are radar conspicuous.

The low, sandy shore of the bay is backed by barren sand hills and a high range of hills a few miles inland. A heavy ground swell and a high surf break on the shores of the bay, except in a small cove close W of Ras Darjah.

9.16 Qishn (15°26'N., 51°41'E.), a small village, stands on the bay shore about 5 miles N of Ras Sharwayn. A salt water lagoon and a few trees stand at Suq, about 2 miles NE of Qishn.

The best anchorage is located in Bandar Lask, in the SW part of Qishn Bay. A good berth is in depths of 7.3 to 9.1m, about 0.5 mile offshore, with Ras Sharwayn bearing 158°, and a tomb about 2 miles NW of Ras Sharwayn bearing 270°. During the Southwest Monsoon, vessels are sheltered here in comparatively-smooth water, while in other parts of the bay a heavy swell sets in.

Between Ras Darjah and Ras Fartak, about 25 miles ENE, the low sandy coast is barren except for some small bushes and cultivated areas near the villages. Some sand hills rise to the high range of hills inland.

Khar Maghshi, a small salt water lagoon, lies about 5 miles NE of Ras Darjah and close to the coast. A rock, with a depth of less than 1.8m, lies about 4 miles NNE of Ras Darjah.

During the Southwest Monsoon, small craft can anchor between Ras Darjah and this rock, completely sheltered.

Saqr (15°33'N., 51°58'E.), located about 8 miles NE of Ras Darjah, stands in a grove of trees close to the coast. A large white mosque stands on a low cliff SSW of this village.

A fortified house stands at the W end of a village, about 3 miles ENE of Saqr; about 7 miles farther ENE is the village of Haswayn, near some palm trees.

Khaysayh (15°37'N., 52°15'E.) stands at the mouth of the valley at the base of the high land on the W side of Ras Fartak.

Coastal vessels can anchor off this village. A grove of trees stands about 2 miles inland and is flanked on both sides by villages.

Caution.—Because of the variable currents in the vicinity, care must be taken in thick weather not to mistake Ras Sharwayn for Ras Darjah.

9.17 Ghubbat al Qamar (16°20'N., 53°00'E.) lies between Ras Fartak and Ras Sajir, about 100 miles NE, and provides anchorage during offshore winds in convenient depths. No shelter is provided with onshore winds.

Tides—Currents.—The current, beginning to set ENE along the SE coast of Yemen early in April, is apparently deflected NNE near Ras Fartak toward the coast around Damgaut; its average velocity is 2 knots.

During the Northeast Monsoon, it sets in the opposite direction at 0.5 to 2.5 knots, but during this season, it often sets against the wind between Ras Fartak and Ras Naws, about 200 miles E.

In Ghubbat al Qamar, there are very weak tidal currents between Khawr Khalfut and Airub, which are accompanied by strong rips in places.

Ras Fartak (15°39'N., 52°16'E.), which is steep-to and rises to Jabal Fartak Range, appears as an island with a gap in the middle from a distance of 30 miles S. It is supposed to be the ancient Syagros because it resembles a boar's head when viewed from the SW or E at a distance of 20 to 30 miles. This promontory is radar conspicuous. It is reported that a radio mast stands near the S end of this promontory.

Ras Fintas (15°48'N., 52°14'E.), located 9 miles N of Ras Fartak, is a bluff cape, 61m high, surmounted by a conical hill. In the vicinity of this cape the high land recedes inland from the coast. A small village stands in a small bight close N of this cape.

Khawr Khalfut, a small bight where coastal craft are hauled up during the Southwest Monsoon, lies about 5 miles NNW of Ras Fintas.

Tabut and Hayrut are small villages standing about 5 miles and 7 miles N, respectively, of this bight and about 1 mile inland. A small saddle hill rises behind and between these villages.

Nishtun (15°49'N., 52°12'E.) is a small commercial and fishing port lying on the NE side of a bight, about 3 miles N of Ras Fintas.

Prevailing winds are from the NE from October to April and from the SW from May to September.

The harbor is protected by two breakwaters and has a pier, 220m long, which can accommodate vessels up to 3,000 dwt, with a maximum length of 90m and maximum draft of 5.0m, along its NW face.

A light is shown from the head of the SE breakwater; another light is shown from a structure standing close E of the breakwater root.

Pilotage is compulsory for vessels over 200 grt. Pilots can be contacted on VHF channel 16 and are available for berthing only by day. Anchorage is available about 0.4 mile SE of the breakwater light and clear of the harbor entrance.

The vessel's ETA should be sent 24 hours in advance. The following information should also be included:

1. Master's name.
2. Vessel flag.
3. Call sign.
4. Gross tonnage.
5. Deadweight tonnage.
6. Maximum draft.
7. Type of cargo.
8. Reason for call.
9. If any dangerous cargo on board.

Caution.—The port is exposed to heavy sandstorms during the monsoon season (July to September).

During the Southwest Monsoon, seas may break over the breakwaters.

9.18 Al Ghaydah (16°12'N., 52°16'E.), the largest town on the shores of Ghubbat al Qamar, stands 14 miles NNE of the village of Hayrut and 2 miles inland.

From February to April, small craft with local knowledge anchor about 1 mile off this town, over a sandy bottom.

Qabr Qaylul (Abd Allah Gharib), a tomb with some date trees in its vicinity, stands close to the coast about 8 miles NNE of Al Ghaydah. The village of Airub (Jarub) stands 3 miles farther NNE.

An isolated shoal patch, with a depth of 32m, was reported (1999) to lie about 9.5 miles ENE of Qabr Qaylul.

Al Jawhari (16°29'N., 52°27'E.), a white tomb with a few huts nearby, stands 9 miles inland. The coast between Al Jawhari and Ras Sajir, 65 miles ENE, is backed by mountains. A wadi separates Jabal al Fatk from the Athub Range, which terminates in a dark bluff point. Overfalls are reported to occur in the vicinity of the 200m curve about 7 miles SE of the wadi's mouth.

Damqawt (Damghut) (16°34'N., 52°50'E.) is a small port lying on the N side of Ghubbat al Qamar. It stands on an irregular plain in a valley at the W end of Jabal Qamar Range. The town is surrounded by mountains, except on its seaward side. A ruined fort stands on a cliff behind the town and a lagoon, with a few trees around it, lies on the W side of the town. A reef, over which the sea breaks, extends about 0.1 mile from the shore fronting the town. When the SW swell is not heavy, there is good landing on the E side of this reef, but at the same time the W side may be unapproachable.

Jadib (Jadhib) (16°37'N., 52°58'E.), a village built under some projecting rocks, stands about 9 miles ENE of Damqawt. The village of Hawf, with a tower, stands about 2 miles farther ENE.

Ras Darbat Ali (16°38'N., 53°03'E.), a small rocky point, is about 61m high and lies 3.5 miles E of the village of Hawf. A very conspicuous bluff, 1,204m high, stands about 3 miles NNE of this point. The bluff appears most conspicuous when viewed from the SW.

The international boundary between Yemen and Oman lies in the vicinity of Ras Darbat Ali.

Palkut (Dhalqut), a grove of trees, stands about 14 miles ENE of the village of Hawf. Al Kharifut, a fertile valley, lies about 5 miles farther E. Rakhyut and Safqut, two separate villages, stand about 10 and 13 miles ENE, respectively, of Palkut. Ras Sajr is located 6 miles E of the village of Safqut.

Ras Sajr to Ras al Hadd

9.19 Winds—Weather.—Around the middle of June, the strong Southwest Monsoon raises a heavy sea, but early in April, the advance swell of the monsoon begins to roll into Ghubbat al Qamar accompanied by a heavy surf. During this season, most of the inhabitants of the coastal plains retire to the mountains.

In April and May, there are frequent gusts of winds and occasional thunderstorms on Jabal Qamar and Jabal Samhan.

From June to September, it sometimes blows from the N for some days, and in July and August, this wind sometimes brings with it swarms of locusts.

The low-lying coastal plains, the majority of which consists of sandy desert and basaltic formations, are very hot. In the vicinity of the sea, the atmosphere is moist and steamy. In the lower valleys, the oppressive atmosphere is stifling by day and very damp at night.

During the Southwest Monsoon, the atmosphere on Zufar (Dhufar Plain) is oppressive, but the winter months are temperate.

During the Southwest Monsoon, Jabal Qamar and Jabal Samhan are often completely obscured by clouds for weeks, and the local inhabitants report that the sun is often not visible for days; this may account for the extremely fertile nature of these hills.

Depths—Limitations.—The depths in the approach to this part of the Arabian coast are deep and clear of all known dangers. The 200m curve lies at distances ranging from less than 1 mile E of Mirbat to about 48 miles off Khalij al Masirah. There are no known dangers lying outside the 200m curve, but several shoals and banks lie close within this curve. These dangers

will be described together with the coastal features which they front.

9.20 Ras Sajr (16°45'N., 53°35'E.), steep and rounded, rises to a height of 844m. The summit of the range in this vicinity is formed a level tableland 1,106m high. The E side of Ras Sajr forms a vertical escarpment but is not as high as the SW side. The latter side descends in three or four large steps, the ledges of which are so narrow that the summit can be seen only when 0.5 mile from the base. The bluff fronting this cape rises vertically from the sea and is steep-to.

A stranded wreck was reported (1997) to lie on the SW side of Ras Sajr.

Jabal Samhan (17°04'N., 54°38'E.), 914 to 1,219m high, extends 73 miles E from a position about 33 miles NE of Ras Sajr to Jabal Naws. This range closely approaches the coast in the vicinity of Mirbat (16°59'N., 54°41'E.) and terminates abruptly in cliffs.

Ghubbat al Fadayih (16°49'N., 53°51'E.), entered between Ras Sajr and Ras al Himar, 24 miles ENE, has a rocky irregular coast. A rocky islet stands close offshore about 9 miles NE of Ras Sajr. A sunken rock lies close off the N and S ends of this islet.

Ras Himar (16°54'N., 53°57'E.) is a rocky bluff of irregular hills projecting from the mountain range within the coast. A conspicuous needle-shaped peak, with a notch between it and a similar peak, stands on the summit of this bluff.

Zufar (Dhufar Plain) (17°02'N., 54°10'E.), the largest of the lowland tracts between the coast and mountains, and one of the most fertile districts on the S coast of Arabia, fronts the curve of the high land between Ras Himar and Khawr Taqah, about 27 miles E.

Ras Raysut (16°55'N., 54°00'E.), located 4.5 miles ENE of Ras Himar, is 30m high, much scarped, and very irregular near its summit. A small tower, in ruins, stands on the summit and an ancient cemetery is situated further inland on the ridge. A small rocky islet fronts the point on the E side.

Caution.—A disused (1996) explosives dumping ground area, the limits of which may be best seen on the chart, lies centered 20 miles SE of Ras Himar.

Mina Raysut—Berth Information				
Berth	Length	Depth alongside	Maximum berthing draft	Remarks
Container Terminal				
No. 1	307m	16.0m	15.5m	Containers. Located on the S side of the N breakwater.
No. 2	307m	16.0m	15.5m	
No. 3	307m	16.0m	15.5m	
No. 4	307m	16.0m	15.5m	
General Cargo Terminal				
No. 21	173m	9.5m	9.0m	General cargo. Located on the NE side of the spur off the root of the S breakwater.
No. 22	173m	9.5m	9.0m	
No. 23	173m	9.5m	9.0m	

Mina Raysut—Berth Information				
Berth	Length	Depth alongside	Maximum berthing draft	Remarks
No. 24	200m	7.8m	7.3m	Located on the NW side of the spur off the root of the S breakwater.
No. 25	115m	4.0m	4.8m	Located on the SW side of the spur off the root of the S breakwater.
No. 26	115m	4.0m	4.0m	
No. 27	115m	4.0m	4.0m	
No. 28	115m	4.0m	4.0m	
No. 29	260m	3.0m	3.0m	Small craft and fishing vessels. Located SW of Berths No. 25-29. Ro-ro ramp at SE end of berth can accommodate a draft of 2.5m.
No. 30	300m	16.0m	15.5m	Located NW of Berth No. 29
No. 31	300m	16.0m	15.5m	

9.21 Mina Raysut (Port Raysut) (16°56'N., 54°02'E.) (World Port Index No. 48230), lying N of Ras Raysut, is the port for Salalah and is also known as Port Salalah. The port has facilities for container, reefer, general cargo, tanker, ro-ro, and fishing vessels.

Salalah Port Services Home Page

<http://www.salalahport.com>

Winds—Weather.—Local authorities have reported that a dense fog prevails in the outer port area during the Southwest Monsoon, which blows from June through October.

Tides—Currents.—The maximum tidal range here is generally about 2m. However, during the monsoon season (June to August), the range may be as much as 4m. During the onset of the Northeast Monsoon, a vessel experienced a SW set of about 3 knots at a position about 5 miles from the port. Closer to the port, the vessel reported negligible set and drift.

Depths—Limitations.—Deep water is found close inshore to the W of the port, but depths of less than 10m are found up to 1.5 miles off the coast at the E side.

The harbor, situated on the N side of Ras Raysut, is protected by two breakwaters. The entrance channel is dredged to a depth of 16.5m (1998). The N part of the harbor basin is dredged to a depth of 16m (1998).

An oil berth, located on the NW side of the E breakwater, has a least depth of 12m alongside and can handle tankers up to 35,000 dwt, with a maximum draft of 10m.

The Container Terminal is located on the N side of the harbor basin. The General Cargo Terminal is located on the S and W sides of the harbor basin. Berth information is given in the accompanying table.

It has been reported (2005) that two additional container berths, with a total length of 960m and an alongside of 18m, are under construction. It has also been reported (2005) that the breakwater is undergoing a 2,800m extension.



Mina Raysut from NNE

Aspect.—Two cement silos and several prominent tanks stand in the vicinity of Ras Raysut.

Two conspicuous radio towers stand 3 miles NNE of the E breakwater head and about 0.4 mile N inland.

It is reported (2000) that the gantry cranes standing on the new container quay, on the S side of the N breakwater, are prominent from seaward.

An outer fairway lighted buoy is moored about 1.8 miles E of the harbor entrance.

A light, equipped with a racon, is shown from a structure standing on the E breakwater head. Two directional sector lights, which indicate the entrance channel, are shown from the head of the N breakwater.

Pilotage.—Pilotage is compulsory for vessels over 200 gt and is available 24 hours. Pilots may be contacted on VHF channels 12 and 16 and board about 3 miles E of head of the E breakwater. Pilotage can be provided with 1 hour notice.

Regulations.—Vessels should send an ETA message 96 hours, 48 hours, 36 hours, and 24 hours in advance through the agent, by fax, or by e-mail:

mktg@salalahport.com

The port should also be contacted directly on VHF channel 16 or 12 when 3 to 4 hours from arrival.

The first message should include the vessel's length, draft, nrt, grt, cargo distribution details, last port of call, next port of call, and the vessel's name, flag, port of registry, and the following information required by the ISPS Code:

1. International Ship Security Certificate (ISSC) Number.
2. Date of issue and date of expiration of the ISSC.
3. Name of organization issuing the ISSC.
4. Name of Ship Security Officer.
5. Ship Security Threat Level.

All inbound vessels should contact the port on VHF channel 16 or 2182 kHz when within range. All vessels in the port should maintain a continuous listening watch on VHF channels 12 and 16.

Vessels 70m long and over carrying bulk hazardous cargo are required to use two tugs when berthing and unberthing.

Ship-to-ship operations may only be conducted in Anchorage C. Berthing is allowed during daylight hours only. Unberthing may be done at any time. Pilotage and the use of a tug are required when the maneuvering vessel in a ship-to-ship berthing/unberthing operation is 170m long or greater and is without operational bow thrusters.

Operations are suspended during the monsoon season and when any of the following conditions exist:

1. Wind speed of 25 knots or more.
2. Swells of 1.5m or more.
3. Visibility of 500m or less.

Vessels unable to communicate by voice in clear English or Arabic will not be allowed to enter the port and will remain at anchorage until suitable voice communications arrangements are made by the owner or agent.

Anchorage.—Designated anchorage areas, best be seen on the chart, have been established SE of Mina Raysut. They are used, as follows:

1. Area A—Vessels waiting for a berth.
2. Area B—Vessels requiring offshore services.
3. Area C—Vessels requiring bunkering or ship-to-ship services.

The bottom in these anchorages is sandy.

Caution.—It is reported (1997) that wave recorder buoys are often moored within 1.5 miles SE of the E breakwater head.

A prohibited area, into which entry is prohibited and which is best seen on the chart, lies NE of Mina Raysut, on the N side of Bandar Raysut.

9.22 The coast between Ras Raysut and Dahariz, 10 miles ENE, is marked by green fields, coconut trees, and buildings. From Dahariz to Khawr Taqah, 14 miles E, the land is swampy and covered with mangroves, but from there to Mirbat, about 18 miles farther E, the coast is fronted by a series of limestone

cliffs, 30m high. The surf generally breaks along this coast even in calm weather.

Good anchorage can generally be taken off this section of coast, in depths of 9 to 13m, and about 0.5 mile offshore.

Awqad (17°00'N., 54°03'E.), a village with a lagoon in its vicinity, stands 4.5 miles NNE of Ras Raysut. A similar village stands about 1 mile farther NE.

Salalah (17°01'N., 54°06'E.), the principal trading center of this area, stands 3 miles E of Awqad. The town consists of stone houses surrounded by a grove of palm trees. The Governor's Palace and a white fort front the town.

Three radio masts stand, at an elevation of 25m, about 1 mile W of the palace. A stone tower, standing 0.9 mile W of the radio masts, is small but prominent. It is reported (1998) that a conspicuous mosque is situated 0.6 mile WNW of this tower.

An aeronautical radio beacon is situated in the vicinity of an airfield, about 2 miles N of the palace.

Dahariz (17°01'N., 54°11'E.) fronts the coast and is surrounded by watch towers. A grove of coconut trees and some cotton fields are located on the W side of the village and a lagoon lies on the E side. A fort in ruins stands about 2 miles E of the village.

9.23 Ras Mirbat (16°59'N., 54°41'E.), fronted by foul ground, is a low rocky point, which is reported to be radar conspicuous. The ruins of a tomb stand close ESE of the point, but are only visible from W.

Some inhabitants of the area dwell in large caves, which are situated on the precipices of the cliffs extending along parts of the coast to the W of the point. Lights from these caves may sometimes be distinguished along the coast at night.

Mirbat (16°59'N., 54°41'E.), a town composed of stone houses and huts, stands on the E side of a bay lying N of Ras Mirbat. A conspicuous fort, with a flagstaff, stands near the shore at the N end of the town. A white mosque, with a dome, stands close SE of the fort. The town is fronted by a small craft harbor, which is protected by a breakwater.

Vessels can anchor in the bay about 0.7 mile N of Ras Mirbat, sheltered from winds except those from between S and W, in depths of 12 to 14m.

Jabal Ali, a conspicuous hill, is 116m high and rises about 1.4 miles NNE of Ras Mirbat. A prominent radio mast stands close SSW of the summit.

Jabal Dawan, 1,136m high, rises 5.5 miles N of Ras Mirbat and is the best landmark in this area.

A cone-shaped peak rises about 8 miles E of Jabal Dawan and near the E end of the same part of the range. This peak is conspicuous, but it is not as high as the rest of the range.

Caution.—It was reported that a current sets NNW toward the shore at a rate of 1.5 knots in the vicinity of Ras Mirbat.

A prohibited area, the limits of which may best be seen on the chart, fronts the town of Salalah and extends up to 2 miles seaward.

9.24 Between Ras Mirbat and Ras Naws, 39 miles ENE, the low rocky coast is backed by a low barren plain with a few hills of moderate height.

Bandar Qinqari (17°00'N., 55°00'E.), 19 miles E of Ras Mirbat, provides anchorage to small vessels with local know-

ledge, in depths of 14 to 29m, rock and sand. This bay provides shelter from NE and E winds.

Jabal Qinqari (17°02'N., 55°01'E.), rising on the N side of Bandar Qinqari and 1 mile inland, is a conspicuous conical hill, 522m high.

Jabal Musayrah (Jabal Musaira), 660m high and conspicuous, stands close to the coast about 14 miles NE of Jabal Qinqari.

Ras Naws (Ras an Nuss) (17°15'N., 55°19'E.), located about 21 miles NE of Bandar Qinqari, is low, rocky and prominent.

A prominent radio mast is reported (1998) to stand about 2.5 miles WNW of this point.

Jabal Naws (Jabal an Nuss) (17°14'N., 55°17'E.), rising about 6 miles NE of Jabal Musayrah, forms the E extremity of Jabal Samhan range. This hill is wedge-shaped and its tallest and most precipitous part, which appears like a bluff, stands closest to the sea and attains a height of 894m. This peak is higher and more conspicuous than Jabal Musayrah, especially when viewed from E.

9.25 Jazair Khuriya Muriya (Kuria Muria Islands) (17°30'N., 56°00'E.), five in number, consist of Al Hasikiyah, As Sawda, Al Hallaniyah, Qarzewit, and Al Jubaylah. These bold and rocky islands, which rise to regular conical peaks, lie parallel to the N shore of Khalij Khuriya Muriya and about 22 miles S.

The tidal current S of these islands sets E during the flood, while N of the islands the current sets W.

Al Hasikiyah (17°27'N., 55°37'E.), lying 21 miles NE of Ras Naws, is the W of the group. It is rocky, barren, and colored white by guano. Two conical peaks standing at its S end rise to heights of 155m. Two small bays indent the E side of the island. A rocky shoal, which dries, lies about 0.5 mile off the NW side.

As Sawda (17°29'N., 55°51'E.), lying about 13 miles E of Al Hasikiyah, slopes irregularly to the coasts from its summit, 399m high, near the middle of the island. This island is barren, except for some grass and moss near the summit. Many small reef-fringed points extend from the shore and form coves suitable for use by small craft with local knowledge. The island is fronted by foul ground and is radar conspicuous.

Al Hallaniyah (17°30'N., 56°02'E.), lying about 5 miles E of As Sawda, is generally rugged and barren, except for some tamarisks trees and a little grass on its E side. The middle part of the island rises to granite chimney peaks standing close together. The tallest peak rises to a height of about 495m. The island is radar conspicuous.

The E and W ends of the island terminate in comparatively low points. Ras al Hallaniyah, the summit and N end of the island, is a bold projecting bluff, 501m high. The coast up to 1 mile on either side of this bluff consists of an almost vertical cliff. The island is fringed by foul ground and shallow rocks lie within 2.5 miles W of its W end.

A shoal patch, with a depth of 18m, was reported (1958) to lie about 5 miles E of Ras Sayyir, the E extremity.

Shoal patches, with depths of 16.5m, 15m, and 14.9m, lie about 2 miles NNW, 3 miles NNE, and 3.5 miles NE, respectively, of Ras al Hallaniyah, the N extremity.

The best anchorage off Al Hallaniyah is in depths of 14.6 to 22m, about 4 miles WSW of the N extremity of the island and

about 0.5 mile off a small sandy cove. This anchorage is open to winds from E through N to W. A vessel reported approaching this anchorage on a course of 150°, with the bottom shelving gradually.

A stranded wreck lies in the vicinity of a bay on the NE side of the island.

9.26 Qarzewit (17°36'N., 56°09'E.), lying about 6 miles NW of Ras al Hallaniyah, is rocky and has a double peak, 70 m high. The base of this islet consists of four red granite rocks lying close together. The islet is fringed by foul ground and two above-water rocks lie close together off its E end.

Al Jubaylah (Qibliyah) (17°30'N., 56°20'E.), the E island of the group, lies 13 miles E of Al Hallaniyah and is radar conspicuous. This rocky, barren island is topped by several limestone peaks. A small sandy bay indents the NW side of the island. The tallest peak rises to a height of 168m and is visible from all directions.

Four Peaked Rock (17°29'N., 56°20'E.), about 30m high, lies 1 mile NNW of the NW extremity of Al Jubaylah; the intervening channel has depths of 3.7 to 5.5m. A rocky ledge, marked by some above-water rocks, extends about 0.5 mile NW from Four Peaked Rock.

Well Rock (17°29'N., 56°19'E.), a small above-water danger, lies about 0.5 mile SSW of the SW extremity of Al Jubaylah.

Tilly Rock (17°30'N., 56°25'E.), with a depth of 5.5m, lies about 2 miles E of Al Jubaylah. A small drying rock, over which the sea usually breaks, lies about 2 miles farther E. Four Peaked Rock, well open N of Al Jubaylah and bearing less than 280°, leads N of these rocks.

A wide berth should be given these rocks when a vessel is rounding the E side of the island at night, as they are steep-to and the depths around them are irregular.

Anchorage can be taken off the N side of Al Jubaylah. As the holding ground of coral is indifferent, a long scope of chain is required.

Small vessels with local knowledge can anchor, in a depth of 22m, off the S side of Al Jubaylah with Well Rock bearing 248° and the W extremity of the island bearing 293°.

9.27 Khalij Khuriya Muriya (Kuria Muria Bay) (17°39'N., 55°53'E.), entered between Ras Naws and Ras Sharbithat, 71 miles NE, is bordered by lines of limestone cliffs and sandy beaches. The depths in the central part of the bay range from 36 to 86m, shoaling gradually toward the coast and the five previously-described islands. The bottom is generally sand and coral, but occasionally rock is found.

Winds—Weather.—The winds and weather in the bay appear more violent and variable than anywhere along this coast. The N wind is strong. Changes of wind may be sudden and without any warning. In the vicinity of this bay, the Southwest Monsoon is reported to set in with heavy squalls, rain, and thunderstorms. During this period, many of the local vessels do not sail. The larger craft sail in early June, after the first burst of the monsoon, and at the end of August, when the monsoon is considered to be over.

Bandar Naws (17°15'N., 55°19'E.), entered between Ras Naws and a low, rocky point about 3 miles to the N, provides sheltered anchorage from S and W winds, in a depth of 16.5m, about 0.5 mile offshore. A village stands at the head of this

bay. A tomb, in ruins, stands in a valley about 5 miles N of Ras Naws and 1 mile inland.

Ras Hasik (17°23'N., 55°20'E.), about 10 miles NNE of Ras Naws, is small, low, and rocky. The coast in this vicinity is very striking. The unbroken limestone mountains with the sharp peaks of the granite ranges are very prominent. Though the coast appears barren from seaward, the valleys are well-wooded and watered.

Bandar Hasik (17°24'N., 55°20'E.), on the N side of Ras Hasik, provides sheltered anchorage from S winds to small vessels with local knowledge, in depths of 9 to 22m, close offshore. A village stands in a valley a short distance from the head of this bay.

9.28 Ghubbat ad Dawm (17°30'N., 55°20'E.) is entered between Ras Hasik and Ras Muntajib, about 18 miles NNE. The coast between Ras Hasik and Ras Tiharr, a low sandy point about 4 miles NNW, is irregular.

The remaining part of the coast is backed by a high, steep tableland with three conspicuous valleys. A sandy spot lies close N of Ras Attabarran, about 8 miles NNW of Ras Tiharr.

A valley, fronted by a sandy cove about 2 miles NNW of Ras Hasik, is reported to extend quite a distance W.

Ras Muntajib (17°39'N., 55°24'E.), a bluff headland with a rugged peak about 2 miles N of it, stands 8 miles NE of Ras Attabarran. The peak is difficult to identify.

The coast NE of Ras Muntajib consists of steep cliffs for a distance of 8 miles. The high land then recedes 2 to 3 miles inland and parallels the coast to the **Dark Point of Shuwaymiyah** (17°54'N., 55°45'E.), located 22 miles NE of Ras Muntajib, where it again approaches the coast. A white stone building stands about 4 miles WNW of the Dark Point of Shuwaymiyah.

Bandar Qanawt, an abandoned fishing village, stands 8.5 mile NNE of Ras Muntajib. A prominent white sand hill is piled up against the cliff at its W end.

The village of Shuwamiyah, with a prominent minaret at its W end, stands 12 miles ENE of Bandar Qanawt.

A conspicuous stranded wreck fronts the shore 5 miles ENE of Bandar Qanawt.

The coast from the Dark Point of Shuwaymiyah, a bluff headland which should not be confused with **Ras Mutaykaf** (Ras ash Shuwaymiyah) (17°54'N., 55°54'E.), about 10 miles E, is an unbroken line of cliffs which form the sea front of a tableland, 183 to 224m high. This line of cliffs extends about 26 miles E from the Dark Point of Shuwaymiyah.

There are overfalls between the latter point and Ras Mutaykaf. A vessel anchored, in a depth of 20m, about 0.5 mile offshore, with the Dark Point of Shuwaymiyah bearing 082°, distant 3 miles. Between this position and the shore, the depths decrease rapidly; overfalls are also located off this section of the coast.

9.29 Ras Minji (17°53'N., 56°05'E.), located about 13 miles E of Ras Mutaykaf, is a small projecting bluff, 213m high.

About 2 miles E of Ras Minji, the cliffs gradually decrease in height for about 2 miles and terminate about 1 mile inland. The cliffs begin to rise again about 7 miles to the E.

Ras Sharbithat (17°53'N., 56°18'E.), the NE entrance point of Khalij Khuriya Muriya, is a steep bluff with a flat top, with a deep notch in its face. It has been reported to be radar conspicuous.

Between Ras Sharbithat and Ras Sawqirah, about 20 miles NE, the coast is bordered by steep limestone cliffs about 180m high. When the sun shines on these cliffs, they appear to be made of clay.

Ras Qarwaw (17°53'N., 56°21'E.), a steep bluff tableland about 244m high, stands 13 miles E of Ras Minji and 3 miles E of Ras Sharbithat. The cliffs W of this point are fronted by a strip of low land, with a small bright red lake at its W end.

A vessel anchored, in a depth of 12.8m, about 6 miles E of Ras Minji and 1 mile offshore. Small vessels with local knowledge can anchor, in depths of 9 to 18m, off the low sandy coast W of Ras Qarwaw.

Funnel Hill (Tower Hill) (18°32'N., 56°29'E.), about 39 miles NNE of Ras Sharbithat and 10 miles inland, is the summit of a high tableland and, although it appears detached when seen from a distance, the tableland extends S to the coast and gradually E for a distance of about 50 miles. This hill has been reported to appear as a light brown sugarloaf against the light background and to be inconspicuous.

Ras Sawqirah (18°08'N., 56°36'E.), a prominent headland, appears as a perfect bluff when viewed from the NE. This headland has been reported to be radar conspicuous.

Ghubbat Sawqirah (18°35'N., 57°16'E.), entered between Ras Sawqirah and Ras Khushayyim, about 88 miles NE, has a low, sandy coast sparsely covered with mangrove bushes.

During the Northeast Monsoon, a heavy swell and surf makes up in the bay and along the coast.

Ruqq al Jazir (18°34'N., 56°51'E.), a shoal with depths of less than 20m and over which there is usually a strong ripple, borders the coast of this bay from a position about 7 miles NNE of Ras Sawqirah to Ras Khushayyim, near the NE entrance point of the bay. The inner part of this shoal dries in places. Less water than charted was reported (1987) in this vicinity.

9.30 Ras Khushayyim (18°58'N., 57°48'E.), located about 3 miles SW of Ras al Madrakah, is a dark, slightly projecting vertical bluff at the S end of a range of flat-topped hills which extends about 11 miles W from Ras al Madrakah. A prominent nipple-shaped feature, formed of eroded sandstone, stands at an elevation of 91m on the summit of a coastal hill near the point. This feature appears especially conspicuous with the sun on it.

Bandar Jazirah (18°57'N., 57°47'E.), bordered by a sandy beach, lies close E of Ras Khushayyim. Small vessels with local knowledge can anchor anywhere within this bay over a bottom of sand and mud.

If the wind shifts and blows hard from the SW, which frequently occurs during the Northeast Monsoon, it is advisable to shift to the anchorage on the N side of Ras al Madrakah.

Ras al Madrakah (19°00'N., 57°51'E.), with a rocky islet lying close NE of it, is a dark cape which appears as an island when viewed from seaward.

When viewed from a distance, the land in the vicinity of the cape appears to be small detached hummocks, but closer in it is

seen to be connected with a remarkable circular hummock and the summit of the cape, about 0.2 mile W of its extremity.

Black volcanic peaks, with flat-topped hills about 122m high, stand in the background. Ras al Madrasah has been reported to be radar conspicuous.

During the Southwest Monsoon, good anchorage can be taken, in a depth of 9.4m, coral, with the NE extremity of the islet NE of Ras al Madrasah bearing 181°, distant about 0.5 mile; or in depths of 10 to 11m, about 0.5 mile SSE of this berth.

Smaller vessels with local knowledge can anchor closer in, but a long swell sets in.

Stranded wrecks front the coast about 1.5 and 2.2 miles NNW of Ras al Madrasah.

9.31 Khalij al Masirah (Khalij Masirah) (19°39'N., 58°17'E.), fouled by numerous shoals and banks, is entered between Ras al Madrasah and Ras abu Rasas, the S end of Al Masirah, about 83 miles NE.

Vessels should give this area a wide berth because of the numerous dangers and the strong onshore set sometimes experienced when passing. During strong winds, a heavy swell is experienced in the gulf and the sea breaks over many shoals.

Thick fog, which appears to come down rapidly with a sudden N wind, is prevalent in the vicinity of this gulf during the Northeast Monsoon.

Tides—Currents.—In Khalij al Masirah, the tidal currents set between NNE and NW at a rate of 1.5 knots during the flood and in the opposite direction on the ebb at the same rate.

Outside the 200m curve, the tidal current sets parallel with the coast, but is probably lost in the prevailing current.

9.32 Off-lying banks.—Jazirat Hamar an Nafur (19°48'N., 57°49'E.), lying about 47 miles N of Ras al Madrasah and 3 miles offshore, is 99m high, with vertical limestone cliffs. Its summit is flat and split in all directions. Some sunken rocks lie close off both its E and W sides. The passage between this small islet and the coast has depths of about 5 to 11m in the fairway and is free of known dangers.

Shib Kadun (San Carlos Banks) (19°29'N., 58°00'E.), which consists of several coral banks with sunken rocks on them, extends about 18 miles NE from a position about 21 miles N of Ras al Madrasah. A heavy swell breaks over these banks during foul weather. A depth of 16.5m was reported (1975) to lie about 15 miles SW of Shib Kadun. Another shoal depth of 24m was reported (2001) to lie 4 miles further E; less water than charted exists in this entire area.

Shib Bu Sayfah (19°56'N., 58°15'E.) extends about 11 miles N and NE from a position about 23 miles E of Jazirat Hamar an Nafur. Rocks, with depths of less than 1.8m, lie near the edge of this reef.

Shib al Ghubab (20°11'N., 58°00'E.), which breaks, lies about 26 miles NNE of Jazirat Hamar an Nafur and 6 miles offshore. Depths of less than 1.8m exist over this reef.

A reef, with depths of less than 1.8m, lies about midway between this reef and Shib Bu Sayfah. A similar reef lies about 18 miles NNE of Jazirat Hamar an Nafur and 7 miles offshore.

9.33 The coast between Ras al Madrasah and Ras ad Dil, about 5 miles to the N, is sandy and backed by hills.

Ras ad Dil (19°06'N., 57°50'E.), a small rocky projection 143m high, is the S limit of a uniform line of tableland which extends about 34 miles N to Ras ad Duqm (Ras Duqm). This tableland descends to the coast in vertical cliffs from 70 to 146m high.

A small bight is entered between Ras Markaz, about 5 miles N of Ras ad Dil, and Ras Khaysat ai Liyukh, about 3 miles farther NW. The latter point is a bluff which is difficult to make out until close to it.

Vessels with local knowledge can anchor in this bight, in depths of 11 to 12.8m, sand, sheltered from S and SW winds.

A isolated shoal, with a depth of 16.5m is reported (1975) to lie (position approximate) about 26 miles NE of Ras ad Dil.

A dangerous wreck is reported to lie (position approximate) about 7 miles SE of Ras ad Duqm.

Ghubbat Quwayrat (19°41'N., 57°44'E.), entered between Ras ad Duqm and a low rocky point, with two rocky islets close off it, about 10 miles N, is clear of dangers. It provides anchorage to small craft with local knowledge close NW of Ras ad Duqm.

Sheltered anchorage is provided from SW winds. A low peninsula, easily identified by a small mound at its N end, extends N from Ras ad Duqm.

The coast between the N entrance of Ghubbat Quwayrat and Ras Sidarah, about 4 miles to the N is alternately sandy and cliffy. A village and a grove of trees stand on the latter point, which is low and inconspicuous.

Several groups of conical hills stand close inland of Ras Sidarah.

Ras Nakharir (19°58'N., 57°49'E.), about 5 miles N of Ras Sidarah, is a steep bluff rising to a height of 142m. The coast up to 2 miles S of this bluff is cliffy.

The coast between Ras Nakharir and Ras Sirab, about 12 miles N, consists of sandy beach backed by a range of high hills.

A village stands on Ras Sirab, which is low, sandy, and inconspicuous. Ghubbat Sirab, a slight indentation, lies between Ras Sirab and Ras Bintawt (Ras Bintut), about 13 miles NE. A rock, with less than 1.8m, lies about 0.3 mile ENE of Ras Bintawt.

Jabal ash Shubatayn (Jabal ash Shabatayn) (20°18'N., 57°43'E.), a 123m high, conspicuous peak, stands about 9 miles W of Ras Bintawt.

Ghubbat Bintawt (Ghubbat Bintut) (20°22'N., 58°02'E.), entered between Ras Bintawt and Ras Abana, a low rocky point about 9 miles NE, is bordered by sandy beach and is free of known dangers. A low range of hills, which rises from Ras Abana, extends to the WSW.

9.34 Ghubbat Hashish (20°30'N., 58°10'E.) is entered between Ras Abana and Ras ash Shajarat, about 8 miles E. The low, sandy shores of the bay are backed by a low range of hills on the W side. A pyramidal hill, 37m high, stands about 2 miles N of Ras Abana.

The mud-fringed head of the bay is divided into two parts by a spit which extends about 7 miles to the S. Three small rocky islets stand on this spit. A small village stands on the middle islet. A small rocky patch, with a depth of less than 1.8m, lies about 2 miles ESE of Ras Abana.

During the flood within the bay, the tidal current sets NNW at a rate of 0.7 knot and in the opposite direction, during the ebb, at the same rate.

A vessel has anchored, in a depth of 12.8m, with Abb, a rocky islet lying at the S end of the above spit, bearing 097° and Raqq, a rocky islet lying about 5 miles NNW, bearing 007°.

A vessel anchored, in a depth of 8.5m, with Abb bearing 137°. This anchorage was approached with the E extremity of Ras Abana bearing 336°, and when Raqq, the rocky islet about 5 miles NNW of Abb, bore 005°, course was altered for the anchorage. From this anchorage, the rocks SW of Mahawt were about 0.5 mile distant and clearly visible.

Barr al Hikman (20°30'N., 58°24'E.), the peninsula lying between Ghubbat Hashish and Al Masirah, the island located to the E, is very low, sandy, and brush-covered. A lagoon, reported to be nonexistent, lies about 1 mile N of the S end of the peninsula.

Kinasat Hikman, a shoal with depths of less than 5.5m, extends up to 6 miles off the S end of Barr al Hikman. Several patches, with depths of less than 11m, lie within 11 miles S of the peninsula. There are occasional overfalls between Kinasat Hikman and Shib Bu Sayfah, to the S.

9.35 Al Masirah (20°26'N., 58°48'E.), lying centered about 12 miles off the E side of Barr al Hikman, is generally hilly, especially on its E side. The hills along the E side of the island are separated from the island coast by a narrow sandy plain; they run nearly its entire length. Al Masirah has been reported to be radar conspicuous.

A steep plateau stands in the middle of the range on the NE side of the island. Along the W side of the island, between its S end and a position about 7 miles from its N end, there are a few low hills separated from the E range by an extensive sandy plain marked by several hillocks.

The climate of the island is agreeable and healthy between November and March, but hot and unhealthy during the Southeast Monsoon.

Jabal Madrub (20°33'N., 58°53'E.), 256m high and conspicuous when viewed from the N or NE, stands about 8 miles S of the N end of the island.

9.36 Ras Abu Rasas (20°10'N., 58°39'E.), the S extremity of Al Masirah, is low and rocky. Jabal Suwayr (Jabal al Hilm), a conspicuous conical hill, rises to a height of 153m, about 2 miles NNE of Ras Abu Rasas.

Ras Kaydah (20°17'N., 58°47'E.), small and rocky, has a conspicuous, conical hill about 20m high nearby. When viewed from the E, this hill shows two peaks. A shoal, with a least depth of 4.9m, lies about 2 miles E of Ras Kaydah. The sea breaks heavily on this shoal with the slightest swell but when the sea is smooth there is no indication of shoal water.

Islets, which dry, exist respectively, 0.4 mile E, and 0.2 mile offshore 2.5 miles N of Ras Kaydah.

The coast between Ras Kaydah and Ras Zafaranat, about 17 miles NE, is regular with a few small rounded projections and a low rocky beach. Haql (Hakkan), a small village in a grove of trees, lies close to the shore about 5 miles N of Ras Kaydah.

Ras Zafaranat (20°30'N., 58°58'E.) is rocky with hills rising abruptly.

Caution.—Shoal water, which breaks in calm weather, extends up to 3 miles WSW and ESE of Ras Abu Rasas, and up to about 2 miles off the coast between it and Ras Kaydah.

Isolated pinnacle rocks, with depths of as little as 5.5m, have been reported to lie up to 10 miles WSW of Ras Abu Rasas. Uncharted coral heads lie within the 10m depth contour. Several wrecks are charted in the vicinity of Ras Abu Rasas.

Between Ras Abu Rasas and Ras Kaydah, about 11 miles NE, the coast is indented by small, sandy bays fringed by rocks.

9.37 Ras al Ya (20°31'N., 58°59'E.), about 2 miles NE of Ras Zafaranat, is the E extremity of the island and consists of a prominent bluff rising to a ridge of hills which extend W to the middle of the island.

A conspicuous peak, 99m high, stands about 2 miles WNW of Ras al Ya. Jabal Madrub rises about 3 miles farther WNW. A rock, which dries, lies about 0.3 mile offshore about 0.5 mile SSW of Ras al Ya.

Ras al Jazirah (20°34'N., 58°57'E.), about 4 miles NNW of Ras al Ya, is rocky and well-marked by a black patch on its S side. A sharp peak, rising to a height of 95m, stands about 2 miles W of this point.

A 9.4m patch lies about 2 miles SE of Ras al Jazirah. Jazirat Thukhayr, a sandy islet close N of Ras al Jazirah, lies on a drying reef connected to the shore.

Drying rocks extend up to 0.2 mile off the E extremity of the islet. The coast between Ras al Jazirah and Ras Qudufah, the NE extremity of the island, about 7 miles NNW, is indented by a bay and is fringed by shoals, with depths of less than 10m, which extend up to 2 miles offshore in places.

A 4.6m rocky patch with a rock, awash, on its SW side, lies inside the 10m curve, about 3 miles NNW of Ras al Jazirah. The sea breaks on this patch and rock with a moderate swell.

A 3.7m patch, and a 10m patch, lie 0.8 mile NNW and 1.5 miles NE, respectively, of the rock.

Ras Qudufah (20°41'N., 58°55'E.), consisting of two rocky projections about 0.5 mile apart, rises to Jabal al Jidufa, about 64m high, a short distance inland. A small monument stands close SW of Ras Qudufah.

The reef bordering this point extends about 0.5 mile offshore. Depths of less than 5.5m lie within about 0.5 mile of the point. A cairn stands on a hill close S of Jabal al Jidufa.

Khawr al Masirah (Masirah Channel)

9.38 Khawr al Masirah (20°30'N., 58°40'E.), lying between the W side of Al Masirah and the mainland coast, is used by small vessels with local knowledge. The channel is fouled by numerous dangers.

The tidal currents in the S entrance set N with the flood and S during the ebb, attaining rates at springs of up to 3 knots. Off the N entrance, the N current can reach 3 knots, while the S current can reach 2 knots.

At a position about 1.5 miles N of Ras Qudufah, the current sets predominantly WNW and ESE, at a rate which can exceed 2 knots at springs.

The S entrance of Khawr al Masirah is preferable at all times because it is much wider and deeper than the N entrance and most of the dangers are charted.

The channel leads NNE for a distance of 11.5 miles from a position about 7 miles WSW of Ras Abu Rasas and then closely follows the coast of the islands about 2 miles offshore.

A least depth of 7m exists in the channel about 3 miles SSW of Ras Kalban.

On the E side of the channel, between Ras Abu Rasas and **Ras Kalban** (20°21'N., 58°38'E.), about 11 miles to the N, the coast is low and sandy. Several sandy bays, fringed by rocks, lie along this section of coast. Numerous shoals, with depths of 1.2 to 24m, lie within 4 miles WSW through W of Ras Abu Rasas.

Shib Matrah (20°09'N., 58°38'E.), with depths of less than 1.8m, lies about 2 miles WSW of Ras Abu Rasas. Shib Abu Rasas, over which the sea breaks, lies about 0.5 mile SW of Ras Abu Rasas and dries 0.9m. Shoals, with depths of less than 5.5m, fringe the coast N of Ras Abu Rasas and lie as far as 5 miles offshore about 3 miles N of Ras Abu Rasas.

Two above-water rocks lie on this shoal, about 2 miles N of Ras Abu Rasas and close offshore. Banat Murshid, an above-water rock with some sunken rocks close SW and W, lies close offshore about 2 miles farther NNW. The sea breaks over these sunken rocks, except in a flat calm. Good anchorage can be taken by small vessels with local knowledge, in depths of 8.2 to 11m, almost 0.5 mile SE of Banat Murshid.

Uncharted coral heads exist within the 5.5m depth contour on both sides of the channel in this vicinity. Shib Sanfar, with dries 0.3m and on which the sea usually breaks, lies about 4 miles NW of Ras Abu Rasas; a 4m patch lies 1 mile SW of Shib Sanfar. Detached 3.4 to 4m patches lie about 1 mile WSW of Ras Kalban.

On the W side of the channel a patch, with depths of 4.9 to 10.7m, lies about 6 miles NW of Ras Abu Rasas. The coast between Ras Kalban and the S entrance of a bight, about 7 miles NE, is rocky and irregular with some projecting points.

A rocky bank, with depths of 1.8 to 3.7m and some sunken rocks, extends up to 1 mile off this coast.

A dangerous wreck is reported (position doubtful) to lie about 16 miles SW of Ras Abu Rasis.

9.39 Jabal Khiran (20°22'N., 58°41'E.), a double-peaked hill 105m high, stands 3.5 miles NE of Ras Kalban; this hill is not easily identified from S.

On the W side of Khawr al Masirah, the coast between **Ras al Mishayu** (20°21'N., 58°27'E.) and Ras an Nujdah, about 29 miles NE, is low and rocky, with intermediate sandy patches for the first 14 miles; the coast is then low and sandy, with scattered breaks along the remaining part.

Bayad Dimnah, the greater part of which dries, extends from the mainland between a position about 10 miles NE of Ras al Mishayu to Ras an Nujdah; this reef extends up to 5 miles offshore. Jazirat Maawil, low and wooded, stands close offshore, about 3 miles SSW of Ras an Nujdah.

A shoal, with depths of less than 5.5m, extends irregularly S from the S part of Bayad Dimnah and gradually narrows until it terminates about 3 miles NNW of Ras Kalban. Several islets and dangers lie S of the end of this shoal.

Jazirat Umm al Kids, the S of these islets, lies about 2 miles WNW of Ras Kalban. This islet appears like a patch of sand from the SW. A cairn, about 2.4m high and visible for about 8 miles, stands on Jazirat Umm al Kids.

Jazirat al Har and Jazirat Sinfah stand about 1 mile NW and 2.5 miles NNE of Jazirat Umm al Kids. Overfalls occasionally mark the numerous drying rocks in the vicinity.

A shoal, with a least depth of 2.1m, lies in the main channel about 2 miles NE of Jazirat Sifah.

9.40 The coast between a point about 7 miles NE of Ras Kalban and Ras Shaghaf, about 7 miles farther NE, forms a bight which is almost filled by a drying bank extending about 5 miles NNE from the S shore of the bight.

Jazirat Shaghaf, low and sandy and covered with scrub and low bushes, stands on this drying bank. An inlet, 1.8 to 5.5m deep and 0.2 to 0.4 mile wide, leads in between the bank and the E shore of this bight to Umm Rasas.

A shoal, with a depth of less than 0.9m, was reported to extend about 0.3 mile WNW from the shore at Umm Rasas, but a small sandy beach close S of this village provides good landing. Umm Rasas consists of a few stone houses and huts, and a ruined tower.

Jabal Safaiq (20°28'N., 58°48'E.), a flat-topped conical hill, 55m high, stands 1.5 miles S of Umm Rasas. This hill shows up well from W. Small vessels with local knowledge can anchor, in a depth of 5.5m, N of Jazirat Shaghaf, with the ruined tower bearing 142° and Jabal Khiran bearing 207°.

There are depths of about 7.3 to 8.2m a little bit farther offshore.

Anchorage can also be taken, in depths of 7.3 to 9.1m, from 1 to 1.5 miles W of Ras Shaghaf.

The coast between Ras Shaghaf and Ras Hilf, about 11 miles NNE, is bordered by a narrow reef which extends up to 0.7 mile offshore.

Dawwah (20°33'N., 58°48'E.), the principal village on Al Masirah, stands in a grove of trees about 3 miles NNE of Ras Shaghaf and close inland.

Anchorage can be taken, in a depth of 5.5m, close offshore, with the trees close N of Dawwah bearing 112°. Two other villages stand between Dawwah and Ras Hilf.

9.41 Bayad Bin Juwaysim (20°37'N., 58°47'E.), a reef which almost completely dries, lies on the W side of the channel and extends about 5 miles NE from a position about 5 miles NW of Ras Shaghaf Jazirat. Bin Juwaysim stands on the SE side of this reef.

Small vessels with local knowledge can pass on either side of Bayad Bin Juwaysim, but there are several patches with depths of 3.7m in the vicinity of the reef **Kinasat Hilf** (20°41'N., 58°50'E.), partially drying, lies on a sandbank about 2 miles W of Ras Hilf. Foul rocky ground extends up to 2 miles offshore S of Ras Hilf.

Directions.—A vessel from S or SW should steer for a position about 7 miles 245° from Ras Abu Rasas; when Ras Kalban bears 024°, it should be steered for on that bearing. Maintain this course until the cairn on Jazirat Umm al Kids bears 008°, and then steer for the cairn on this bearing. This course passes over a 7m patch.

When Jabal Kairan bears 064.5°, steer for it on that bearing until Jazirat Sifah bears 008°. This course of 008° should be maintained until the cairn on Jazirat Umm al Kids bears 219.5°. Course then can be altered to 039.5° with the cairn on Jazirat Umm al Kids bearing 219.5° astern.

This course leads SE of the 2.1m patch NE of Jazirat Sifah. When this patch has been cleared, course should be altered to about 035°, when Jabal Kairan bears 146°, which leads to the anchorage off Dawwah.

The channel W of Ras Shaghaf divides, passing E and W of Bayadh Bin Juwaysim, and between Ras Hilf and Kinayat Hilf.

The N entrance of Khawr al Masirah is not recommended for vessels. This channel should not be attempted during the Northeast Monsoon, or in foul weather, because the sea breaks heavily on the foul ground off the entrance.

9.42 The coast between Ras Qudufah and Ras Hilf, about 3 miles W, is fringed by a reef; shoals, with depths of less than 5.5m, extend up to 0.5 mile offshore along this part of the coast.

Island Reef (20°42'N., 58°53'E.), which dries 2.2m, lies about 1 mile NE of Ras Hilf; the sea breaks over this reef with a moderate swell. A dangerous wreck, awash at HW, lies close NE of the reef. Several shoal patches, with depths ranging from 3.2 to 5m, lie NE and NW of Island Reef, and are best seen on the chart.

Ras Hilf (20°41'N., 58°52'E.) is low and sandy. It has been reported that a bank, with depths of less than 1.8m fronts the W side of the point. Considerable shoaling occurs off this point, accompanied by rapid changes in the coastline.

A jetty extends about 0.1 mile W from a position about 0.1 mile S of Ras Hilf.

A tanker mooring buoy berth, connected to the shore by a submarine pipeline, lies about 2 miles NNW of Ras Qudufah. Tankers berth on a heading of 110° using both anchors and with the stern secured to two mooring buoys located close W of the outer end of the submarine pipeline.

A conspicuous tank farm stands on Ras Hilf. Several radio masts stand about 2 miles ESE of Ras Hilf; a conspicuous building with an aluminum roof stands about 2 miles ESE of the same point.

An airfield hangar stands 1.5 miles SSE of Ras Hilf; close NE is an airfield and a wind sock.

Jabal Hilf (20°39'N., 58°53'E.), about 65m high, stands about 0.5 mile SW of the hangar. Two conspicuous radar scanners stand close N of the summit.

No pilots are available but a marine officer from the air station will board vessels on request to advise on local conditions.

Anchorage can be taken, in a charted depth of 11m, about 0.5 mile WSW of Ras Hilf, and, in a depth of 7.3m, about 0.5 mile farther E; the bottom is sand over coral. Caution should be exercised in anchoring, as the holding ground at both anchorages is poor, and the tidal currents are strong. A submarine cable, marked by buoys, lies close E of the anchorage.

Directions.—Vessels bound for the inner anchorage WSW of Ras Hilf should not enter without local knowledge. The N approach, which is marked by lighted buoys with radar reflectors, is not recommended for vessels with a draft exceeding 4m.

9.43 Ras ar Ruways (Ras ar Ruays) (20°59'N., 58°50'E.) lies about 13 miles NNE of Ras an Nujdah. The intervening coast is low, sandy, and bush-covered.

An area of foul ground, on which the sea breaks heavily during the Northeast Monsoon and in bad weather, extends from Al Masirah to Ras ar Ruways.

The coast from Ras ar Ruways to **Ras Jibsh** (21°28'N., 59°22'E.), about 43 miles NE, is fronted by cliffs for the first 13 miles and then continues as low sand dunes.

A few villages stand along this section of coast; a 26m patch has been reported to lie about 10 miles ESE of Ras Jibsh.

The low sandy coast between Ras Jibsh and Ras al Khabbah, about 53 miles NNE, has a barren aspect. In the interior there are numerous date groves and areas of cultivation.

Jabal Jalan (22°11'N., 59°22'E.) is 1,234m high, wedge-shaped, and conspicuous. Jabal al Kharmis, 884m high, dark and rugged, stands about 14 miles N of Jabal Jalan. Jabal Kalhat, the SE extremity of a range over 1,372m high, stands about 7 miles NNW of Jabal al Kharmis.

Jabal Jifan (21°46'N., 59°24'E.), one of several isolated hills along this section of coast, stands 18 miles NNE of Ras Jibsh and has a rounded form.

Jabal Siyh (21°54'N., 59°24'E.), about 8 miles N of Jabal Jifan, is an oblong black hill about 305m high; on a WSW bearing this hill is saddle-shaped. Jabal Quarari (Haycock), a hill about 3 miles NE of Jabal Siyh, is conical.

A 30m high hill, close W of Ras Jibsh, is almost covered by white sand, but three small dark peaks are visible. A small village stands on the SW slope of this hill. Jabal Jalan, about 25 miles W of Ras al Khabbah, is visible from this vicinity and appears wedge-shaped.

9.44 Al Ashkarah (21°52'N., 59°35'E.), about 27 miles NNE of Ras Jibsh, is a small village composed of numerous stone houses, huts, and a fort. Jabal Siyah is a good mark for approaching this village.

Anchorage can be taken, in a depth of 12.8m, about 1 mile off the shore of a small sandy bay. The S entrance point of this bay lies E of Al Ashkarah and is low and rocky. The depths are regular but the color of the water is very changeable in this locality.

Ras Qumaylah (21°59'N., 59°40'E.), low, sandy, and backed by a ridge of low hills, stands about 9 miles NE of Al Ashkarah. Jabal Qumaylah, one of these hills about 5 miles SW of Ras Qumaylah, appears conical with a cleft peak when viewed from the S, but later it is seen as two hills close together; it is not easily made out from the NE. The entrance of Khawr Bani Bu Ali, about 6 miles N of Ras Qumaylah, is blocked by a large black rock.

Al Suwayh (22°06'N., 59°42'E.), a village of mud huts about 1 mile NNE of Khawr Bani Bu Ali, is only inhabited during the Northeast Monsoon.

Ras ar Ruays (22°11'N., 59°46'E.), about 7 miles NE of Al Suwayh, is low and rocky, with a few sandy hillocks. The coast from 2 to 4 miles S of this point is bordered by a coral bank, with a least depth of 5.5m, which extends up to 2 miles offshore. Overfalls occur over this bank.

Fairly well-sheltered anchorage from N winds can be taken, in a depth of 11m, about 1 mile NE of Ras ar Ruays. A conspicuous stranded wreck lies close S of the point.

Ras ar Khabbah (22°14'N., 59°48'E.), located about 3 miles NNE of Ras ar Ruays, is low, rocky, and radar conspicuous.

The coast between Ras al Khabbah and Ras al Hadd, about 18 miles to the N, is fronted by cliffs extending up to 3 miles from the latter point, where it becomes low and sandy.

There is a conspicuous break in the cliffs about 7 miles N of Ras al Khabbah. During the monsoons, when it is hazy, it is reported that these cliffs cannot be seen until about 2 miles off

The first thing to be seen is the white line of the surf breaking at their foot. This coast is fairly steep-to and no anchorage is available.

9.45 Ras al Junayz (22°27'N., 59°50'E.), the E extremity of the Arabian peninsula, is located about 12 miles N of Ras al Khabbah and formed by a low cliff.

A shoal patch, with a depth of 10m, was reported to lie about 1 mile ENE of Ras al Junayz.

A dangerous wreck, position approximate, was reported to lie about 2 miles NNE of Ras al Junayz and 0.8 mile offshore.

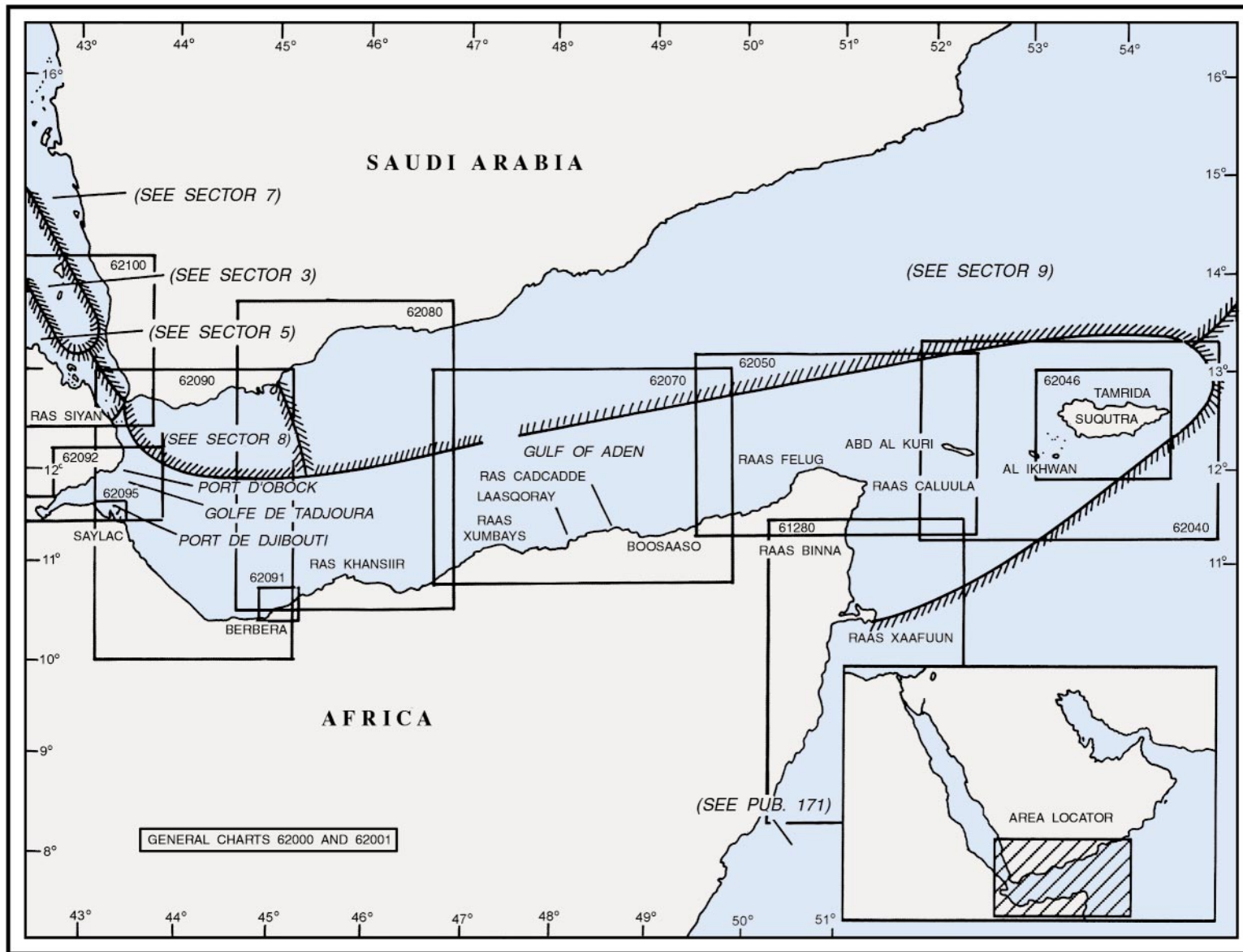
Jabal Saffan (22°24'N., 59°49'E.), which rises 250m to North Peak and 283m to South Peak, stands SW of Ras al Junayz. These two peaks stand about 2 miles apart and are good marks for identifying Ras al Hadd and Ras al Junayz.

A 222m peak stands close S of South Peak. A coastal range, 122 to 152m high, stands NW of Ras al Junayz and 1 mile inland. A gap, which is well-defined from seaward, stands between this range and Jabal Saffan. It has been reported that Jabal Saffan is radar conspicuous.

Ras al Hadd (22°33'N., 59°48'E.), the S entrance point of the Gulf of Oman, is described in paragraph 11.2.

The currents off this point are strong and variable and are generally influenced by the prevailing winds.

From Ras al Madrasah (19°00'N., 57°51'E.) to Ras al Hadd, the current sets N parallel to the coast, usually from April to September, at a rate of about 2 knots.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 10 — CHART INFORMATION

SECTOR 10

DJIBOUTI AND SOMALIA—RAS SIYAN TO RAAS XAAFUUN

Plan.—This sector describes the African coasts of Djibouti and Somalia from Ras Siyan, on the W side of Ras Bab al Mandeb, to Raas Khansiir, on the Gulf of Aden. The coast then continues E to Gwardafuy (Raas Casey), then S to Raas Xaafuun.

Both Golfe de Tadjoura and Port de Djibouti, the principal port of Djibouti, are described along this section of coast. The islands E of Gwardafuy are then described.

The descriptive sequence is generally from W to E.

General Remarks

10.1 Winds—Weather.—Winds in the Gulf of Aden, throughout the year are governed by the monsoon of the Arabian Sea and the Indian Ocean. During the Northeast Monsoon (October to May), these winds assume an E or ENE direction in the Gulf of Aden and following the gulf, blow in a NW direction through Bab el Mandeb into the Red Sea.

From June to September, steady SW winds prevail, blowing strongly at times out of the Red Sea, through the Gulf of Aden, E to Suqutra, and into the Southwest Monsoon in the Arabian Sea.

Toward the middle of June to August, between Bab el Mandeb and Mait Island, there are strong W or SW winds.

Near the coast of Africa at this season, there are occasional violent SSW land squalls. They generally occur between mid-night and daybreak, lasting about 1 hour.

In September, W winds cease and land and sea breezes prevail and continue through October. The nights are calm and sultry.

At Berbera, on the S shore of the Gulf of Aden, 65 per cent of the observations show a SW wind in July, while in the winter months, NE observations show a prevalence of from 50 to 57 per cent.

Tides—Currents.—Surface current speed and direction in this area is mainly influenced by the Northeast Monsoon and the Southwest Monsoon.

Variation in speed, direction, and the duration of the surface flow can be expected in the Red Sea because of its enclosed nature, narrowness, and irregular shoreline. Strong eddies and countercurrent may occur near its shores, islands, and reefs.

During both monsoons, the current speed generally ranges from 0.2 to 0.7 knot, depending upon the strength of the wind.

Strong currents, up to 2.5 knots, often have been observed in the vicinity of Bab el Mandeb. In the Gulf of Aden, from October to April, the currents set SW at speeds ranging from 0.2 to 1 knot. During June to August, the currents set ENE at speeds of about 1 knot near the middle of the Gulf of Aden and up to 2 knots close to the Arabian coast.

Maximum speeds of about 3 knots have been observed along the coast in July and August.

During October, the currents in the Arabian Sea become weaker and begin to set SW into the Gulf of Aden. East of Suqutra, there is an unusual but clearly evident NE flow during

December, which occurs between the prevailing W sets during November and January. The duration of this phenomenon, which probably occurs every December, has not been fully determined.

In February, the persistent W current begins to change. The current divides at about 17°N, 55°E, and both branches follow the coast, with speeds ranging from 0.3 to 0.8 knot. Changes in the current patterns continue through August and the early part of September, when the recurring seasonal cycle begins again in the Gulf of Aden.

Aspect.—The flat, gently sloping coast of Djibouti, the former French Territory of Afars and Issas, formerly known as French Somaliland, is backed by sandy plains which extend up to 30 miles inland. Rugged hills and a dissected plateau with isolated mountain peaks back this coastal plain.

Golfe de Tadjoura is flanked and backed by rugged partly wooded hills and a mountainous plateau.

The coast in its N and NE parts consists of a series of generally narrow plains, separated by hilly to mountainous spurs and ridges, which extend to the sea from the rugged hills and mountains in the interior.

The plains on the N and NE coasts are intersected by many streams. Suqutra and the islands E of Gwardafuy are generally hilly and mountainous, with only a few areas of coastal plains.

Steep cliffs, which rise directly from the sea, border the shores of these islands.

Caution.—Numerous oil and gas exploration rigs, with associated pipelines and structures, may be encountered in the waters described in this sector.

Gulf of Aden Voluntary Reporting System.—A voluntary reporting system in support of Operation Enduring Freedom has been established to support surveillance and anti-terrorist operations in the Gulf of Aden and its approaches. For further information, see Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean, Indian Ocean—Navigational Information.

Ras Siyan to Ras Khanzira

10.2 Ras Siyan (Ras Siyyan) (12°29'N., 43°19'E.), on the SW side of Ras Bab al Mandeb, is the E extremity of a promontory joined to the coast by a narrow neck of land. The N side of this promontory is rocky and steep, and rises to a reddish, volcanic peak, 138m high. A mangrove-bordered bay, which is almost all dry, stands on the W side of this promontory. The remarkable white Rocher Siyan lies in this bay. The coastal bank, with depths of less than 9.1m, extends about 1 mile SE from Ras Siyan.

During S winds, anchorage can be taken N of Ras Siyan, in depths of 14.6 to 18.3m, sand. Little shelter is provided and the currents are strong.

Jezair Seba (12°28'N., 43°25'E.) consists of six rocky, steep islets, which lie from 2.5 to 7.5 miles E of Ras Siyan. All of these islets lie on breaking reefs and are of a brownish color,

with the exception of Ile Grande (Kadda Dabali), the NE islet, which is yellow. This latter islet has a conspicuous peak, 114m high. A masonry block stands on the island's summit; a beacon stands on the island's N end.

Ile de l'Est (Horod le Rhale) (12°27'N., 43°26'E.), 83m high, and Ile de Sud (Rhounda Komaytou), 47m high, stand 0.5 mile and 1.5 miles SE, of Ile Grande.

Ile Basse (Ile Tolka) (12°28'N., 43°25'E.), 17m high, stands 1 mile WSW of Ile Grande.

Ile de l'Ouest (West Islet) (12°28'N., 43°22'E.), about 3 miles ESE of Ras Siyan, is 62m high. A shoal, with depths of less than 10m, extends about 0.5 mile WSW from the islet; a narrow shoal with similar depths extends 1.5 miles S from the same islet.

Ile Double (Double Islet) (12°28'N., 43°23'E.), 46m high, stands 1 mile E of Ile de l'Ouest. A sunken rock, with a depth of about 0.4m, lies about 0.5 mile NW of Ile Double. A 19.2m patch lies about 2 miles N of the same islet.

Depths of less than 20.1m and 5.9m exist about 1 mile NW and 0.5 mile WNW of Ile Double. Eddies have been seen in areas that were clear of shoals. A 31m bank lies about 3 miles E of Ile de Sud, outside the 200m curve.

Jezaïr Seba has been reported to be a good radar target at distances up to 27 miles.

Massif de la Table (Djebel-Jan) (12°15'N., 43°23'E.) is the highest of some ranges of tableland which closely approach the coast. It stands about 13 miles S of Ras Siyan and is marked by a beacon on its S side. Close S of Massif de la Table are the Collines de Godoria (Jebel Jan) and about 9 miles WNW stands Kabalto, a steep peak 340m high.

A beacon stands on the S end of Plateaux de Goeuh at an elevation of 471m, about 9 miles W of Collines de Godoria.

An extensive plain extending to Golfe de Tadjoura stands S of these tablelands. On the N side of Golfe de Tadjoura, Monts Mabila extends N and attains a height of 1,202m in **Sono Ali** (11°57'N., 42°59'E.).

Other prominent peaks of this range are Morne Rouge, with three reddish peaks, 131m high, about 14 miles ENE of Sono Ali; Accolade (Mouriya), trident-shaped and heavily wooded, 366m high, about 3 miles NW of Morne Rouge; Chaise du Diable, 433m high, about 5 miles SW of Accolade; and Pic du Hussard (Aramuda), with a broad summit, 802m high, about 5 miles W of Accolade.

10.3 Djebel Gouda (11°45'N., 42°40'E.), about 1,700m high, is the summit of a mountain range of tableland on the NW side of Golfe de Tadjoura. Pic Deloncle and Pic Lagarde, 1,664m high, at the E end of this tableland, are thickly wooded. Morne Noir, about 4 miles N of Pic Deloncle, and Les Trois Rois, about the same distance SSW of Pic Lagarde, are prominent marks.

Both of these latter peaks are thickly wooded. Southeast of Golfe de Tadjoura, the low coast gradually rises toward the mountains about 20 miles inland, but approach the coast about 47 miles W of **Berbera** (10°26'N., 45°01'E.).

The recession in the mountains at Berbera forms so deep a curve it gives the impression of a bay of considerable size when viewed from seaward. The coast between Berbera and Ras Khanzira is low, but there are many hills at moderate distances inland.

Dubriat, about 9 miles SE of Berbera, is 802m high; Biyo Gora, about 5 miles ENE of Dubriat, is 950m high. Aklo Hill, 384m, high, about 15 miles NE of Biyo Gora, is the E of two sharp conical peaks. Black Peak, 315m high, about 13 miles E of Aklo Hill, is conspicuous and surrounded by sand. Kumbedda, about 4 miles NNW of Black Peak, is 72m high. It appears as a conspicuous white patch when the sun shines.

The 200m curve between Ras Siyan and Ras Bir, the N entrance of Golfe de Tadjoura, lies from 9 to 10 miles offshore, gradually closing the coast in the vicinity of Ras Bir.

The gulf and its main entrance between Ras Bir and Iles Musha are deep, but have not been closely examined.

The S side of Golfe de Tadjoura, and the coast S of it, is fronted by a bank which extends up to 16 miles offshore and which shoals rapidly. Few soundings have been obtained N and E of the bank, but several dangers, including Iles Musha, are located on it. Outside of the charted dangers, the bank has general depths of 22 to 37m.

The outer edge of this bank is for the most part a narrow ridge, with depths of 22 to 36m lying 13 to 16 miles offshore; few soundings have been recorded seaward of this ridge.

Banc Arabe (Arab Shoal) (11°40'N., 43°40'E.), with depths of 6 to 18m, sand and coral, is not clearly visible. Depths increase rapidly to the 200m curve. During 2 days in February, with light N and NE winds, a current sets SE on Banc Arabe at a rate of 1 to 1.5 knots.

Khor Angar (Anghar) (12°23'N., 43°21'E.), a shallow inlet, stands 6.5 miles SSE of Ras Siyan. A prominent gray, cubical, masonry guardhouse stands on the NE side of the entrance of this creek. From **Collines de Godoria** (12°14'N., 43°23'E.) to the S, the coast continues low and sandy but about 5 miles NNE of Ras Bir it begins to rise. The reef bordering this section of coast extends up to 1 mile offshore.

Open anchorage can be taken off this coast between Massif de La Table and Collines de Godoria.

Ras Bir (11°59'N., 43°22'E.) rises to a height of 30m and is cliffy. The lighthouse on this point has been reported to be a good radar target at distances up to 22 miles.

It has been reported that the contour of the coast N of Ras Bir is clearly visible on radar at distances up to 28 miles.

Caution.—Surveys are incomplete along the coast S of Banc Arabe, with less water reported in places. Vessels should use extreme caution when approaching this coast.

The N part of the coast between Ras Siyan and Ras Bir, the N entrance point of Golfe de Tadjoura, is low, sandy, and bordered by a reef extending up to 1 mile offshore.

Golfe de Tadjoura

10.4 Golfe de Tadjoura (11°43'N., 43°12'E.) is entered between Ras Bir and Plateau de Heron about 25 miles SSW. Gohubbet Kharab, a basin almost landlocked, is entered through a narrow channel which stands at the head of the gulf. Iles Musha, together with some other islets and areas of foul ground, lie on the S side of the gulf NE of Plateau de Heron.

The gulf shores, except for a few low places, are generally high and backed by mountains rising only a short distance inland. The shores are barren but the mountainous country is fertile. The anchorage areas available are scarce and do not provide much shelter or security.

Iles Musha (11°44'N., 43°12'E.) rise to a height of about 12m. The coral banks surrounding these islands, within the 20m curve, dry in places and extend about 3 miles E and 1.5 miles N and S from the group.

Ile Musha, the largest and E island, appears as a dark bank and is the most conspicuous. This island is also radar-conspicuous. A light is shown from a metal framework tower, 17m high, standing on the NE end of this island.

Ile Maskali (11°43'N., 43°09'E.), the W island of the group, lies 1 mile SW of Ile Musha. A light is shown from a metal tower, 20m high, standing on the W end of this island. At times, this light is obscured by sandstorms.

Banc du Dankali (11°43'N., 43°20'E.), with a least depth of 5.8m, lies about 6 miles E of Ile Musha. Banc de l'Antares, with a least depth of 12.8m, lies about 5 miles ESE of the same island.

Banc Somali (11°38'N., 43°21'E.), with a least depth of 11m, and Banc du Levant, with a least depth of 11.9m, lie about 10 and 12 miles ESE respectively of Ile Musha.

Banc de la Curieuse (11°39'N., 43°11'E.), with a least depth of 14.9m, lies about 4 miles S of Ile Musha and Banc Maskali, with a least depth of 1.8m, lies centered about 1 mile S of the W end of Ile Maskali.

Sheltered anchorage can be taken by vessels with local knowledge, in depths of 11 to 16.6m, sand, in a gap in the reef about 0.5 mile N of the W end of Ile Musha, with the lighthouse on that island bearing 140°.

A good lookout should be posted because several detached rocky patches lie on both sides of the entrance. During the Northeast Monsoon good anchorage can be taken N of Ile Maskali, in a depth of 29.3m, sand, with the NW extremity of Ile Maskali bearing about 213°.

Caution.—Most of the surrounding coral reefs in the vicinity of Iles Musha are enclosed by a nature reserve area. Fishing, the taking of coral, and collecting shells within this area are prohibited. In addition, all marine and submarine activities in the area are prohibited.

10.5 Obock (Hayyou) (11°58'N., 43°18'E.) indents the coast between a point about 2 miles W of Ras Bir and Cap Obock, about 3 miles farther WSW. Coral banks extending up to 1.5 miles offshore divide this port into Port du Nord-Est and Port du Sud.

The village of Obock stands on the W shore, close N of Cap Obock. Obock, once the capital of the former French Territory of Afar and Issas, is now only a small village and has little commercial value to shipping, except as an anchorage.

Depths—Limitations.—A jetty for shallow draft vessels extends about 0.2 mile from the coast about 0.5 mile NE of Cap Obock. A disused pier extends from the coast about 0.5 mile farther NE.

Banc du Curieux, with depths of 5.5m and less, extends up to 0.5 mile SW from the NE shore of the bay. Banc du Surcouf, with similar depths, extends about 2 miles ENE from a position about 1 mile E of Cap Obock. A drying reef lies on the W end of this bank. Shoal water was reported to extend S from this bank.

Banc du la Clocheterie, separated from Banc du Surcouf by Passe du Sud, extends about 0.5 mile E from Cap Obock. Parts of this bank dry and have some large boulders on it.

Two small islets lie E of Obock Village, on the drying coastal bank which fringes the W shore of the bay. A drying rock lies close SSW of the S islet of the two.

Banc du Bisson, a continuation of the coastal bank between the two inner parts, extends up to 0.5 mile offshore. Its outer part usually dries at LW springs.

Banc des Perles, with a least depth of 4.6m, and Banc du Milieu, with a least depth of 3m, occupy the greater part of the passage between the two ports.

Several shoal patches lie between these two banks and NW of Banc du Milieu.

Aspect.—With the exception of the residency, a large, square building close W of Cap Obock, all of the buildings are in ruins. A flagstaff on a tower close N of the residency is a good mark. A ruined penitentiary and factory stand about 2 miles NNW of Cap Obock.

Two lighted beacons, in range 337.75°, stand 1.5 miles and 0.5 miles N of Obock. This range leads through Passe du Sud into Port du Sud. These lights are extinguished from October to April.

Anchorage.—Anchorage can be taken, in depths of 10 to 32m, mud, with good holding ground, in Port du Sud, sheltered from all except S winds. The S wind sometimes blows strongly, rendering this anchorage dangerous. Several anchors and cables foul this anchorage, so care should be taken when anchoring here.

Anchorage can also be taken on the entrance range, in a depth of 27.4m, or, in a depth of 18.3m, about 0.5 mile E of the flagstaff on Cap Obock. In foul weather, anchorage can be taken, in depths of 9.1 to 14.6m, in Port du Nord-Est.

Anchorage, sheltered from N winds, can be taken, in a depth of 20.1m, good holding ground, about 3 miles W of Cap Obock, with the E side of Vallee de Latela bearing 310°, distant 1 mile.

Directions.—If approaching from the NE, steer to pass S of Banc du Surcouf and the shoal water reported S of it. When Cap Obock bears 290°, steer toward it until S of Passe du Sud, then enter the port on the alignment of the lighted range beacons. If proceeding to Port du Nord-Est from Port du Sud, pass through the straight but narrow channel, in depths of 12.8 to 23.8m. This channel should be navigated with a lookout aloft with the sun in a favorable position, or the pass should be buoyed beforehand.

10.6 The coast between Cap Obock and Vallee de Latela, about 4 miles to the W, is fronted by a cliff, 19 to 26m high, broken in places by ravines. Pointe Oursin is low and extends about 0.4 mile offshore at the entrance to this valley. A shoal bank of sand and mud extends up to 1 mile offshore from the point.

The coast between Pointe Oursin and Ras Duan, about 14 miles SW, is bordered by steep cliffs and fringed by shoals and reefs, which extend from 0.5 to 1 mile offshore.

Ras Duan (11°49'N., 43°03'E.), a steep cliff rising to a height of 122m, is backed by higher land extending to the mountains in the interior. The coast between Ras Duan and the entrance of Ghoubbet Kharab, about 27 miles to the SW, is low and sandy. A wooded plain, which ends at the base of the cliffs at the entrance of Ghoubbet Kharab, extends inland to the mountains in the interior.

Between Ras Duan and Ras Ali, about 7 miles WSW, the coast is indented by a slight bight, with its W half fringed by a coral reef which extends about 0.5 mile offshore.

Depths of 9.1 to 29.3m exist off the outer edge of this reef. Mersa Duan, a break in the coastal reef about 2 miles NE of Ras Ali, provides anchorage for small craft with local knowledge during the Southwest Monsoon.

Anchorage is not recommended during the Northeast Monsoon or when E winds prevail.

Anse Reissale (11°46'N., 42°56'E.) is entered close W of Ras Ali, between two cliffs, and has a beach on its E side.

Small craft can shelter in this narrow inlet, in depths of 11 to 12.8m, mud, but there is a 2.7m bar across the entrance.

Between Anse Reissale and Tadjoura, the coast is rocky and steep for about 3 miles and then becomes low and sandy.

10.7 Tadjoura (11°47'N., 42°57'E.), a small village which stands on the NE side of a bay about 1 mile wide, is the residence of the Sultan of Danakil.

The Great Mosque, the NW mosque of three, stands about 90m inland and is a good mark. The tower of the residency stands about 183m NE of the Great Mosque.

An L-shaped jetty extends S and SE from the shore at the W end of the village.

Two lighted beacons, in range 003°, lead to the jetty. The bay is fringed by a reef about 137 to 274m wide, which extends about 0.5 mile S from the head of the bay.

A drying rock stands on the SE edge of this bank, about 0.5 mile SW of the Great Mosque. A detached 5.8m patch lies about 0.5 mile SSW of the same mosque.

A rock, visible at HW, stands close off the W entrance point of this bay; a shoal, with a least depth of 2.4m, lies about 0.2 mile ESE of the same point.

Anchorage.—The holding ground off Tadjoura is good but steep-to, requiring a vessel to anchor close inshore. During the Southwest Monsoon, sudden violent squalls make the anchorage untenable.

To approach this anchorage, the W entrance point of Anse Reissale must be kept open S of the sandy E entrance point of this bay. Vessels should anchor with the tower of the residency in range 020° with the S mosque and the lighted beacons in range 003°.

Small vessels with local knowledge can anchor off the head of the jetty. With E winds, vessels with a length of not more than 115m can anchor on the 020° range, in a depth of about 40m.

A mooring buoy for small craft lies about 150m from the front range light on the jetty. A second mooring buoy is laid 0.2 mile SSW of the head of the jetty.

The coast between Tadjoura and the entrance of Ghoubbet Kharab, about 18 miles SW, is bold and exposed to E winds. Ambabbo, a small village about 4 miles WSW of Tadjoura, can be identified by a group of palm trees.

In fine weather or with offshore winds, fairly good anchorage can be taken about 0.2 mile offshore, in depths of about 25 to 40m, sand and mud, with Ambabbo bearing about 335°. Farther offshore, the depths increase rapidly.

Fort de Sagallou (11°40'N., 42°44'E.), in ruins, stands 1 mile SW of Pointe des Palmieres and is marked by a group of palm trees.

The coast from the entrance of Ghoubbet Kharab is fringed by shoals up to 4.5 miles NNE.

Ghoubbet Kharab

10.8 Ghoubbet Kharab (11°33'N., 42°41'E.), which stands at the head of Golfe de Tadjoura, is landlocked except for its narrow entrance. This deep basin is irregular in shape and almost surrounded by steep cliffs. The N side is bordered by steep cliffs, 120 to 610m high, whereas the S side consists of a vertical wall, which is highest near its E end.

Anchorage can only be taken in a few places because of the great depths in its central part and close off its shores. On the S side of Ghoubbet Kharab, where the winds are usually stronger than in other parts of the gulf to the E, the high cliffs deflect NE winds to E or SE winds.

The entrance of this basin is divided into two passages by **Ile Bab** (Abou Maya) (11°33'N., 42°41'E.). A depth of 11.9m has been reported to lie in the approach to this basin, about 1 mile ENE of this islet. This islet is surrounded by a shoal on all except its N side which is steep-to.

This shoal extends SE to the S entrance of Ghoubbet Kharab. Petite Passe, the N passage, is less than 183m wide, with depths of 23.8m to over 40m. Some ruins stand close N of the entrance.

Grande Passe, the S passage, has a width of about 0.5 mile and a least depth of 1.8m. This passage can only be used at slack water because with any wind and tidal current, a large wave is created in the middle of the passage, making it dangerous for small boats.

Tides—Currents.—The tidal currents set through these passages with great rapidity, raising eddies and ripples. A rate of 7 knots is experienced in Petite Passe.

Directions.—Petite Passe, the preferred passage, is not impracticable by day for vessels with a speed of 10 knots or greater except under very unusual conditions.

Entry can be made when the eddies have ceased and the water is smooth, which usually only lasts 5 to 10 minutes. No difficulty should be encountered when entering on the flood.

Although several eddies may form in the passage when the current is strong, they do not affect the steering.

Entering is more difficult during the ebb, especially when it is strong and the wind fresh and ahead. When the ebb is running, the sea in the approach to the passage is rough and covered with foam, which resembles breakers. Leaving Ghoubbet Kharab is always easier.

10.9 Baie de l'Etoile (11°34'N., 42°39'E.), entered about 2 miles W of the N entrance point of Ghoubbet Kharab, consists of a sandy bay bordered by a narrow reef. Vessels of any size can be accommodated in its inner reaches, in depths of 20 to 29m, mud and sand.

A shoal, with depths of less than 5.5m, extends a short distance SE from Pointe de l'Etoile, the W entrance point; another shoal, with depths of less than 9.1m, extends up to 91m S from an islet lying close W of the E entrance point. An 8.5m patch lies about 0.2 mile W of the N end of this islet.

Three drying reefs lie up to 0.5 mile NW of the N end of this islet and within the coastal bank, which extends about 0.5 mile

offshore. To enter the inlet, pass not less than 0.1 mile S of either Pointe de l'Etoile or the islet mentioned above.

Enter the inlet, keeping toward the SW shore, until about 0.3 mile inside the entrance, then steer a mid-channel course and anchor, as convenient, in the inner part of the inlet.

10.10 Baie Blondeau (11°34'N., 42°36'E.), an open bay which provides anchorage to small native craft, is entered between a point about 1 mile W of Pointe de l'Etoile and Pointe de Direction, about 3 miles farther W.

The NW shore of the bay is bordered by shoals extending up to 0.5 mile offshore.

A rocky islet stands on a shoal about 1 mile E of Pointe de Direction and 0.5 mile offshore. The bay should be entered by passing E of this islet.

Baie du Lac Sale (11°34'N., 42°33'E.) is entered between Pointe de Direction and a point, surmounted by a crater, about 3 miles WSW. The NE shore of the bay changes gradually from sand dunes to steep cliffs and rises gradually to Bonnet Turc, 246m high, about 1 mile NW of the head of the bay.

A narrow rocky peninsula extends about 0.5 mile ESE from the N shore of the bay near its head. An island lies close S and almost parallel to this peninsula, but no passage exists between the two. The SW shore of the bay is low and broken. A bight at the head of Baie du Lac Sale, entered between the above island and a promontory about 0.5 mile S, provides good anchorage.

The inner part of the bight is very shallow; shoals with depths of less than 5.5m extend up to 0.1 mile from the S side of the bight. A basin, with depths of 11 to 27m, stands on the W side of the bight, but the entrance is closed by a ridge of rocks.

Good anchorage can be taken about 0.5 mile off the S shore of the bight, in a depth of 12.8m, sand and mud. A choppy sea makes up with E winds. The S side of Ghubbet Kharab is composed of cliffs gradually rising from W to E.

These cliffs are broken by a valley about 5 miles S of Pointe de Direction. Ile Parrot, low and rocky, stands at the mouth of a cove about 0.5 mile W of this valley. On the W side of Ghubbet Kharab, S of the SW entrance of Baie du Lac Sale, the coast first forms a narrow inlet about 0.5 mile long, with a rocky islet in its central part. The inlet is about 0.2 mile wide, with depths of 11 to 22m.

Limited anchorage can be taken when sheltered from SW winds. Only small vessels with local knowledge can use this anchorage in an emergency.

10.11 Petite Ile du Diable (11°32'N., 42°32'E.), 80m high, lies close SE of the SW entrance point of the above inlet. The lava on the coast of this island is clearly visible. A coral shoal extends about 137m S and 0.1 mile W from the islet.

Guinni Koma (Grande Ile du Diable) (11°32'N., 42°32'E.), 166m high and about 0.1 mile SE of the above islet, is steep and of a yellowish-red color. The passage between these two islets has general depths of 14.6 to 22m, but an 8.5m patch lies in mid-channel. This patch can be avoided by passing close to Guinni Koma. The coral shoal extending from the smaller islet is visible at all stages of the tide and is easily avoided.

Anchorage can be taken, in a depth of 29m, about 0.1 mile W of the middle of the W side of Guinni Koma. The space is limited by the extending reefs and the great depths close W of

the anchorage. This anchorage is sheltered, but violent squalls occasionally come down from Guinni Koma.

Mouillage des Boutres (11°33'N., 42°42'E.) is entered between the cliffs S of the entrance of Ghubbet Kharab and the narrow rocky Ile des Boutres standing on the coastal reef about 1 mile to the E. There are general depths of 22 to 36.6m in this bight.

An 8m patch lies close NW of the N end of Ilet des Boutres; a detached 11.9m patch lies about 0.5 mile NW of the same islet.

Anchorage can be taken, in depths of about 27 to 31m, sand, about 0.5 mile W of the N end of Ile des Boutres but it is exposed to NE winds.

The coast between Mouillage des Boutres and Pointe Noire, about 23 miles to the E, is bordered by steep cliffs 120 to 150m high.

Between **Ras Korali** (11°35'N., 42°48'E.), about 7 miles ENE of Ile des Boutres, and Daba Libah, about 3 miles farther E, the coast is broken by the mountain spurs which closely approach the shore.

Anchorage, sheltered from NE winds, can be taken in the bight close W of Daba Libah.

Daba Libah (Ras Eiro) (11°36'N., 42°51'E.), narrow, bushy and moderately high, is a good landmark. This projection extends about 0.5 mile from the coast and is bordered on its E side by a shallow shoal. A rock, about 2m high, stands close offshore about 3 miles ESE of Daba Libah.

10.12 Anse Ambadu (11°36'N., 43°01'E.), about 10 miles E of Daba Libah, extends about 0.5 mile inland between two high, dark cliffs and dries at the lowest tides.

Oreilles d'Ane, 544m high, about 9 miles SSW of Anse Ambadu, is a good mark but the lack of good marks in the vicinity of Anse Ambadu makes the approach to the anchorage off the bay difficult.

Good anchorage can be taken, in depths of 22 to 25m, sand and mud, about 0.5 mile WNW of the E entrance point of the bay. Care should be taken to avoid the reefs and shoals nearby.

This anchorage provides good shelter during both monsoons. When strong NE winds blow during the day, vessels swing to the light land breeze at night and roll heavily.

Mangadafa (Pointe Noire) (11°36'N., 43°04'E.), about 4 miles E of Anse Ambadu, is low and marked by two small brown hills. To the W of this point, the coast is bordered by a gradually narrowing sand bank with patches of less than 3.7m.

A mud flat and foul rocky ground border the coast on the E side of the point.

Doraleh (11°36'N., 43°05'E.) is a new facility under construction (2005) about 1.3 miles E of Mangadafa. The facility will consist of a deep-water container terminal, a bulk terminal, and an oil terminal; the jetty will be connected to the shore by a causeway. A channel marked by lighted bouys leads W from Port de Djibouti, passing between Recif Ambouli (Recif de Houmbouli) on the N and Banc de Salines on the S; dangers in the vicinity of the marked channel may best be seen on the chart.

The oil terminal is located at the head of the jetty. Berth No. 1, at the outer head of the jetty, can accommodate tankers of 5,000 to 80,000 dwt, with a maximum length of 244m, in a least depth of 18m; a maximum draft of 20m can be accommo-



Doraleh—Oil Pier

dated. Berth No. 2 is located on the inward side of a pier extending W from the head of the jetty; it will accommodate tankers of 1,000 to 30,000 dwt, with a maximum length of 180m, in a least depth of 10m.

Pilotage is available. In 2005, the pilot boarded vessels in position 11°40.2'N, 43°05.2'E, about 1.5 miles NW of Recif du Meteore.

10.13 Recif du Meteore (11°39'N., 43°06'E.), with a least depth of 0.9m, lies on the W side of the N approach to the roadstead off Port de Djibouti.

Banc du Pingouin (11°38'N., 43°07'E.), with a depth of 2.1m, lies about 4 miles NW of Recif du Meteore. These two shoals lie on a bank with depths of about 12 to 18m. A 10m patch and a 6.4m patch lie on the W end of this 18m bank, about 1 mile and 1.5 miles WNW, respectively, of Banc du Pingouin.

Banc el Hadj (11°38'N., 43°04'E.) consists of two patches, with least depths of 5.1 and 9.0m, which lie about 5 miles NW of Port de Djibouti. The bank on which these shoals lie has depths of about 12 to 18m.

Banc de l'Etoile (11°38'N., 43°05'E.), with a least depth of 2.1m, lies about 4 miles NW of Port de Djibouti, on the W end of another bank with depths of about 12 to 18m. There are several detached shoals with depths of about 12 to 18m, lying between Banc du Pingouin and Banc de l'Etoile.

Caution.—Less water than charted has been reported (1993) to exist in the area of the above four banks and also between Recif du Meteore and Banc Maskali. Mariners are advised to proceed with caution in this area.

10.14 Recif Ambouli (Recif de Houmbouli) (11°37'N., 43°07'E.), which dries, lies on the W side of the roadstead, about 2 miles NW of Port de Djibouti. Several detached patches, with depths of 4.9 to 9.8m, lie close N of this reef. Two dangerous wrecks, one with a least depth of only 1m, lie close W of the W end of the reef.

Banc des Salines (11°36'N., 43°07'E.), which dries, lies about 0.5 mile S of Recif Ambouli and parallel to it.

There are several detached patches, some of which dry, lying within 0.5 mile E of the E end of this bank.

The channel between Recif Ambouli and Banc des Salines has general depths of 12.8 to 16.5m, but several isolated patches, with depths of 3.7 to 5.8m, lie in it.

Port de Djibouti (11°36'N., 43°08'E.)

World Port Index No. 47850

10.15 Port de Djibouti, the principal roadstead of Djibouti, the former French Territory of Afars and Issas, stands on the SE side of Golfe de Tadjoura. The port, as well as the whole

area of Djibouti, is duty-free, with no customs system. Only goods destined for local use are subject to a tax.

Ample modern alongside berthing facilities are provided for cargo vessels. The port operates on a 24-hour basis and is a first port of entry.

Winds—Weather.—From the middle of September to the beginning of May, E winds prevail. A land breeze from the S or SW commences at sunrise, shifting around to an E wind in the middle of the morning, becoming stronger in the afternoon, and progressively dropping during the night. Very good visibility generally prevails during this period.

The Khamsin, a local strong, dry, and dusty wind, which normally commences in the latter part of May, but may not start before the middle of June, generally is experienced about 50 times during the summer.

The Khamsin may occur at any time up to the end of August, but usually will not blow during the afternoon when a sea breeze prevails. When the Khamsin is in full force, the berthing of vessels may be suspended because of the heavy swells in the roadstead.

Tides—Currents.—The mean tidal rise here is 1.1m, while the diurnal rise is 1.6m. Tidal currents in the roadstead are scarcely perceptible; they usually set to the E during the ebb and W during the flood.

Depths—Limitations.—In the N approach to the port, W of Iles Musha, there are general depths of 18 to 36m.

The port consists of a main basin bound on the NE by Jette du Marabout, on the NW by Jette du Large, which together form the SW extremity of Mole Nord. Mole de Fontainebleau is situated at the SW side and Mole Sud bounds the SE side.

Government Jetty extends 0.6 mile NW; its head is situated 0.1 mile S of the W end of Mole Sud. It can accommodate small craft alongside at the head.

The berths on the N side of Mole Nord are approached through a 150m-wide channel. Caution is necessary in approaching these berths as extensive shoaling has been reported (2004) in the NE corner of the former dredged areas off the berths and depths of 9.2 to 11.3m are charted off the berths.

Port de Djibouti—Berthing Information			
Berth	Length	Depth alongside	Remarks
Mole Sud			
No. 1	180m	8.0m	Container and ro-ro cargo.
No. 2	220m	11.0m	Container and ro-ro cargo.
Ro-ro Berth	220m	10.4m	West side of Mole Sud close N of Berth No. 2.
Mole Nord (south side)			
No. 3	70m	1.4-2.0m	Shipyard.
No. 4	150m	3.6-5.1m	Coastal vessels.
No. 5	230m	6.9-7.0m	Coastal vessels.
Jette du Large (southeast side)			
No. 6A	170m	7.0-7.8m	General cargo.
No. 6B	93m	7.0-7.8m	General cargo.
No. 7	170m	7.0-7.8m	General cargo.
No. 8	202m	7.2-8.9m	General cargo.
Mole du Fontainebleau (head of Jette du Large)			
No. 9	200m	9.0m	Multipurpose berth.
Jette du Large (northwest side)			
No. 10	270m	7.3m	Tanker berth.
No. 11	270m	11.0m	Tanker berth.
No. 12	270m	10.9-12.3m	Tanker berth.
Port du Heron—Mole Nord (north side)			
No. 13	210m	12.0m	Cruise ship and multipurpose terminal.
No. 14	290m	12.0m	General and bulk cargo.
No. 15	107m	12.0m	General and bulk cargo.

There are facilities for general cargo, reefer, container, bulk, tanker, cruise, and ro-ro vessels. Vessels up to 300m in length and 11m draft can be accommodated.

Aspect.—The roadstead lies between Plateau de Heron (11° 37.3'N., 43°09.0'E.) and Pointe Noire (Mangadafa), about 4.7 miles WSW. Pointe Noire is low, but terminates in two small brown hills. The Houmbouli River flows into the S side of the roadstead, which is encumbered with drying coral reefs.



Djibouti—Jetee du Large from SW

Djibouti stands on a peninsula, with Plateau de Heron at its N end. Banc de Heron, a drying coral reef, extends up to 1 mile W of Plateau de Heron.

In clear weather, Direction Hill (11°29'N., 43°07'E.), a double peak, 166m high, rising about 8 miles SSW of the port, forms a good landmark in the approach to the roadstead.

A prominent beacon stands at an elevation of 127m, about 4.2 miles SW of the port.

Two prominent radio masts stand about 0.4 mile E of the port; two tank farms are situated between them and the harbor basin. A conspicuous water tank, 31m high, stands about 1 mile ESE of the port, close E of the railroad station. Two conspicuous gantry cranes are situated on Mole Sud, at the SE side of the main basin.

An aeronautical light is shown from a structure standing in the vicinity of the airport, about 3.5 miles SSE of the port.

The approach channels are indicated by lighted ranges, which may best be seen on the chart.

Pilotage.—Pilotage is available 24 hours and is compulsory for vessels over 300 tons. Pilots can be contacted on VHF channel 12 or 16 and board in the vicinity of Lighted Buoy No. 2 (11°37.5'N., 43°07.9'E.), moored off the NW side of Banc du Heron.

All vessels should sent their ETA via their agent 48 hours in advance. The following information should be included in the ETA message:

1. Vessel name.
2. IMO number.
3. LOA.
4. Beam.
5. Voyage number.
6. Flag.

7. Vessel type.
8. Gross tonnage and nrt.
9. Arrival draft, fore and aft.
10. Previous port and next port.
11. ETA.
12. Cargo type/tonnage/number and status of containers.
13. Discharging/loading list.
14. Special container list.
15. Other information.

Vessels must maintain a continuous listening watch on VHF channel 12 when in port.

Regulations.—The vessel's engines should be kept operational, unless permission has been granted by the harbor-master to the contrary.

Signals.—Traffic signals are displayed from a signal station, consisting of a flagstaff surmounting a blue building, situated on the NE end of Jetee du Large. Vessels can communicate with this station by means of the International Code of Signals.

Anchorage.—A designated anchorage area, the limits of which may best be seen on the chart, lies centered 1.6 miles NW of the port. It has depths of 11 to 22m and lies between Recif de Houmbouli and Banc du Pinguin. It has been reported (2004) that depths of up to 1.6m less than charted exist in the anchorage area.

A designated anchorage for LASH vessels, with a depth of 15m, lies about 0.4 mile W of the head of Mole de Fontainebleau.

Directions.—Vessels approaching from N should first make a landfall off Ras Bir (11°59'N., 43°22'E.) and then steer for a position lying about 5 miles NNW of Iles Musha. From this position, vessels should make good a course of 240° until the lighted range at the head of the roadstead is sighted.

When the sun is high, the reefs around Iles Musha are clearly visible. During the day, the lighted range beacons are reported to show up well against the brown background of Direction Hill.

If the lighted range cannot be seen after a vessel rounds Iles Musha, as the case may be during sandstorms, the W edge of Plateau du Heron in range, bearing 161°, with the prominent water tower standing on Plateau du Serpent, close E of the railroad station, will lead clear of the dangers lying W of Iles Musha.

The E approach, which passes S of Iles Musha, should only be used in good visibility by small vessels with local knowledge.

Caution.—A prohibited anchorage area, the limits of which may best be seen on the chart, lies close W of the port and extends up to 4.75 miles N.

It has been reported (2004) that depths of up to 2.7m less than charted exist in the approaches to the port. There is a least depth of 17m along the charted 099° range.

During the Southwest Monsoon, swells up to 2.5m in height have been experienced at the berths on the outer side of Jetee du Large.

Obstructions, with depths of 9.6 to 11.6m, lie off the berths, as follows:

1. Close E, SW, and W of the head of Mole de Fontainebleau.
2. Close NW of the NW side of Jetee du Large, between Berth No. 10 and Berth No. 11.



Djibouti—Mole Sud from W

10.16 The coast between Port de Djibouti and Baie Dalwakteak, about 11 miles SE, is low and thickly covered with mangroves. The coastal reef off this stretch of coast extends up to 1.5 miles offshore and mostly dries.

An area prohibited to navigation extends up to 3 miles off this coast, from a point about 2 miles NW of Ile Waramos to the Somali border.

A prohibited anchorage containing submarine cables extends from the E side of Djibouti, E for about 9 miles, thence NE for 8 miles. Both areas are best seen on the appropriate chart.

Ile Waramos (11°33'N., 43°11'E.) lies on the coastal reef SE of Port de Djibouti. Several above-water rocks stand in the vicinity of this islet.

Baie Dalwakteak (11°29'N., 43°16'E.), entered between a point about 4 miles SSE of Ile Waramos and Ras Gumarlah, about the same distance further SE, provides sheltered anchorage.

Ras Gumarlah is the outer extremity of a low sandy irregular strip of land which extends a short distance N from the coast, and then about 1 mile to the W.

An islet lies on the coastal reef, about 1 mile WNW of Ras Gumarlah.

Small vessels with local knowledge can anchor in Baie Dalwakteak, in a depth of 7.3m, but it should only be approached at LW when the dangers are visible.

Anchorage can also be taken close outside this bight, in a depth of 12.8m.

Gutta Tella Ousal (11°32'N., 43°14'E.), a drying reef, lies about 6 miles NW of Ras Gumarlah.

10.17 Moidubis Kebir (11°33'N., 43°17'E.), a steep-to reef, drying in places, extends about 2 miles N from a position about 5 miles NNW of Ras Gumarlah.

Moidubis Seghir (11°30'N., 43°16'E.), a steep-to reef, drying in places, lies about 4 miles NNW of Ras Gumarlah. A detached 5.5m patch lies 0.5 mile off the SE side of this reef.

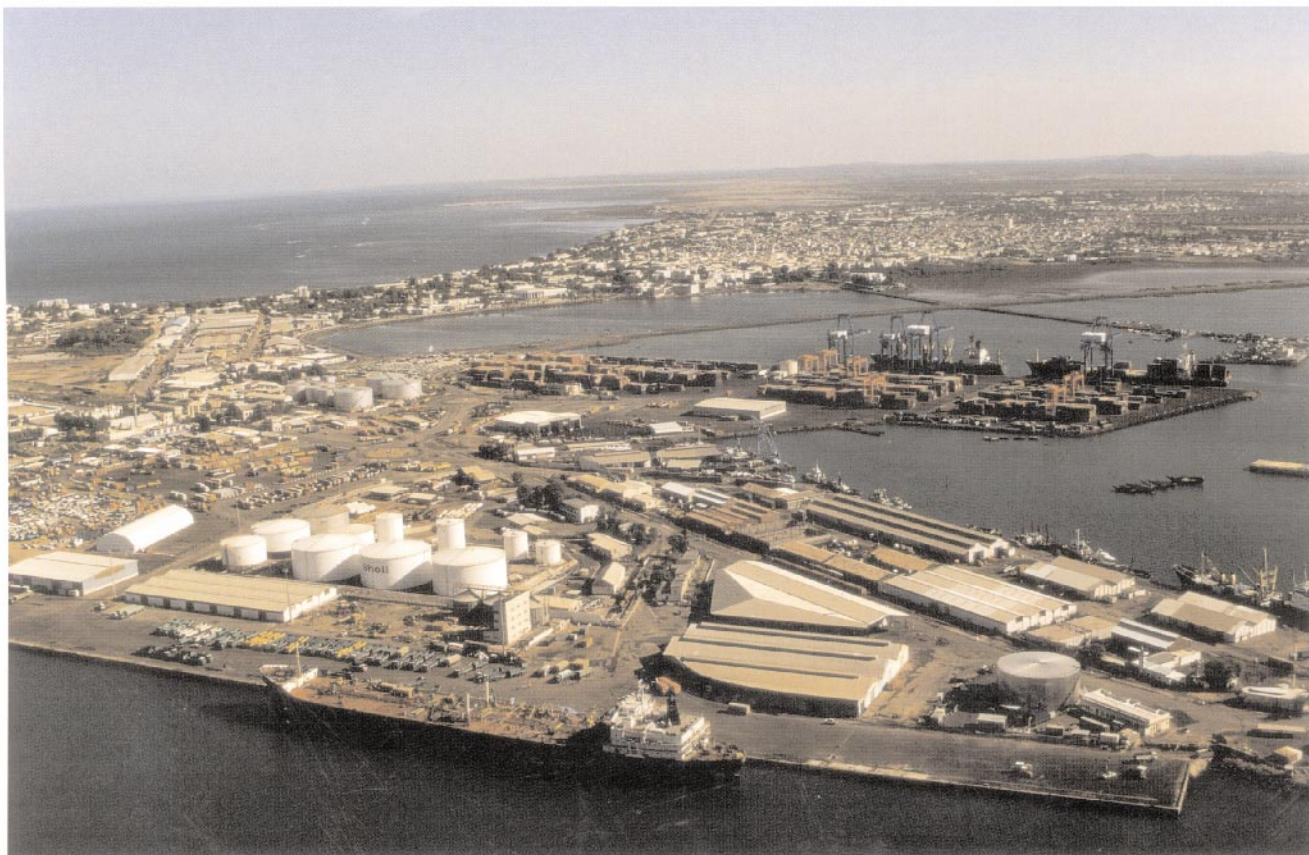
The depths charted in an area formed by a line extending ESE from Plateau du Heron to Moidubis Kebir then SSW to the shore at Loyada, differ greatly from those determined by an earlier French survey.

The coast between Ras Gumarlah and Saylac, about 12 miles ESE, is bare and swampy. The coastal reef, which dries in places and has several islets on it, extends up to 3 miles offshore.

A narrow sand bank, which partially covers at HWS, extends 2 miles NE and then 3.5 miles N from a position about 3 miles SE of the end of Ras Gumarlah. This bank is surrounded by Recif Turuhah.

This reef extends 1 mile N and then 2 miles NE from the N extremity of the sand bank and has irregular depths of 3.7 to 11m, with many rocky heads. The N extremity of Recif Turuhah dries in places.

General depths of 18.3 to 20m exist in the bight W of Recif Turuhah, but four detached rocky patches lie up to 2.5 miles W



Djibouti from N

and 3.5 miles WNW of the N end of the sand bank on Recif Turuhat.

Besides a rocky patch located about 3 miles SE of the N end of the sand bank, the bight E of the sandbank has depths of 10 to 18.3m, and is apparently clear of dangers.

The **Mosheikh Islets** (11°26'N., 43°22'E.), bush-covered, stand on the coastal reef SE of the above sand bank.

10.18 Saylac (Zeila) (11°22'N., 43°28'E.), a small town in poor condition, stands on a sandy spit projecting from the coast and almost level with the sea. The district commissioner's house, with a flagstaff nearby, stands in the NE part of the town and is the most conspicuous house. The customhouse stands in the same part of the town.

A shallow stone pier extends NW from the NW part of the town. A small hospital and dispensary are available.

During the Southwest Monsoon, the heat is excessive and most of the people leave for the interior. Cargo is handled in the roadstead about 2 miles N of the town.

Tides—Currents.—The currents usually set with the winds along the coast off Saylac and sometimes attain a velocity of 0.5 knot. In the roadstead, the currents often set against the wind, although the latter may be fairly strong.

At springs, the tidal currents usually set W through the roadstead during the flood and E during the ebb, at a rate of

about 0.5 knot, but the direction is greatly influenced by the winds.

Shac Siigaale (Sea Gull Shoal) (11°24'N., 43°37'E.), about 9 miles ENE of Saylac, and Shaab Filfil, about 2 miles of Shac Siigaale, are both steep-to on their E sides. These two reefs are always covered and never are clearly visible.

A low sandy spit on which Saylac is built extends about 3 miles from the coast and then continues for 1.5 miles as a shoal, which dries in places. Shoals, with depths of less than 5.5m, continue toward Shac Siigaale. A detached reef, which dries, lies about 1 mile W of the N end of Shac Siigaale.

Several shoals, with depths of 5.5 to 9.1m, lie between and W of these two reefs, but less water than charted has been reported to exist in this vicinity.

Depths in the approaches to Saylac are reported to be considerably less than charted.

10.19 Ceebaad (Aibat Island) (11°30'N., 43°28'E.), about 9 miles N of Saylac, is low, sandy, and covered with bushes. It stands on the W part of a reef, which dries at LW, and extends about 2 miles N, 3.5 miles E, and 1 mile SE, respectively, from the island. A detached reef lies about 0.5 mile WNW of the N end of the island; a shoal with depths of 2.7 to 5.6m, extends about 2 miles SW from the SW end of the reef.



Djibouti from S

A beacon, standing on the N end of Ceebaad, consists of a sand-colored cone, with a black ball topmark. The beacon is usually visible only when the sun is in a favorable position.

Saacada Diin ($11^{\circ}26'N.$, $43^{\circ}28'E.$), about 3 miles S of Ceebaad, is low, sandy, and almost covered with bushes about 6.1m high. The island is fringed by a drying bank, which extends about 0.5 mile from the E side and 0.5 to 1 mile from the other sides.

A shoal, with a least depth of 0.3m, joins the E side of the drying bank surrounding Saacada Diin and extends about 2 miles NE. A 4.6m shoal lies about 2 miles E of the SE end of Saacada Diin.

The area between Saacada Diin and the coast to the SW is almost completely obstructed by drying shoals with depths of less than 5.5m.

10.20 Channel Reef (Recif du Chenal) ($11^{\circ}28'N.$, $43^{\circ}33'E.$), with a least depth of 2.1m, coral, lies about 6 miles ESE of the N end of Ceebaad. The passage between this reef and the reef extending E from Ceebaad has depths of 1.8 to 16.5m; the passage between Channel Reef and Recif Filfil has a least depth of 6.4m.

The roadstead N of Saylac provides anchorage, in depths of 7.3 to 9.1m, sand and mud, good holding ground. The best berth lies about 2 miles N of Saylac, in a depth of 7.3m.

During the Northeast Monsoon, a moderate swell sets into the roadstead, generally increasing in the afternoon. It has been reported that due to heavy silting at the anchorage, the charted depths are unreliable.

Directions.—The best time to approach Saylac is in the morning. A good lookout should be posted aloft and soundings taken continuously, because no landmarks are visible on the low land for ascertaining the vessel's position.

When within a line joining Ceebaad and Shac Siigaale, the water is usually very discolored, making it impossible to distinguish between the deep water and the shallow water.

Saacada Diin, the beacon on Ceebaad, and the town of Saylac should be visible from aloft when about 1 mile offshore of Recif Filfil. Conical Hill, about 11 miles WSW of Saylac, is 118m high, and may be a useful mark in clear weather.

The beacon on Ceebaad is the best mark when approaching from the N. From a position about 5 miles E of this beacon, make good a course of 195° , which is about 0.5 mile W of Channel Reef. When the S end of Saacada Diin bears about 270° , make good a course of 243° , which leads to the anchorage.

If coming from the SE and entering by the same passage, keep in depths of not less than 36.6m until the beacon on Ceebaad bears 290° . Steer for this beacon on this course until it is about 5 miles distant, or until the NW end of Saacada Diin

bears 245°. Course can then be altered for the anchorage as previously directed.

10.21 The low, swampy coast between Saylac and Raas Maskan, about 12 miles SSE, is backed by a range of sand hills, 9 to 73m high, which stand about 2 miles inland. This range of hills continues SSE for about 13 miles to Khor Galangareet at distances of 1 to 2 miles inland.

A low sandy plain extends from Khor Galangareet to the base of the mountains, about 20 miles inland. This coast is fringed by reefs and shoals extending up to 1.5 miles offshore.

The 20m curve off the coast between Saylac and Khor Galangareet extends S from a position close E of Shac Siigaale and gradually closes the coast.

Raas Maskan (11°12'N., 43°33'E.) is low, round, and slightly projecting.

Khor Maduji (11°07'N., 43°35'E.), about 5 miles SSE of Raas Maskan, is reported to be connected by a backwater with Khor Galangareet. Both of these rivers are available only to small boats.

Shacaabi Shiikh Yacquub (Shab Sheikh Yakab) (11°18'N., 43°34'E.), about 6 miles SE of Saylac and 4 miles offshore, has a least depth of 1.8m.

A rocky 4.6m patch lies midway between Shacaabi Shiikh Yacquub and the coast; a small 9.1m patch lies about 2 miles SSE of this same reef.

A 5.5m patch lies about 7 miles SSE of Saylac and 1.5 miles offshore. A reef, with a depth of less than 1.8m, lies about 3 miles NE of Ras Maskan. Depths of 9.1m lie close N and S of this reef.

A shoal, with a least depth of 1.8m, lies about 1.5 miles NNE of the entrance of Khor Maduji; the sea breaks heavily on this shoal at times.

10.22 Shab Maduji (11°03'N., 43°40'E.), about 5 miles SE of the entrance of Khor Maduji, has a drying part near its SE end. A 3.6m patch lies about 0.5 mile W of the drying part of Shab Maduji.

Shacaab Galangareet (10°57'N., 43°44'E.), a rocky patch with depths of less than 1.8m, lies about 6 miles ESE of the entrance of Khor Galangareet and 1.5 miles offshore.

The coast between Khor Galangareet and Berbera is generally bold, with depths of 11 to 12.8m close in, and with the exception of Shab Galangareet, no known dangers exist seaward. This part of the coast has not been closely examined and great care should be taken when approaching.

Lughaye (Dagarita) (10°40'N., 43°57'E.), about 11 miles SE of Shacaab Galangareet, is the name of a district. The low coast in the vicinity is bush-covered for many miles. The town may be recognized by two small clumps of palm trees, which show up well from either the SE or NW. In clear weather, the high mountains in the vicinity are visible.

Anchorage can be taken by small vessels with local knowledge, in a depth of 11.9m, about 0.5 mile offshore.

Sabawanaag (Saba Wanak) (10°33'N., 44°07'E.), about 13 miles SE of the palm trees at Lughaye, may also be identified by a clump of date palms near the coast.

Anchorage can be taken by small vessels, in a depth of 11m, sand, about 0.7 mile offshore.

10.23 Bullaxaar (Bulhar) (10°24'N., 44°24'E.), once very important commercially, is now practically deserted. The town is difficult to distinguish, especially if the sun is behind.

Close E of Bullaxaar, there are some conspicuous date palms, which are the only trees near the coast between this place and Berbera.

Jebel Elmis (10°21'N., 44°12'E.), a rugged irregular mountain, is 610m high. It rises about 13 miles SSE of Sabawanaag and is an excellent landmark.

It has been reported that the best time to approach the anchorage is at dawn or shortly thereafter, when the white houses of the town stand out well.

A small sand bank, awash in places, parallels the coast off Bullaxaar about 0.1 mile offshore. The W end of this bank lies N of the residency. The smoothest water for landing is found by passing around the W end of this bank, but small boats can pass over it at HW.

Partially-sheltered anchorage can be taken by small craft between this bank and the coast. A heavy surf rolls in throughout the year and during bad weather.

Anchorage can be taken, in depths of 11 to 12.8m, about 0.5 mile offshore, with the town bearing between 150° and 200°. When about 2 miles from this anchorage, reduce speed and approach cautiously, because the depths shoal rapidly.

Berbera (10°27'N., 45°01'E.)

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10.24 Berbera, a medium-size port used by general cargo vessels and oil tankers, stands at the head of a natural inlet. The tankers are handled at an offshore mooring berth lying about 0.5 mile WSW of the main port facilities.

Berbera Port Authority Home Page

<http://www.berberaport.net>

Winds—Weather.—From the middle of the afternoon until about midnight, a stiff breeze blows from the NE; from midnight until noon, a calm prevails. During the Southwest Monsoon, the climate is very hot though not unhealthy, but during the Northeast Monsoon, it is comparatively cool; with a good breeze outside, it is comparatively calm within the harbor.

Tides—Currents.—The mean tidal rise here is 1m while the diurnal rise is 1.7m. Tidal currents are negligible.

Depths—Limitations.—There are depths of 20 to 32m in the approach to the harbor, decreasing to 11m off the berths.

An offshore mooring buoy berth is situated on the SW side of the harbor. A steel pier carrying pipelines extends 0.3 mile NW and connects the berth to the shore. Tankers up to 165m in length and 8.5m draft can be handled. It has been reported that the oil terminal is damaged, the storage facilities are not operational due to power shortages, and that some of the mooring buoys are partially submerged.

A quay, 640m in length, is situated on the S side of the harbor, close E of the oil terminal. It is connected to the shore by two bridges and has a depth of 9m alongside. There is a ro-ro berth at the W end. Vessels up to 12,000 dwt and 8.5m draft can be accommodated.

Aspect.—The port lies within an inlet located between the coast and a low sandy spit extending about 2 miles WSW from the shore. Raastamar (Tamar Point), marked by a light with a radar reflector, is the outer extremity of this spit.

A high irregular mountain range stands SE of Berbera. Great Gap, a remarkable pass through the mountain range, stands about 8 miles SE of the port. Six peaks, all inclined to the E, may be viewed through this gap when it is bearing SSW.

A prominent hill stands about 13 miles WSW of Raastamar and 2.5 miles inland. It is 249m high and has a white sandy patch on its N side.

A small round hill stands about 5 miles SSW of Raastamar. It is 113m high and has a white sandy patch on its E side. This conspicuous hill is the highest in the vicinity of the port.

A light is shown from a white tower standing on the coast, 1.5 miles SSW of Raastamar Light.

A prominent group of oil tanks is situated on the coast, about 1.3 miles SE of Raastamar Light. Most of the town buildings stand near the head of the inlet. The Shaab, the residential quarter, is situated close S of the head. It is surrounded by a wall, 5m high. Several radio masts stand 0.5 mile S of the Shaab.

A large conspicuous warehouse stands on the general cargo wharf. A conspicuous stranded wreck is reported to lie close off the E side of this wharf.

The approach is marked by lighted buoys, which may best be seen on the chart. A lighted range, situated at the head of the inlet, indicates the approach to the inner anchorage.

Pilotage.—Pilotage is compulsory for all vessels over 200 nrt. Pilots can be contacted on VHF channel 12 or 16.

During good weather, pilots board at the outer anchorage 0.5 to 1 mile SW of Raastamar Light. During inclement weather, pilots board in the inner anchorage.

Regulations.—Vessels should send their ETA 48 hours in advance to Berbera Port Control, who will inform the Port Authority. Vessels should also contact the Port Control on 8122 kHz RT and state the following:

1. Vessel name.
2. Flag.
3. Call sign.
4. Draft fore and aft.
5. Gross tonnage.
6. NRT.
7. Discharge tonnage and type.

Anchorage.—A designated outer anchorage area, the limits of which may best be seen on the chart, lies centered 0.7 mile SW of Raastamar Light and has depths of 15 to 31m.

A designated inner anchorage area, the limits of which may best be seen on the chart, lies centered 0.6 mile ESE of Raastamar Light and has depths of 17 to 20m.

The holding ground at the inner anchorage is reported to be good, but caution is necessary, as depths at the NE corner of the area were reported to be less than charted. Whatever the sea state or direction of the wind, vessels are required to remain N and clear of the harbor entrance range.

Directions.—Vessels should head S for the light shown from the mainland coast and pass about 0.3 mile W of Raastamar, but care should be taken against a current which sets E toward the point. A lighted range then leads to the inner anchorage.

Caution.—Caution is necessary because, during the monsoon, blowing sand occasionally obscures the range; trees in the vicinity of the front range beacon may make that structure difficult to see.

During the trading season, October to March, the lights of the navigation aids may be difficult to distinguish from the riding lights of dhows anchored close inshore.

It was reported (1993) that much of the port facilities and aids had been damaged. Silting in the inlet was also reported.

10.25 The coast between Berbera and Raas Khansiir, about 53 miles ENE, is low and sandy. The bottom near the coast consists of sand and shells, while off the coast the bottom is sand and coral.

The depths are more suitable for anchoring off the NE half of this part of the coast.

Ras Calveyn (10°31'N., 45°06'E.) is low and sandy, with a 3.7m rocky patch about 0.5 mile NW of it. Siyara, about 11 miles ENE of the point, is deserted and in ruins.

Exposed anchorage can be taken, in a depth of 9.1m, about 0.5 mile off Siyara. The coast between Ras Xatiib, about 7 miles NE of Siyara, and Ras Cuuda, about 17 miles farther ENE, is fringed by depths of less than 5.5m, which extend up to 1 mile offshore.

Anchorage can be taken, in depths of 11 to 14m, between 1 mile and 1.5 miles off the village of El Darad, about 3 miles SSW of Ras Cuuda.

Small vessels can obtain shelter from E winds in the area between Ras Xatiib and Ras Cuuda, which is reported to recede more than shown on the chart.

Raas Xamra (10°48'N., 45°43'E.), about 7 miles ENE of Ras Cuuda, is slightly projecting and 72m high. When seen from the W, this black point shows up well.

Karin (10°50'N., 45°47'E.), a village about 4 miles ENE of Ras Xamra, stands in a valley with a white sandy patch on its SW side. This deserted village is similar to El Darad, but contains more huts. A reef and a sandspit extend about 0.5 mile offshore abreast of the village.

Sheltered anchorage can be taken, in depths of 7.3 to 18.3m, sand, about 0.5 mile W of Karin.

A vessel has anchored, in a depth of 25.6m, about 0.5 mile offshore with a prominent stone house at Karin bearing 135° and the NW bluff of Raas Khansiir bearing 073°.

Raas Khansiir to Raas Xaafuun

10.26 Raas Khansiir (10°52'N., 45°49'E.), low and rocky, is marked by sandy beaches on both sides. From the NW, the point is easily identified by a large triangular patch of sand near it, backed by a dark hill. A range of irregular hills rises inland from the point. Tri-Khiil (Tree Hill), 620m high, stands about 5 miles S of the point.

Anchorage has been taken, in a depth of 36.6m, with Tri-Khiil bearing 155° and **Black Peak** (10°38'N., 45°35'E.) bearing 220°. The coast up to 22 miles E of Raas Khansiir is backed by a range of undulating hills. Jebel Mara, about 24 miles ESE of Raas Khansiir, is isolated, and Sugarloaf Peak, about 5 miles farther SE, rises to a height of 303m.

Ankhor Peak (10°32'N., 46°11'E.) 1,128m high, stands 12 miles S of Jebel Mara. Jebel Warsangeleh, a high range 10 to

25 miles inland, extends about 140 miles E from **Pyramid Peak** (10°43'N., 47°00'E.), which is 1,570m high. This range is level with its crest and has no prominent peaks. The E half of this range consists of a limestone ridge, 1,829 to 2,133m high, steep on its N side, with a gradual slope on its S side.

Shimber Berris (10°44'N., 47°15'E.), about 15 miles E of Pyramid Peak, is the summit of this range and rises to a height of 2,408m. Toward the lower coastal hills, and at each end, the range descends in steps, forming vertical slopes 244 to 305m high.

10.27 Jebel Mait (10°55'N., 47°03'E.), 396m high, about 12 miles NNE of Pyramid Peak, stands N of the W end of Jebel Warsangeleh.

Quoin Hill (11°00'N., 47°23'E.), rising about 21 miles ENE of Jebel Mait, is distinguishable only from the N.

Jebel Buredo, an isolated sugarloaf hill, about 6 miles NNE of Quoin Hill, and Jebel Alat and Jebel Barait, about 7 and 12 miles, respectively, SE of Jebel Buredo, are other peaks in the vicinity. Jebel Buredo is the only conspicuous peak.

Gheljoga (11°06'N., 48°52'E.), N of the E end of Jebel Warsangeleh, is a conspicuous double peak, 638m high. This peak stands in the mountain range beyond the low and broken coastal range of sand hills. A remarkable gap in the coastal range stands close NE of Gheljoga. Bur Bodet, 870m high, is the highest peak of a range of hills near the coast, about 32 miles ENE of Gheljoga. Jebel Antara, about 14 miles farther ENE, is a rocky table range, 1,300m high, which is thickly-covered with vegetation and trees.

Bur Corcori, 2,020m high and the highest mountain in the vicinity, stands about 10 miles SE of Jebel Antara, about 17 miles farther E; a ridge of limestone mountains extends about 32 miles ENE and then turns SSE to a hummock-shaped mountain, visible from a great distance. Another range of similar mountains extends ESE from this mountain.

10.28 Gwardafuy (Ras Caseyr) (11°50'N., 51°18'E.), which is further described in paragraph 10.42, is the NE extremity of Africa, and rises to a height of about 244m. From the cape S, the Jebel Gural Range extends SW and S and is separated by a valley. A conspicuous knob stands on the tableland NW of the above range, about 9 miles SW of Gwardafuy. About 2 miles NW of this knob, and separated from it by a deep ravine, is a sharp peak 891m high.

Ghezani, 833m high, stands in the N part of Jebel Gural, and is conspicuous from S because of the steep slope of its E end. Dehfo, 741m high and conspicuous, stands near the S end of Jebel Gural; a conspicuous knob, 591m high, stands at the S end.

From Jebel Gural to the S, the coast is backed by a range of flat tableland, 152 to 183m high. Abd al Kuri, about 52 miles ENE of Gwardafuy, consists mostly of mountains, except in its central part, rising to an elevation of 600 to 622m in the E part and 269m in the W part.

The Brothers consist of two islands standing about 35 and 50 miles E, respectively, of Abd al Kuri. The W island is 780m high and the E island is 391m high. Suqutra, about 130 miles ENE of Gwardafuy, rises to a height of 1,519m in Jabal Haggier, about 30 miles W of the E end of the island.

Tides—Currents.—During the Northeast Monsoon, a countercurrent occasionally sets E along the African coast, between **Mait Island** (11°13'N., 47°13'E.) and the meridian of 49°E, at a velocity of 0.5 to 2.5 knots.

Currents have also been reported setting toward the coast, at velocities of 0.5 to 1.5 knots.

During the Southwest Monsoon, an eddy current sets W along the African coast to near the meridian of 45°E, at a velocity of about 1.5 knots. However, this current is not continuous, and E and S sets are also experienced.

The strongest W currents reported many years ago between the meridians 48°E and 50°E, had a velocity of about 0.5 knot.

Variable currents were experienced off the Somali coast, and occasionally countercurrent were experienced near the coast. The former usually set W at a rate of 0.5 knot. In May, a strong S current was experienced near Ile Mait. Except for a slight W set off Ile Mait, no current was experienced, at the end of February, many years ago, between Berbera and Las Khoreh.

Years ago, a vessel while proceeding E at a distance of about 30 miles off the coast of Qooriga Gobed Rugguuda, experienced a S current with a velocity of about 1 knot and was set well into this bay; very little W current was experienced. Ile Mait was then closed, and a course of 000° was steered for 4 hours; the island was visible for the first 3 hours and no E or W current was experienced.

Course was altered for Las Khoreh at 2045 and speed adjusted to arrive at 0700. In the morning, the course had been made good, but the vessel was 20 miles behind the dead reckoning position, a WNW current having apparently been experienced from about midnight. The wind was not more than force 2.

Depths—Limitations.—The 200m curve between Raas Khansiira and Gwardafuy generally parallels the coast, at distances of from 1 to 7 miles offshore, except in the vicinity of **Ile Mait** (11°13'N., 47°13'E.). In this vicinity, the 200m curve lies up to 10 miles offshore. South of Gwardafuy, the 200m curve lies from 7 to 30 miles offshore. The only known danger in the vicinity of this curve is a 18.3m patch lying about 14 miles ENE of **Raas Xaafuun** (10°27'N., 51°24'E.).

Abd al Kuri lies on a 200m bank, which extends up to 2 miles N, 13 miles E, 5 miles S, and 3.5 miles W, respectively, of the island.

The Brothers and Suqutra lie on an extensive bank which has depths of less than 200m. This bank extends about 29 miles WSW and about 35 miles E and S of The Brothers, and probably more, but the locality has not been thoroughly examined. Those islets and dangers which lie in the vicinity of the above islands will be described under the principal description of the coast which they front.

A bank, with irregular depths of 73 to 179m, coral, sand, and shells, extends about 20 miles E from a position about 15 miles NNE of **Ras Illaue** (11°59'N., 50°47'E.).

Within 13 miles N of the E extremity of this bank are two banks; the S bank has depths of 77m and the N bank has depths of 77 to 110m.

A bank, with a depth of 54.9m, was reported to lie about 42 miles NE of Ras Alula.

10.29 Gubed Canqor (10°49'N., 46°01'E.) is entered between Raas Khansiir and the village of Canqor, about 45 miles

ENE. The low sandy shore of this bight is bush-covered. Khoor Shoor, a shallow lagoon, lies 3.5 miles ESE of Ras Khansiir. The reef-fringed coast at Canqor is not suitable for landing.

Anchorage can be taken, in a depth of 12.8m, sand and coral, about 0.5 mile offshore, at the village of Canqor. The best anchorage lies off Raas Khansiir, where the holding ground is good.

Gubed Rugguuda (10°47'N., 46°36'E.) is entered between a point about 2 miles E of Canqor and Raas Jilbo, about 45 miles ENE. The low, sandy shore of this bay is fringed in places by shoals. At times, even during the Northeast Monsoon, a considerable swell sets in.

Nasiga (10°41'N., 46°30'E.), a deep ravine about 15 miles ESE of Canqor, is marked by several streams during the rainy season.

Rugguuda (10°42'N., 46°37'E.), a village, in ruins, is not easily identified. A salt water lagoon and heavy vegetation is found in the vicinity.

A vessel anchored about 1 mile NNW of the lagoon entrance, in a depth of 12.8m, with very good holding ground.

10.30 Mulaax Beyle (Shulah) (10°46'N., 46°42'E.) stands on Raas Shulah, at the mouth of a stream, about 6 miles ENE of Raggunda. The village consists of several stone buildings and huts. The mouth of the stream can be identified by the vegetation in the vicinity. Finger Peak, pointed and about 4 miles SE of Raas Shulah, is a good mark in the approach to the village.

Anchorage can be taken off Raas Shulah, in a depth of 23.8m, with Finger Peak bearing 130° and Heis Islet to the ENE bearing 060°. Pyramid Peak, previously described in paragraph 10.26, Xiis, and Haycock, a peak about 11 miles WSW of Finger Peak, are useful marks when approaching this anchorage.

Xiis (Heis) (10°53'N., 46°54'E.), about 14 miles ENE of Raas Shulah, consists of some stone houses which are only inhabited during the trading season. A white house and a fort are conspicuous. A shoal, with some coral reefs, awash, extends about 0.5 mile offshore in the vicinity of this village.

Xiis (10°54'N., 46°54'E.), about 2 miles NNE of Xiis, is rocky and 52m high. It is connected by a causeway with Jebel Ret, a high bluff on the coast. This causeway dries about 0.6m.

A steep conspicuous ridge extends S from Jebel Ret to a gap SE of Xiis. A rock, with a depth of less than 1.8m, lies close N of the islet.

Sheltered anchorage can be taken, in a depth of 22m, with the center of Xiis peak bearing 057°. A vessel anchored, in a depth of 22.9m, with Xiis peak bearing 053° and the fort in Xiis bearing 165°.

10.31 The coast between **Raas Jilbo** (10°56'N., 46°59'E.) and Raas Xatib, about 11 miles NE, is sandy for the first 7 miles and cliffy for the remaining distance.

From Raas Xatib to within about 3 miles of Raas Surud, about 22 miles ENE, the coast is low, sandy, and sparsely covered with bushes; a short distance inland then to Raas Surud, it is composed of low cliffs.

Mait (10°58'N., 47°04'E.), a village on a small plain, consists of some buildings and is almost uninhabited. A conspic-

uous white tomb stands 2 miles WSW of Mait. Mait carries on a small coastal trade with Aden and Al Mukalla.

Sheltered anchorage can be taken close to the coast NE of Mait in deep water, or in depths of 11 to 12.8m, about 0.5 mile offshore W of Mait. The stern of the vessel when swinging head on to the WNW wind will be in a depth of 13.7m.

Marso Saneekhaal (11°01'N., 47°07'E.), formed by a sand spit extending SW from the coast, lies close SW of Raas Xatib.

Good anchorage can be taken, in depths of 12.8 to 22m, about 183m offshore sheltered from winds from the ENE. Vessels have anchored, in a depth of 22m, within 0.5 mile of the shore.

Raas Xatib (11°03'N., 47°08'E.), about 6 miles NE of Mait, has a small inlet nearby. Anchorage can be taken, in a depth of 22m, sand, about 183m off Raas Xatib.

Senacca (11°04'N., 47°12'E.), about 5 miles ENE of Raas Xatib, is sheltered by a low sandspit extending from the coast. This spit is difficult to make out from seaward but if a vessel steers for the coast about 0.5 mile E of a conspicuous strip of fair-sized shrubs, this spit will soon be visible on the port bow.

A moderate-sized vessel with local knowledge can take excellent but confined anchorage off Senacca.

Raas Xumbays (11°07'N., 47°16'E.), about 8 miles E of Raas Xatib, is low and sandy.

10.32 Bandar Xarshow (11°10'N., 47°24'E.), about 10 miles ENE of Raas Xumbays, consists of a small village, with a few inhabitants during the trading season from October to May. It consists of the ruins of a large building and a few huts.

A breaking reef extends up to 0.2 mile offshore between a position about 2 miles W of Bandar Xarshow and Raas Surud.

A bank extends about 0.5 mile offshore abreast Bandar Xarshow.

Maydh (11°13'N., 47°13'E.), about 6 miles NNW of Raas Xumbays, is 131m high and composed of bare rock covered with guano. A remarkable cove indents the S side of the island but its entrance is blocked by some large stones.

A spit, with a least depth of 3.7m, extends about 183m from the E end of the island.

General depths in the passage between the island and the mainland are 23.8 to 45.7m, but lesser depths exist near both sides of the passage.

Ghubbet Kalweyn (11°09'N., 47°42'E.) is entered between Raas Surud and a position on the coast about 19 miles ESE. The shores of this bight and for a distance of about 9 miles farther E to Raas Kalweyn are low, sandy, and bush-covered a short distance inland.

Caution.—Raas Surud has been reported to lie about 1 mile N of its charted position.

The 40m curve lies from 1.5 to 3.5 miles offshore, the bottom being sand, coral, and shells. A shoal, with depths of less than 5.5m, fringes the coast between the E entrance point of Ghubbet Kalweyn and Raas Kalweyn, and extends up to 1 mile offshore.

10.33 Waqddariya (11°06'N., 47°46'E.), a village about 4 miles WSW of the E entrance point of Ghubbet Kalweyn, consists of two forts and a large number of huts. This village is inhabited only during the trading season, from October to May.

The village is inconspicuous from seaward, but the village of Geelweyte, about 10 miles to the E, is easily made out. This latter village is also inhabited during the trading season.

Anchorage, sheltered from E winds, can be taken by vessels with local knowledge, in a depth of 18.3m, off Waqddariya.

Care should be taken when approaching this anchorage to avoid a reef which projects from the coast. Vessels with local knowledge, can anchor about 0.5 mile off Geelweyte, in a depth of 12.8m. The coast E of Raas Kalweyn continues low and sandy and is backed inland by a range of rolling hills.

Two of these hills are conspicuous because of the rough appearance of their cliffs. A spur of the mountain range slopes down to Raas Kalweyn. The coast continues low and sandy as far E as Raas Laas Macaan.

Dhoabgo (11°08'N., 48°03'E.) and Qoticad are two inconspicuous villages, in ruins, standing near the coast about 6 and 13 miles E, respectively, of Raas Kalweyn.

Laasqoray (11°10'N., 48°12'E.), about 3 miles NE of Qoticad, consists of two large villages on the coast about 0.5 mile apart. Two easily recognized stone buildings stand in the SW village and appear as forts.

A conspicuous white fort, a square building surmounted by a white tower with a flagstaff close W of it, stands about 0.5 mile SE of the NE village. A conspicuous dark tree has been reported to stand about 183m W of the white fort.

A conspicuous bluff, about 2 miles NE of Laasqoray, appears dark against the background when seen from a long distance to the W. A conspicuous conical hill, visible only on SSE bearings, stands at the end of the ridge ESE of Laasqoray.

Good anchorage, with no shelter from offshore winds, can be taken between 0.4 and 0.7 mile NW of the SW village, in depths of 9.1 to 16.5m, sand or soft sandstone rock.

Anchorage can also be taken, in depths of 9.1 to 11m, about 0.5 mile N of the mosque in the NE village.

10.34 Raas Laas Macaan (11°12'N., 48°14'E.), low and sandy, is marked by a conspicuous white tower, numerous huts, and several small sand hills. A brackish inlet lies close SW of the point.

Raas Gacaan (11°17'N., 48°22'E.), low and sandy, lies about 9 miles ENE of Raas Laas Macaan and is reported to lie about 0.5 mile NW of its charted position. Several inlets lie near the point and close S is a fresh water lake. The village of Gacaan, marked by a fort, stands on the SW side of Raas Gacaan.

Manna Hills (11°07'N., 48°26'E.), conspicuous and conical, stand about 11 miles SSE of Raas Gacaan. Two hills, about 2 miles S of Gacaan, appear as one conical hill when viewed from W. These hills are good marks.

Drying sand banks front the coast for a distance of about 0.5 mile on each side of the fort at Gacaan. The water inside these banks is very shallow. The depths about 0.5 mile offshore are 22m, over a rocky bottom. It is not advisable to anchor off Gacaan because of the poor holding ground.

The coast between Raas Gacaan and Raas Cadcadde, about 18 miles to the E, is generally low, with an occasional hill.

Some conspicuous ruins and palm trees stand about 6 miles ENE of Gacaan.

Raas Dhoftille (11°19'N., 48°32'E.), low and sandy, stands about 9 miles E of Raas Gacaan. Flat Hill, a conspicuous

isolated tableland about 183m high, stands close S of the point and appears as an island when viewed from any distance to the W.

Durduri (11°19'N., 48°36'E.), a village about 5 miles E of Raas Dhoftille, has a fort at each end and a large yellow building in the middle. An inlet, blocked at its entrance by a sand bank, stands near the village.

Anchorage has been taken, in a depth of 19.2m, with the W fort bearing 195°, distant 0.5 mile. The surf in the vicinity is broken and dangerous.

10.35 Ras Cadcadde (11°20'N., 48°40'E.), about 5 miles ENE of Durduri, consists of a rocky cliff, about 12m high, rising gradually inland.

A flat-topped hill, 183m high, stands among a group of hills a short distance inland. It has been reported that Raas Cadcadde is a good radar target at distances of up to 16 miles. The low coast E of Raas Cadcadde is marked by occasional hills. East of the group of hills, near Raas Cadcadde, a black tableland, about 91m high, approaches the coast.

Elayu (Ceelayu) (11°14'N., 48°54'E.), a small village, may easily be identified, as it stands at the E end of the above black tableland. A ridge, about 61m high and marked by numerous cairns, rises beyond Elayu. The village consists of three large towers and a large group of huts.

The W tower is a conspicuous brown fort, with a yellow top, resembling a castle; the middle tower is brown and in ruins; the E tower, which is the smallest, is white and conspicuous. A small square, white mosque stands on a low cliff above the foreshore. A watercourse, which becomes a torrent after rains, lies about 2 miles WNW of Elayu.

Anchorage can be taken, in a depth of 11m, about 0.5 mile offshore, with the W tower at Elayu bearing 168°; E of this position the water appears to be shallower. Anchorage can also be taken, in a depth of 25.6m, sand, with the W tower bearing 207°, distant 1 mile.

In general, anchorage can be taken anywhere near the coast in this vicinity, in convenient depths, sand and rock, but the anchorages are exposed.

Qoow (11°15'N., 48°59'E.), about 5 miles E of Elayu, is a small town with three conspicuous forts, a few white houses, and a large number of huts. The gap in the coastal range behind the town is a good mark. The coast in this vicinity is backed by a low, broken ridge of hills and intersected by several watercourses, which run only during the rare rainy periods.

Anchorage can be taken off Qoow, in a depth of 22m, sand and rocks, with the middle fort bearing 168°, distant 1.5 miles. Anchorage can also be taken closer in, but care is necessary because the depths shoal rapidly.

10.36 Boosaaso (Bander Cassim) (11°17'N., 49°11'E.), a town standing about 12 miles ENE of Qoow, is easily identified by the broad plain on which it is situated.

Winds—Weather.—During the karif, which occurs from July to early September, a violent SSE wind, locally known as the fora, begins about 1800 and blows all night until the following day, decreasing about 1400. This wind raises a short choppy sea and hinders landing operations.

From 1400 to 1600, moderate N winds blow, raising a long swell which; hinders landing operations even more. During

such times, vessels have used two anchors, one of which was hove up when the wind abated.

From May to July, weak northers, accompanied by good weather, usually prevail at Boosaaso.

Depths—Limitations.—The port consists of an inner basin aligned N-S and a main berth. The basin is protected on the N by a 420m long breakwater and on the W side by a new 200m long breakwater.

A dredged channel leads through the coral to the harbor.

The main berth, on the S side of the N breakwater, can accommodate vessels with a maximum length of 153m and a maximum draft of 6.5m. The inner basin has three berths, each with an alongside depth of 3.5m.

Aspect.—The town consists of a large number of masonry buildings, numerous huts, and a few forts and towers. These forts and towers appear light brown or white from seaward. The small bed of a stream lies about 0.5 mile W of the town. There is also a conspicuous gap in the coastal range behind the town.

Range lights, in line bearing 138°, leads to a position W of the harbor entrance. Caution is necessary not to confuse this range with the old 148° range; the old range lights have been extinguished, but the structures remain.

A light stands on the head of the N breakwater.

Pilotage.—Pilotage is available. Vessels transit during daylight hours only.

Anchorage.—Open anchorage can be taken off the town, with the best berth about 1.25 miles offshore, in 18.3m. Depths decrease rapidly from this position to the shore. Good anchorage has been also reported about 0.7 mile offshore, in 12m.

Anchorage can also be obtained, in 8m, about 0.4 mile NW of the light on the head of the N breakwater.

Small craft with local knowledge can anchor, in depths of 2.4 to 3.4m, sand and soft mud, about 0.4 mile NNW of the front range light.

Caution.—A dangerous wreck lies about 1 mile offshore close NE of the approach range line.

Vessels should keep slightly NE of the range line to avoid shoal depths of less than 2m extending NE from the end of the breakwater.

Coral reefs, with depths of less than 2m, extend up to 0.3 mile offshore abreast of the town.

10.37 Raas Axmar (11°20'N., 49°18'E.), a small conspicuous rocky promontory about 91m high, stands about 8 miles ENE, of Boosaaso. This promontory appears red when viewed from W. The coast between Raas Axmar and Raas Aantaara, about 16 miles ENE, is low and sandy. Raas Buur Gaaban, about 11 miles ENE of Raas Axmar, is high and rocky and is the only such elevation along this section of coast.

Bacaad (11°21'N., 49°27'E.), a village consisting of a fort and a few huts, stands about 2 miles SW of Raas Buur Gaaban; another village, consisting of a few houses and huts, stands 1.5 miles E of Bacaad. The depths off the coast in this vicinity, with the exception of a 3.7m patch about 0.5 mile NNW of Bacaad, are regular, increasing to depths of 36.6m, sand, about 0.5 to 0.7 mile offshore.

Good anchorage can be taken, in depths of 16.5 to 18.3m, about 2 miles offshore between Bacaad and Raas Buur Gaaban; this anchorage is sheltered only from offshore winds.

The coast between Raas Aantaara, which is high and rocky, and Raas Goragii, about 8 miles E, is sandy and bush-covered. Exposed indifferent anchorage, with good holding ground, can be taken off Raas Aantaara.

10.38 Raas Goragii (11°29'N., 49°42'E.), steep-to, high, and rocky, rises to a range of mountains 1,402 high, which extends ESE. The slopes of these mountains are tree-covered.

A village, with a fort and some huts in it, stands 1.5 miles WSW of the point. The coast between this point and Qandala is steep-to. Raas Goragii has been reported to be a poor radar target at distances up to 27 miles.

Qandala (Candala) (11°28'N., 49°52'E.), about 11 miles E of Raas Goragii, is a local shipping point. It consists of a fort, several houses and huts, and the residency. The fort stands E of a group of trees near the W end of the town which are good marks from the W.

The Northeast Monsoon is weak in the morning but gradually strengthens and attains its maximum intensity in the afternoon. The wind abates at sunset.

The Southwest Monsoon sometimes blows from the W with great force and raises a high sea and swell at the anchorage. At such time, vessels are advised to heave up and proceed to sea.

Anchorage can be taken, in depths of 12.8 to 16.5m, about 1 mile seaward of Qandala, with fairly good holding ground.

The coast from a position close NE of Qandala is fringed by a shoal with depths of less than 5.5m for a distance of 3 miles ENE; this shoal extends up to 0.5 mile offshore.

An inlet, which is used by small local craft during the rainy season at HW, stands 3.5 miles ENE of Qandala. A good mark, in the approach from the W is Qandala; a low white sandhill marked by a conspicuous bush when approaching from the E.

During offshore winds, anchorage can be taken by vessels with local knowledge, in depths of 11 to 18.3m, not less than 1.5 miles off the mouth of the inlet.

Care should be taken to avoid a shoal, with a depth of less than 5.5m, which extends about 1 mile NW from the entrance of this inlet.

Dhurbo (Durbo) (11°37'N., 50°20'E.), which consists of some houses, huts, and a mosque, stands on a low plain at the mouth of a valley, about 29 miles ENE of Qandala. A group of palms, visible from some distance seaward, stands close NE of the village.

10.39 Bandar Murcaayo (11°41'N., 50°28'E.) consists of stone houses, huts, and a fort with a white battlement. The village extends about 0.5 mile along the coast behind a line of sand dunes. A swamp, a watercourse, and three groups of palm trees stand NE of the village.

A considerable trade is carried on around the month of September. Vessels approaching this village should steer for a hummock-shaped mountain about 5 miles SSE of the village until it can be identified.

Care should be taken not to mistake this peak for a similar peak about 18 miles farther WSW, which may be the case if a vessel is W of its dead reckoning.

Another mark in this locality is a precipitous red hill, about 274m high, with a hole in its upper part.

Anchorage can be taken by vessels with local knowledge about 1 mile off Bandar Murcaayo, in depths of 9.1 to 18.3m, sand, good holding ground, with the mosque bearing 151°.

Traffic is often hindered from May to August by the unstable prevailing W winds.

The coast between Bandar Murcaayo and Raas Felug, about 18 miles NE, is low and sandy. Two small villages lie within 1.5 miles NE of Bandar Murcaayo; the NE village can be identified by two high clumps of palm trees close SSW.

Geesaley, about 3 miles farther NE, consists of a few houses, several huts, and a prominent fort and large house in the NE part of the village.

A large group of palm trees in this area contrasts with the barren coast.

Anchorage off these villages are exposed though, the bottom is sand with fairly good holding ground. Depths of over 10m have been reported to exist about 0.5 mile offshore.

Qoor Felug (11°51'N., 50°32'E.), with a depth of 2.4m in the entrance, is mostly swampy and covered with mangroves.

Xabo, a village on the S side of the entrance of Qoor Felug, about 3 miles NNE of Geesaley, consists of some houses and huts and a conspicuous fort.

It has been reported that large vessels can anchor, in a depth of 31m, with the fort at Xabo bearing 144°, distant a little over 0.5 mile. Vessels with local knowledge can anchor, in depths of 11 to 12.8m, with the fort at Xabo bearing 090°, but care should be taken to let out enough chain to avoid dragging into deep water.

Small vessels can obtain excellent anchorage off the entrance of Qoor Felug. A radar conspicuous wreck lies on the coast about 6 miles SW of Raas Felug.

10.40 Raas Felug (Capo Elefante) (11°56'N., 50°38'E.) is an elephant-shaped promontory, 277m high. This conspicuous headland rises steeply from the sea at its N end and has been reported to be visible for about 26 miles.

When viewed either from the E or W, it appears like an island because of the low land. An inconspicuous beacon, 6m high, stands on Raas Felug. A small bay close W of Raas Felug provides shelter from E and S winds. A conspicuous bush stands S of the head of this bay.

Small vessels with local knowledge can anchor, in a depth of 9.1m, with the beacon on Raas Felug bearing 077°, distant 0.5 mile. Heavy seas and swells are raised in the bay when strong SW and NE winds are blowing. It has been reported that Raas Felug is a good radar target at distances up to 23 miles.

Caluula (11°58'N., 50°46'E.), fronted by an open roadstead, carries on a considerable trade with Aden and consists of a few stone houses and numerous huts. Several ruined towers stand in the vicinity and a large cemetery stands in the S part of the town. The residency, with a flagstaff, stands close to the shore in the SW end of the town.

A light is shown from a framework tower, 13m high, standing on the NW corner of the residency.

A very large lagoon, entered close NE of Caluula, is mostly covered with mangroves. Shallow passages cross the lagoon, which can only be used by small craft with local knowledge at

HW. The Northeast Monsoon is light in the morning, strengthens toward noon, and diminishes in the afternoon.

In the month of May and the first half of June, it is usually calm. During the Southwest Monsoon, the wind blows from the W and often raises a considerable sea. From mid-August to mid-September, a light variable ENE wind prevails.

Anchorage can be taken, in depths of 11 to 16.5m, about 0.5 mile offshore, with the residency bearing 180° and Raas Caluula bearing 054°.

Anchorage can also be taken, in a depth of 11m, with the residency bearing 142° and Raas Caluula bearing 054°, or in 13.7 to 17.4m, about 0.5 mile offshore, with Raas Caluula on the same bearing and the fort in the NW part of Caluula, bearing about 150°.

Caution.—Less water than charted has been reported (2002) up to 1 mile from the coast between Ras Caluula and a position about 2.5 miles W of Ras Caluula.

10.41 Raas Caluula (11°59'N., 50°47'E.), low and sandy, rises gradually to the high mountains in the interior. The currents in the vicinity of Raas Caluula have been observed to set toward the coast. It has been reported that Raas Caluula is radar conspicuous.

In the month of June, a vessel reported being set to the WSW while heading to the E.

The coast between Raas Caluula and Gwardafuy, about 31 miles ESE, is bordered by a few small projecting points forming small bays.

The coast is low for about the first 8.5 miles; it then becomes steep and mountainous. Depths of less than 18.3m extend up to 3 miles from this section of coast. A 2.5 knot current has been reported to set WNW about 5 miles offshore between Raas Caluula and Gwardafuy.

Bereeda (11°52'N., 51°03'E.), a village about 17 miles ESE of Raas Caluula, is scattered along the shore at the base of the mountains. The Sultan's Residence, a large two-story house with a tower, is the most conspicuous object in the village.

Anchorage can be taken, in a depth of about 8.2m, about 0.5 mile NW of the Sultan's Residence, but the bottom is rocky and irregular. Olog (Olod) and Damo, two small villages, stand within 4 miles W of Gwardafuy.

Good anchorage, sheltered from S winds, can be taken about 0.5 mile N of both villages, in depths of 12.8 to 14.6m, sand, good holding ground. Approaching Olog, steer for the fort in the village in range 186° with the conspicuous knob about 9 miles SW of Raas Caluula. Approaching Damo from the E, steer for Olog and anchor with the fortress at Damo bearing 163°.

Caution.—A depth of 9m was reported to exist about 7 miles NNW of Bereeda.

10.42 Gwardafuy (Raas Casey) (Ras Asir) (11°50'N., 51°18'E.), about 238m high, is steep-to, rocky, and high, especially on its N side. It is difficult for a vessel to estimate their distance off because of the grayish appearance of the cape in light fog or mist.

A light is shown from a masonry round tower, 20m high, standing on the summit of this cape. This light structure was reported (1994) to be damaged and unreliable.

Tides—Currents.—During the Southwest Monsoon, the currents set strongly N along the coast S of Gwardafuy, then closely round the cape and set to the W; a short distance from the cape, the currents continue to the N and ENE.

In the month of July, a S current with a velocity of 1 to 2 knots was experienced close inshore from a position about 8 miles S of Gwardafuy to Raas Xaafuun. When the Northeast Monsoon sets in, the current sets S and W with a velocity scarcely exceeding 2 knots. At the change of the monsoon, the currents are variable.

Aspect.—When seen from the N, the cape appears as a regular slope descending to the sea. When viewed from the NE, it can easily be distinguished by the light sand on the summit, the sandy bay to the W, and the lighthouse on its top.

It has been reported that Gwardafuy is a good radar target at distances up to 22 miles.

Caution.—Many wrecks have occurred on the coast S of Gwardafuy, and caution should be exercised when approaching this cape from SE or S, particularly during the Southwest Monsoon.

The weather during this period is stormy, the seas high, the currents strong, and the land generally covered by a thick haze.

The outlines of Gwardafuy and Raas Shannagiif, about 10 miles SSW, are similar, but the latter is 927m high; a broad, comparatively low sandy plain extends between these two points. The light color of this low land makes it difficult for a vessel to estimate its distance offshore, especially at night.

At night and in foggy weather, Raas Shannagiif is barely visible, despite its imposing rocky mass.

When Gwardafuy cannot be seen, which often happens because of the thicker fog near sea level and the light color of the land, mariners have mistaken Raas Shannagiif for the cape and have altered course to the NW and run aground.

A gradual change in the color of the water from blue to dark green is usually noticed when a vessel is approaching the land in this vicinity during the day.

During the Southwest Monsoon, the sea is usually smoother N of **Raas Xaafuun** (10°27'N., 51°24'E.) and tends to come from the SE. However, if the land is not seen only soundings should be relied on.

A NW course to round Gwardafuy should not be taken if the soundings do not indicate depths considerably more than 183m. The extensive banks lying about 25 miles NNW of the cape should be left to the N.

10.43 The coast S of Gwardafuy consists of a fertile valley full of large trees, with a stream running through it. Tooxin, a conspicuous village near the entrance of this stream, stands about 6 miles S of Gwardafuy and consists of some buildings, a mosque, and numerous huts.

Raas Shannagiif (11°41'N., 51°15'E.), round, rocky, and steep-to, appears as a bold rugged headland, especially from the SE. It marks the NE extremity of Jebel Gural and the bluff termination of a tableland over 914m high.

The dark land in the vicinity and to the S of this cape contrasts markedly with the light color of the land between it and Gwardafuy. It has been reported that Raas Shannagiif is a good radar target at distances up to 25 miles.

A rounded sandhill with a large tract of sand extending N from it stands near the coast. This is a good landmark, being the only white patch in the vicinity. A 95m peak about 7 miles farther S is a good landmark.

Gubed Binna (11°14'N., 51°08'E.) is entered between a position about 18 miles SSW of Raas Shannagiif and Raas Binna, about 15 miles further S.

In its N part, a bush-covered plain extends about 4 miles inland, then rises to Jebel Gural. The SW part of Gubed Binna is low, sandy, and bush-covered.

10.44 Bargaal (11°17'N., 51°04'E.), a village consisting of several huts and some ruins, stands 10 miles NW of Raas Binna. The steep slope at the mouth of a stream is a good mark for identifying this village.

Anchorage can be taken by vessels with local knowledge, in a depth of 12m, about 0.5 mile off Bargaal. This position is exposed and the holding ground is poor.

Several villages, in ruins, stand between Bargaal and Uadi Gondoli.

Vessels with local knowledge can anchor, in a depth of not less than 12.8m, about 5 miles W of Ras Binna, sheltered from S winds. Squalls from the SW are common.

Gubed Binna is exposed to the Northeast Monsoon, which blows intensely from 0900 to 2200, then abates and veers W until the early morning, when it begins blowing lightly from NW.

A dangerous surf rolls onto the beach during the Northeast Monsoon.

Raas Binna (11°08'N., 51°11'E.) consists of a rocky, steep cliff about 154m high. When seen from the N, this point looks like an island. The coast between Raas Binna and Surat Village, about 21 miles S, is low, sandy, and covered with bushes. The village of Handa, about 9 miles farther S, is partially in ruins. The ruins of a large square, stone building stand near the coast at Handa; the dark color of its walls contrasts with the white background. A lagoon stands close to this village.

10.45 Raas Xaafuun (Ras Hafun) (10°27'N., 51°24'E.) is the E extremity of J-Sha Xaafuun (Peninsula de Hafun), which rises steeply from the sea in steep cliffs to a height of 210m on its S side. The E end of this peninsula is flat, while its inner part consists of rolling hills intersected by deep ravines.

A light is shown from a white building, 13m high, standing on the summit of this point.

The peninsula is connected to the mainland by a low strip of sand which appears as a breakwater. When viewed from N or S, this peninsula appears like a large detached island. It has been reported that Raas Xaafuun is radar prominent.

Qooriga Hurdiyo (10°30'N., 51°10'E.), on the N side of the isthmus to J-Sha Xaafuun, is a large salt lake available only to boats. The entrance leading into this shallow lake is obstructed by sand and the approach fouled by several dangers. Hordio, a village on the N side of the entrance, consists of some huts and a few stone houses. A small boat harbor lies S of the village.

Gacanka Xaafuun Wag (10°36'N., 51°20'E.), on the N side of J-Sha Xaafuun, is clear of dangers and is sheltered from the

Southwest Monsoon. Depths of less than 9.1m extend up to 0.5 mile offshore.

During the Southwest Monsoon, good anchorage can be taken in this bay, in depths of 12.8 to 18.3m, hard sand. The holding ground is indifferent and many vessels have dragged anchors during strong S winds. During the Southwest Monsoon, a heavy swell rounds Raas Xaafuun and violent squalls blow across the promontory.

Off-lying Islands East of Gwardafuy

10.46 Abd al Kuri (12°12'N., 52°12'E.), a hilly island, except for the low middle part, is about 20 miles long. To a vessel some distance N or S, this low part of the island gives the appearance of two islands.

The N coast of the island consists mostly of a sandy beach, with a few rocky points, whereas the S coast consists of steep cliffs. It has been reported that Abd al Kuri is a good radar target at distances up to 23 miles.

Tides—Currents.—During an early survey of this area, the current was found to set ENE at a velocity of 0.5 to 1.5 knots, with numerous tide rips in the vicinity of shoal water. In the month of December, during the Northeast Monsoon, a current setting NNW at a velocity of 1 knot was experienced between Gwardafuy and Abd al Kuri.

Through the passages among the islands W of Suqutra, the tidal currents set N during the flood and S during the ebb, at a reported velocity of 1 to 2.5 knots, but they are much influenced by the currents caused by the prevailing monsoon.

Caution.—Caution should be observed when passing W of Abd al Kuri, especially at night, because it is difficult to estimate the distance off the W end of the island, the high land being some distance inland. To ensure passing not less than 2 miles off, vessels should keep in depths of greater than 92m.

10.47 Ras Khasat an Nawm (12°14'N., 52°04'E.), the W extremity of the island, consists of two sharp rocky points about 0.5 mile apart. A rocky reef, with a least depth of 3.6m, extends about 1 mile W from the N point.

The coast between Ras Khasat an Nawm and a rocky point about 7 miles E, is irregular, but up to 6 miles farther E, it consists of small rocky points, with sandy beaches in between.

A sunken rock lies close offshore, about 2 miles E of the above rocky point.

A shoal, with depths of less than 5.5m, extends about 0.5 mile N from the coast close to this sunken rock. In the bight between Ras Anjarah, the NE extremity of the island, and a point about 7 miles to the W, the coast is low and sandy, with a few huts. Some sunken rocks are reported to lie close offshore in this vicinity. Ras Anjarah is rocky and marked by a sand hill.

Anchorage off the N side of Abd al Kuri is reported to be indifferent but in the month of August, anchorage has been taken, in a depth of 16.5m, sand, good holding ground, with the small rocky point about 7 miles E of Ras Khasat an Nawm bearing 136°.

Between Ras Khasat an Nawm and the W entrance of Bandar Salih, about 7 miles ESE, the coast is steep-to. A bluff stands about 3 miles ESE of the W end of the island; about 3 miles farther ESE is a rocky islet, with a small foul bay.

10.48 Bandar Salih (12°10'N., 52°13'E.), backed to the N by the narrowest part of the island, was reported to be fouled in its W part.

During the Northeast Monsoon, good anchorage can be taken, in depths of 11 to 18.3m, coral, in Bandar Salih, about 0.2 to 0.5 mile offshore. Between the E entrance of Bandar Salih and the SE extremity of the island, the coast is bordered by high cliffs and is steep-to.

The SE extremity of the island is low and rocky, with a mountain range rising to the W from it. A bay with a sandy beach lies between this point and Ras Anjarah. Two above-water rocks lie close offshore, about 0.5 mile SW of Ras Anjarah.

Kal Firawn (12°26'N., 52°08'E.), about 13 miles NNE of Ras Khasat an Nawm, consists of two rocky, steep-to islets separated by a narrow foul channel. These islets stand on the N end of a bank with depths of 12.8 to 36.6m.

The NE and largest islet has three peaks, with the highest rising to an elevation of 85.9m; the SW islet has a peak of similar height and a smaller one. All of these peaks are guano-covered. Both of these islets are difficult to make out at night.

A 13.5m patch was reported to lie about 1 mile NE of the E extremity of Kal Firawn.

Coral Bank (12°17'N., 51°56'E.), with a least depth of 44m, lies about 8 miles WNW of Ras Khasat an Nawm. A 5.5m patch lies 10.5 miles NW of the same point.

Bacchus Bank (12°14'N., 52°26'E.), with a least depth of 5m, lies about 2 miles NE of Ras Anjarah.

A large ripple can be seen on this bank when the wind is in opposition to the currents.

Al Ikhwan

10.49 Al Ikhwan (The Brothers) (12°08'N., 53°10'E.) consists of Samhah and Darzah, two islands separated by a channel about 9 miles wide.

Samhah (12°09'N., 53°03'E.) rises to a small hill near its W end, and to a table mountain, 780m high, which covers nearly half of the island.

The island is bordered by rocky coasts, with precipitous cliffs on its S side. The N extremity of the table mountain is a well-defined bluff.

A rock, with a depth of less than 1.8m, lies on the coastal reef which extends about 0.5 mile W from the W extremity of the island; two rocky islets stand about 0.5 mile off the SE side of the island. A small bank, with a depth of about 23m, lies about 2 miles NE of the E end of the island.

A depth of 16.4m lies about 4 miles W of the W end of the island. A 10.9m depth was reported to lie about 15 miles WSW of the W end of Samhah; a 20.1m patch was reported to lie about 2 miles farther W.

It has been reported that the W end of Samhah and the rock close offshore lie about 1 mile WNW of their charted positions. A depth of 9m is reported to lie 1.5 miles SE of Samhah.

Darzah (12°07'N., 53°17'E.) rises vertically from the sea to a flat table-topped summit, 392m high. The N extremity of the island extends about 0.5 mile from the base of this mountain.

A depth of 11m is reported to lie 1 mile SW of the W end of Darzah. A depth of 31m is reported to lie 2 miles S of the W end of Darzah.

It has been reported that Samhah and Darzah are good radar targets at distances up to 25 and 24 miles, respectively.

Suqutra

10.50 Suqutra (12°34'N., 53°59'E.), about 130 miles ENE of Gwardafuy, is part of Yemen. Although this island lies near the track of vessels entering or leaving the Gulf of Aden, it is seldom visited because it is exposed to both monsoons. It also has no harbors in which vessels can anchor with safety, and the character of the natives in the past has been reported to be belligerent. Vessels are advised to remain well clear of this island.

With the exception of a few headlands from which reefs project, the coasts of Suqutra are bold, with moderate depths in places some distance offshore.

The S coast is almost an unbroken line but is seldom visited. The N and W coasts are broken by a series of small bays which provide anchorage according to the season.

Streams of fresh water usually discharge at the heads of these bays.

During the Northeast Monsoon, the N side of the island is considered safe from about February, when the monsoon is nearing its end.

Over a broad area, hills rise abruptly in vertical cliffs, several hundred feet high while at other places plains extend up to 5 miles inland. On the N side, the plains are generally found at the sites of villages. Nojid (Nawgeed), a plain which is covered for miles by sand dunes, extends almost the entire length of the island on its S side.

The interior of the island is broad, rolling and intersected by the stone plateaus, about 300m high to the W, S, and E, of which are a nucleus of granite peaks, over 1,200m high. The latter are usually obscured by clouds, but when the weather is clear their appearance is broken and picturesque. All of this hilly region is deeply intersected by ravines and valleys, through which water flows during the rainy seasons, but the majority of which are empty during the dry season.

Few streams reach the coast during the latter season. The SW side of the island is arid and barren, but much of the remainder is comparatively fertile, being well-watered by the monsoon rains of July and December.

It has been reported that Suqutra is a good radar target at distances up to 24 miles.

Winds—Weather.—The climate on Suqutra, compared with the nearly African and Arabian coasts, is temperate and cool, caused by both monsoons blowing over a large expanse of water. The climate is very healthy in the hills, but fever is prevalent on the plains, especially at the change of the monsoons.

From November to January, NNE winds prevail, blowing in violent squalls for several days at a time.

The fine weather season prevails from February to May; at this time the anchorages on the N coast are considered safe.

During June, July, and August, the Southwest Monsoon, then at its height, is said to blow constantly in hard and violent squalls on the N coast while on the S coast, it blows more steady and less violent, but is accompanied by a heavy sea and surf.

In September, October, and the first part of November, light land and sea breezes prevail, which become more steady from the N toward the latter part of November.

Tides—Currents.—The currents close around Suqutra are influenced by the winds and tidal currents, and generally set with the wind after it has blown hard from the same direction for some time. Many years ago in December, with the Northeast Monsoon well-established, a current setting NW, at a velocity of 2.5 knots, was experienced off the S coast of the island between the W extremity and a position about 52 miles to the E.

The tidal currents are very irregular and depend greatly on the strength and direction of the wind; sometimes they set in one direction for 16 hours, while at other times they set in one direction only for 6 hours. During the flood, the tidal currents set W off the S side of the island and E off the N side, while during the ebb they set in the opposite direction. The E current off the S side of the island sets at a velocity of 1 knot, depending greatly, however, on the wind.

10.51 Ras Shuah (12°32'N., 53°18'E.), the W extremity of Suqutra, is bold and rises to Jabal Shuah, 632m high, about 3 miles to the E. A reef extends about 0.2 mile from the NW side of Ras Shuah.

Sabuniyah (12°38'N., 53°09'E.), about 11 miles NW of Ras Shuah, is a white-colored islet, 69m high, which rises to three granite peaks.

When seen from a distance it resembles two vessels under sail; when seen from the N, it appears wedge-shaped. The passage between this islet and Suqutra is deep and clear of dangers.

Ghubbat Shuah (12°35'N., 53°22'E.), is entered between Ras Shuah and Rhiy di-Bidoh, about 9 miles NE. There are no known dangers in Ghubbat Shuah and the bottom is mostly sand or rock. A salt water lagoon, with mangroves on its banks, stands at the head of this bay, and is separated from the sea by a sand bank.

Caution is necessary when making Ras Shuah because many years ago in December, during the Northeast Monsoon, it was obscured by heavy rain squalls at sunset.

Ghubbat Shuah is quite exposed to the Southwest Monsoon, but during the Northeast Monsoon, it provides good anchorage with smooth water, although at times strong squalls are experienced.

During the latter season, the best anchorage is in a depth of 18.3m, white sand, about 0.5 mile offshore, with Ras Shuah bearing 241° and Rhiy di-Bidoh bearing 010°. This anchorage lies off some mangrove trees N of the salt water lagoon.

Caution.—A dangerous wreck lies in an approximate position about 4 miles ENE of Ras Shuah.

10.52 Rhiy di-Bidoh (Ras Baduwa) (12°43'N., 53°30'E.) is a steep-to bluff, 92m high.

Ghubbat Qulansiyah (12°41'N., 53°28'E.) is entered between a point about 3 miles ENE of Rhiy di-Bidoh and Ras Qulansiyah, about 4 miles farther ENE, and provides shelter during the Northeast Monsoon.

Ras Qulansiyah rises to four small granite peaks; these peaks, together with the hills in the vicinity, are good marks for

identifying the cape. A village with a mosque stands in a grove of trees, about 0.5 mile S of Ras Qulansiyah.

The depths in Ghubbat Qulansiyah are irregular and there are overfalls.

A rocky reef, almost all of which dries, fringes the shore of the bay and extends up to 0.2 mile offshore.

Large vessels can anchor, in depths of 12.8 to 18.3m, with the mosque in the village bearing 135°, distant about 1 mile. Small vessels with local knowledge can anchor, in a depth of 7.3m, about 0.5 mile offshore, with the mosque bearing 124° and the N granite peak inland of Ras Qulansiyah bearing 062°.

The coast between Ras Qulansiyah and a point about 3 miles ENE forms a bight which is foul over most of its area. From the E entrance of the above bight to Rhiy di-Bashorah (Ras Bashuri), about 2 miles farther E, the rocky coast is backed by high mountains which rise steeply from the sea.

A pyramidal rock, about 137m high, stands close off Rhiy di-Bashorah and is connected to it by a narrow neck of land.

10.53 Ghubbat Qurmah (12°40'N., 53°48'E.) lies off the low, sandy coast between Rhiy di-Qadamah (Ras Kadarma), about 5 miles E of Rhiy di-Bashorah (Ras Bashuri), and Ras Qurmah, about 14 miles farther ESE. Ras Kadarma is low, with the extremity of a high bluff close back of it.

Ras Qurmah is low, sandy, and fringed by a reef extending about 0.2 mile offshore. The shore of this bay is backed by a mountain chain about 6 miles inland, with a pass near the middle and another pass S of Rhiy di-Qadamah.

A deep salt water lagoon, extending about 0.5 mile inland and bounded by fairly high cliffs, is located about 6 miles WSW of Ras Qurmah; the entrance of this lagoon is covered.

During the Northeast Monsoon, a considerable swell makes up in the W part of the bay, while during the Southwest Monsoon, the heavy swell is felt when the wind is well to the W. The best anchorage lies about 0.6 to 0.7 mile offshore, in depths of 9.1 to 11m, sand and coral, with Ras Qurmah bearing about 055°, distant about 2 miles.

The coast between Ras Qurmah and Ras Taab, about 2 miles ENE, is fringed by a reef which extends about 0.5 mile offshore. This fringing reef continues ESE for a distance of about 3 miles to the bight between Ras Taab and Hebaq (Ras Hebak), about 4 miles ESE. There are three villages along the coast in this bight; a mosque stands in the W village. During the Southwest Monsoon, anchorage is provided in this bight.

Tamrida Bay (12°40'N., 54°01'E.) is entered between Hebaq, bold, vertical and rocky, and Ras Hulaf, about 8 miles ENE. Hadiboh (Tamrida), the capital of Suqutra, stands 2.5 miles E of Hebaq near a river and is surrounded by groves.

Three villages stand within 3 miles E of Hadiboh; a fourth stands 1 mile S of Hebaq. Two white towers and a mosque stand in the latter village.

The high craggy peaks of the mountain range behind Hadiboh are useful in identifying it from seaward. Jabal Haggier, the summit of this range, rises about 3 miles S of the town.

A sand hill, about 3 miles ENE of Hadiboh, appears as a white cliff sloping to the S when seen from the NW at a distance of 10 to 12 miles. This sand hill is prominent and twin-peaked, with a sharp and noticeable dividing line between

them. The E half is composed of yellow sand; the W half consists of brown rock.

10.54 Ras Hulaf (12°42'N., 54°06'E.) is the NW extremity of a low, rounded projection which consists mostly of rolling sand hills covered with bushes. This projection rises gradually inland, its coasts consisting of small rocky points with sandy beaches between them. These sand hills and Ras Hulaf are good marks for identifying Hadiboh when the high mountain peaks are obscured.

Hadiboh consists of a number of white houses around the residence of the Sultan, a few mosques, and a fort. These buildings, the white tower of the mosque on the W edge of the town, and the palm plantation about 0.5 mile E of the town, are good landmarks.

During the Southwest Monsoon, the anchorage is exposed to strong squalls from the mountains. A heavy swell sets in when the wind is well to the W, making good ground tackle necessary.

The bay is particularly unsafe from November to January, when heavy squalls from the N are frequent. February to May is considered the best season. The holding ground in the bay, of sand and stone, has patches of mud.

A good berth, in a depth of 16.5m, can be taken with Ras Hulaf bearing 067° and the large square house in the town bearing about 175°.

A vessel reported anchoring, in a depth of 9.1m, with the mosque at Hadiboh bearing 180°, distant 0.5 mile.

A vessel reported the water in the approach to Hadiboh remarkably clear; when at anchor, in a depth of 12.8m, every detail of the bottom was clearly visible.

Between a point about 3 miles ESE of Ras Hulaf and Rhiy di-Hamri (Ras Dehammeri), about 4 miles farther E, the coast is indented by a small bay, with Bindar Dibni (Bandar Debeni) in its E part. A small mosque, in ruins, or a tomb, stands on the W entrance point of this bay.

A sand hill is reported to stand on the coast, about midway along the shore of this bay. An inlet, closed during the dry season, stands 0.5 mile W of this sand hill. Some trees stand on the banks of a stream at the S end of this inlet.

10.55 Bindar Dibni (Bandar Debeni) (12°41'N., 54°10'E.), the small bay on the W side of Rhiy di-Hamri (Ras Dehammeri), is clear of dangers, except for a rocky spit extending W from the cape.

Rhiy di-Hamri (Ras Dehammeri) (12°40'N., 54°12'E.) is the N extremity of a narrow peninsula extending N from the coast. Two reddish hills, the N hill of the two rising to a height of 40m, stand on this peninsula and are useful in identifying it.

A steep-to rock, with a depth of less than 1.8m, lies close N of the cape; a rocky spit, with a depth of 4.6m, extends about 0.2 mile W from the cape.

Good anchorage can be taken by vessels with local knowledge anywhere near the shore in the W part of the bay. This is the most sheltered anchorage off Suqutra during the Southwest Monsoon.

A good berth is in 12.8 to 16.5m, about 0.5 mile offshore, with the sand hill bearing 180°. Bindar Dibni provides shelter for small vessels, in depths of 5.5 to 6.4m, coral and rock, with

Rhiy di-Hamri bearing about 067°. This position lies SW of the rocky spit extending W from the cape.

10.56 Between Rhiy di-Hamri and **Rhiy di-Hamaderoh** (Ras Hammadara) (12°38'N., 54°13'E.), about 5 miles ESE, rocky points with sandy bays between, extend from the coast at intervals. The latter point is low and rocky.

The bay close E of Rhiy di-Hamri provides sheltered anchorage, during the Southwest Monsoon, in depths of 11 to 18m, about 0.2 to 0.5 mile offshore. An inlet, which almost dries, stands about midway between the above two points and can be identified by some trees on its banks. A fairly steep-to patch of rocks, which almost dries, lie about 0.5 mile NE of Rhiy di-Hamaderoh.

The channel between these rocks and the coastal reef is about 0.1 mile wide, with depths of 5.5 to 9.1m. The coast between Rhiy di-Hamaderoh and Rhiy di-Didum (Ras Daydum), about 8 miles to the E, is marked by occasional rocky points with sandy beaches in between.

There are some date groves along this section of coast. High land, rising to elevations of 305 to 366m, back this coast about 2 miles inland.

With the exception of the rocks off Rhiy di-Hamaderoh, no known dangers exist off this coast. It is not advisable to approach this coast during the Northeast Monsoon.

10.57 Rhiy di-Didum (Ras Daydum) (12°35'N., 54°25'E.), rocky and about 76m high, appears to mark the E boundary of the fertile land, the territory E of it having only a few trees.

Bindar Fikhah (Bandar Faka) (12°33'N., 54°29'E.) is entered between Rhiy di-Didum and a point about 8 miles ESE. The low sandy shores of this bay are backed by fairly high mountains about 0.5 mile inland. Two double sand hills stand about midway along the shore of this bay and are topped by a few trees. A reef extends about 0.5 mile N from the E entrance point of Bindar Fikhah.

Temporary anchorage can be taken in the E part of Bindar Fikhah, sheltered from E winds by the reef mentioned above.

The best anchorage is in depths of 16.5 to 22m, about 0.5 mile offshore, with the outer breaker of the reef mentioned above bearing 045° and the point about 2 miles E of Rhiy di-Didum bearing 287°.

Caution is necessary when rounding this reef because, unless the wind is fresh, the outer breaker, with a depth of 9.1m close to it, is not always visible.

Rhiy di-Momi (Ras Momi) (12°32'N., 54°29'E.), about 6 miles ESE of Rhiy di-Didum, is a sharp high bluff about 274m high and is the E extremity of the mountain range which transverses the island.

In clear weather, this bluff is visible for a considerable distance when the low land near Rhiy di-Irisal (Ras Darisha) is not. The land between Rhiy di-Momi and Rhiy di-Irisal, about 4 miles E, slopes gradually to several small hills about 55 to 61m high.

Rhiy di-Irisal (Ras Darisha) (12°35'N., 54°29'E.), the E end of Suqutra, consists of two rocky projections, about 0.5 mile apart, fringed by a reef. This reef extends about 0.3 mile NNE from its N extremity and about 0.2 mile SE from its S extremity. There are strong tide rips over the former part.

A 9.1m patch and a reef, which dries in places, lie 0.5 mile E and 0.6 mile SE, respectively, of the S end of Rhiy di-Irisal. A heavy sea usually breaks over the reef.

A conspicuous wreck is charted about 2 miles SE of Rhiy di-Irisal.

It has been reported that Rhiy di-Irisal is a good radar target at distances up to 22 miles.

Caution.—The low land at Rhiy di-Irisal is often obscured by haze during the Southwest Monsoon and sometimes by heavy rain squalls during the Northeast Monsoon. This, together with the fact that soundings give no indication of the approach to the cape, makes Rhiy di-Irisal dangerous to approach.

10.58 The S coast of Suqutra is steep, with the depths decreasing gradually toward the shore. No known off-lying dangers exist but overfalls are found in places.

Anchorage can be taken anywhere about 1 mile offshore, in depths of 16.5 to 22m, sand and coral.

Ghubbat di-Net (Ghubbat Nayt) (12°25'N., 53°27'E.), an open bay about 10 miles SE of Ras Shuah, provides anchorage off a village on the S shore during the Northeast Monsoon. A small sand hill stands close N of the NW entrance point of this bay.

The coast between Ghubbat di-Net and Ras Qatanan, about 7 miles SE, is rocky and steep, with several small points and bays. Depths of 3.7 to 11m lie within a few meters off this coast.

Ras Qatanan (12°21'N., 53°32'E.), a vertical bluff, 511m high, appears the same when viewed from the E or W.

Jabal Kuireh (12°21'N., 53°32'E.), a flat-topped limestone range, extends about 5 miles E from Ras Qatanan.

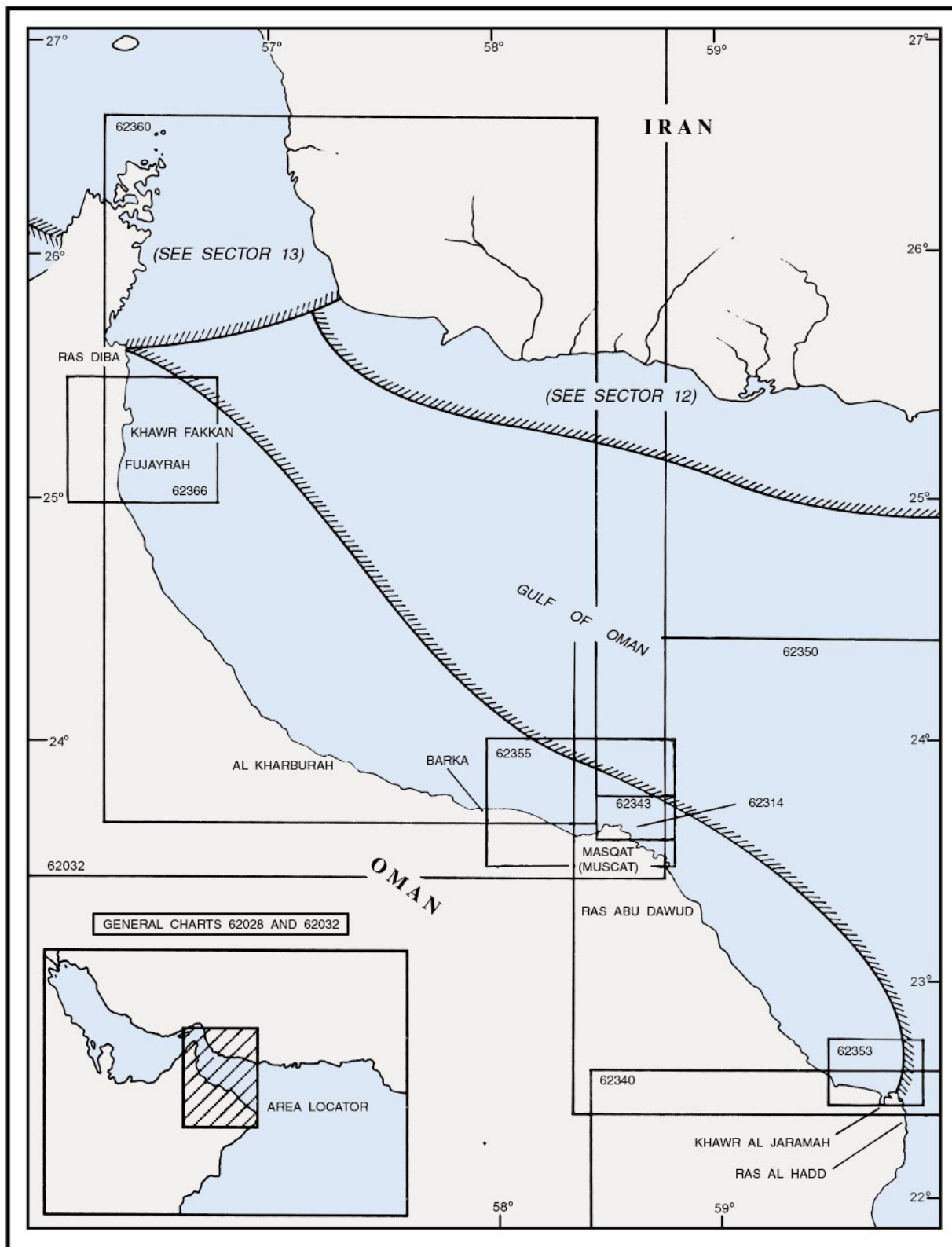
This same range, with different names, parallels the coast a short distance inland for the remaining length of the island. It rises like a wall and is separated in places by a few mountain passes. Nojid (Nawgeed) lies between these mountains and the coast.

Ras Falanj (12°29'N., 54°27'E.), about 31 miles E of Ras Qatanan, appears as a bluff when viewed from any distance to the W; however, on closer approach, it appears as a low point extending SE with a bay on each side.

A steep-to reef, partly above water, extends about 0.2 mile SE from the cape.

A bluff, 458m high, stands about 2 miles W of Ras Falanj, and continues NE as high land to Rhiy di-Momi.

Bindar di-Irisal (Bandar Aرسال) (12°31'N., 54°29'E.), the bay between Ras Falanj and Ras Darishah, provides temporary anchorage in smooth water during the Northeast Monsoon. The best berth lies in the middle of the bay, in a depth of 16.5m.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 11 — CHART INFORMATION

SECTOR 11

OMAN—NORTHEAST COAST—RAS AL HADD TO RAS DIBA

Plan.—This sector describes the NE coast of Oman, on the SW side of the Gulf of Oman, between Ras al Hadd and Ras Diba. The sequence is NW from Ras al Hadd.

General Remarks

11.1 Winds—Weather.—In winter, over the Gulf of Oman, the winds are mainly N, with the prevailing direction NW. Calms are more frequent than in the Persian Gulf; the average wind speed is 7 to 11 knots.

Strong squall winds from the E, accompanied by rain are frequent. In spring, the winds are variable, but in general there is a decrease in the NW winds and an increase in the SW winds until by May SW winds predominate.

The average wind speed is 6 to 10 knots. In June, NW and N winds are still comparatively frequent; however, in July the prevailing winds are from the SE. On the N shores of the Gulf of Oman the early morning winds are from the E. They veer during the day, and by night they blow between SE to SW.

In June, before the Southwest Monsoon becomes fully established over the Arabian Sea, tropical cyclones occasionally form on the Arabian Sea, on the N boundary of the advancing SW winds. These storms have been known to reach the Gulf of Oman giving rise to heavy gales.

In September and October, the frequency of SE winds in the Gulf of Oman gradually decreases, and that of the NW winds increases.

The average wind speed is between 2 to 6 knots. On the coast, the winds are for the most part light and variable, with frequent calms in the early morning.

In the Persian Gulf and the Strait of Hormuz, the hottest months of the year are July and August; the warmest month in the Gulf of Oman is in June, prior to the arrival of the Southwest Monsoon. Over the whole region, January is the coolest month.

Bad visibility in the Persian Gulf and the Gulf of Oman may be caused by early morning fog, salt haze, or dust. Of these, dust is by far the most common. Bad visibility caused by dust haze is more frequent on the S coast of Iran than in the Persian Gulf, and in the latter occurs more often on the Arabian side.

Dust haze may occur in all seasons but is less frequent during and immediately after the winter rains. During the summer months, when the rains cease and the temperature rises, the ground dries up and fine dust is carried into the atmosphere. The amount of dust suspended in the air is increased by vigorous convection and produces a general haziness which diminishes the visibility.

Dust haze occurs most often from May to August. Such haze usually reduces the visibility to between 2 to 6 miles, and the visibility may drop to 0.5 mile. This often occurs on the day following a severe dust storm, albeit the wind at the time may be insufficient to raise dust.

Dust storms and sandstorms occur in all parts and seasons in the Persian Gulf and the Gulf of Oman.

In winter, dust storms are associated chiefly with the passage of W depressions, and in summer with strong shamal winds.

Dust storms are most frequent during the months of June and July. Fog occurs at times near the shores of the Persian Gulf and may be dense. It is present only in the early morning and never lasts more than a few hours.

Tides—Currents.—In the Gulf of Oman, current directions are variable, and velocities may attain up to 1.5 knots; however, they usually do not exceed 1 knot.

In February and March, a branch of the Sonal Current off Ras Al Hadd turns and sets NW along the gulf, turning in the W portion of the gulf, and setting E along the N shore of the gulf.

From April through October, the coastal current from the Arabian Sea appears to extend to the N shore of the gulf where it sets W. The current then turns in the W portion of the gulf and sets SE along the S shore of the gulf.

In November the current appears to set throughout the gulf. In December and January the W current in the Arabian Sea continues along the N shore of the gulf, turns into the W portion of the gulf, and sets SE along the S shore.

Through the Strait of Hormuz, there is a distinct inward flow from the Gulf of Oman during the Southwest Monsoon, and a slight outward flow during the remainder of the year. During this latter period, some water continues to flow into the Persian Gulf; however, these currents tend to hug the Iranian side of the straits.

Tidal currents in the Gulf of Oman are the strongest in its N portion. The flood generally sets NNW, with rates up to 2 knots; the ebb sets SSE, with rates up to 1.8 knots. Along the SW shore, tidal currents are generally negligible.

In the Strait of Hormuz, tidal currents are strong, attaining rates up to 4.8 knots.

Depths—Limitations.—Depths in the Gulf of Oman are generally considerable off the high sections of the coast; along the low-lying portions of the shoreline the depths are not as great. The 200m curve lies 1 mile offshore opposite Ras al Hadd, 4 miles offshore at Masqat, 23 miles offshore at Qalat Kalbah, and 43 miles offshore at Ras Diba. Except for Jazirat al Fahl and Jazair Daymaniyat, the coastal approaches are clear.

In a few places, between As Sib and Qalat Kalbah, shoals lie up to 2 miles offshore but within the 20m curve.

Aspect.—Between Ras al Hadd and Ras al Hamra, 98 miles to the NW, the coast consists of sandy plains alternating with cliffed promontories and backed by the rugged foothills of the Oman Mountains. The sea approaches are very deep and free of all obstructions. In general the coast is steep-to and rocky.

The Eastern Hajar Range closely parallels the coastline; in places these mountains rise to over 2,134m within 20 miles of the shore. High rocky cliffs face the sea throughout most of this sector.

From Ras al Hamra NW for 175 miles to Khawar Fakkan, the low sandy coast forms the E edge of a wide region called

Sahil al Batinah which lies between the steep Eastern Hajar Range and the sea.

The interior is arid and mountainous. Except for the Jazair Daymaniyat, which lie 8 miles offshore some 25 miles WNW of Ras al Hamra, the approaches are clear.

A shoreline of bold, rocky cliffs, with deep water close inshore, extends from Khawr Fakkan N for 17 miles to Ras Diba.

Khawr Fakkan lies between a hilly promontory and a rocky point, 3 miles to the N. From Khawr Fakkan, the low sandy coast continues N.

Pilotage.—Pilotage for the Persian Gulf and the Strait of Hormuz is available from pilots based at Khawr Fakkan and Fujairah (UAE).

Pilots at Khawr Fakkan can be contacted by VHF and board in position 25°24'N, 56°33'E.

Vessels should send their ETA and request for pilotage to "LAMNALCO" through Bahrain Radio (A9M) 72 hours, 48 hours, and 24 hours prior to arrival. Vessels should also maintain a watch on 2182 kHz from at least 24 hours prior to arrival and on VHF channel 16 from at least 12 hours prior to arrival.

Pilots at Fujairah can be contacted on VHF channel 16 or 18 and board in position 25°12'N, 56°36'E.

Vessels should send their ETA and request for pilotage to "Fujairah Marine Services" 72 hours, 48 hours, and 24 hours prior to arrival. Vessels should also maintain a watch on VHF channel 16 from at least 12 hours prior to arrival.

The pilot station can also be contacted via e-mail, as follows:

fujamar@emirates.net.ae
ndadubai@emirates.net.ae

Regulations.—The government of the United Arab Emirates has decided to increase its air and sea surveillance with respect to sea surface oil pollution in light of the recent major international oil spills.

All vessels traversing, or at anchor within, the territorial waters will be obliged to report the sighting of any sea surface oil pollution. Should oil be sighted surrounding any vessel and such vessel has failed to report the presence of the same, the vessel concerned shall be liable to a fine.

Anchorage.—Anchoring within the territorial waters of the State of Sharjah between 25°00'N and 25°06'N, and between 25°19.50'N and 25°24.75'N, is limited to vessels proceeding to the port of Khawr Fakkan or to cargo vessels requiring certain facilities available from the port. Large tankers are not permitted to anchor within 10 miles of the coast.

An anchorage, specially designated for vessels wishing to anchor in the territorial waters of Oman S of 24°00'N, and wishing to perform repairs or waiting for orders, lies in the waters N of Jazirat al Fahl.

Caution.—Numerous oil and gas exploration rigs, with associated pipelines and structures, may be encountered in the waters described in this sector.

Ras al Hadd to Masqat

11.2 Ras al Hadd (22°33'N., 59°48'E.), the S entrance point of the Gulf of Oman, is a low sandy point which is diffi-

cult to distinguish from the adjacent coast lying S and W of the cape. A light, equipped with a racon, is shown from a prominent framework tower, 38m high, standing on the E side of cape.

The N side of Ras al Hadd is steep-to but S of the point depths of less than 20m extend up to about 2 miles offshore.

The strong and variable currents off Ras al Hadd are greatly influenced by the prevailing winds.

Sometimes, generally toward the end of the Southwest Monsoon, while a current sets N along the coast S of Ras al Hadd another current sets SE along the coast between Ras al Hadd and Ras Abu Dawud, about 68 miles to the NW.

These two currents appear to combine and turn NE off Ras al Hadd. This current sets NE at a rate of about 2 knots. It is further augmented by the E tidal current from the Gulf of Oman.

The coast of Oman from Ras al Hadd is generally steep-to. Between the cape and Ras Abu Dawud, the 200m curve lies from 1 to 4 miles offshore.

From Ras Abu Dawud to the village of Yiti, 19 miles to the NNW, the curve lies up to 7 miles offshore and in the vicinity of Masqat 1.5 to 3.5 miles offshore. The few dangers, as well as some of the islands, lie close inshore.

Anchorage is available, in depths of 14 to 18m, coral, 0.5 to 0.7 mile due E of Al Hadd village. The water shoals rapidly from 18m to 9m and the bottom is distinctly visible. The anchorage is open to the sea.

Caution.—An IMO-adopted Traffic Separation Scheme (TSS), which may best be seen on the chart, lies in the waters off Ras al Hadd. The area lying between the W separation limit and the coast has been designated as an Inshore Traffic Zone.

11.3 Between Ras al Hadd and Ras ash Shajar, 40 miles to the NW, the coast is generally steep-to and free of off-lying dangers. Low cliffs and low broken hills comprise the shoreline which is broken by several small inlets. The Jabal Bani Jabir range, with heights up to about 1,371m, backs the coast. Farther inland the mountains attain heights of 1,981m.

Khawr al Hajar (22°32'N., 59°46'E.) is entered between Ras al Hayyah and Ras al Hammah. The entrance is only about 0.1 mile wide but depths shoal rapidly to less than 3m; the greater part of the inlet dries.

Tidal currents near the entrance of Khawr al Hajar set E and W. The E current is weak, but the W current attains a rate of 1.5 knots. Fishing boats shelter here, but the bay is exposed to strong N winds.

Khawr al Jaramah (22°32'N., 59°44'E.) lies 2 miles W of Khawr al Hajar. A narrow tortuous channel, 1 mile long and from 91 to 274m wide, leads between cliffs 18.3m high into the inlet.

Inside the entrance, Khawr al Jaramah opens up, with surrounding cliffs 30 to 60m high and a low sandy beach along the SW shore of the bay. Gusts of wind are prevalent in the channel.

About 0.5 mile inside the entrance, the channel is narrowed to 55m by a shoal extending from the W shore. There is a least depth of 6.4m in the channel but only about 2.1m over the shoal. Tidal currents set through the entrance channel at rates of up to 2 knots.

Directions.—Local vessels, with drafts of less than 4.6m, use Khawr al Jaramah as a harbor of refuge. It is advisable to enter the inlet on the first of the ebb tidal current; at other times the eddies at the bends of the channel make steering very difficult. Gusts of wind are prevalent in the channel.

A conspicuous flat-topped hill on the SW side of Khawr al Jaramah bearing 176° leads to the entrance. This hill should not be confused with the pinnacle-shaped hill, with a flat summit, located a few miles farther to the W.

After entering the channel, keep close to the E shore until past the shoal extending from the W shore. Then proceed in mid-channel, passing NE of the islet at the S end of the channel, into the anchorage area S of the islet.

Khawr al Jaramah should not be entered unless the height of the tide permits the vessel to keep in mid-channel through the entire length of the passage.

Anchorage is available, in 5.5 to 7.3m, in an area about 1 mile long and 0.2 mile wide across the N part of the inlet.

During the Southwest Monsoon, anchorage can be taken, in 21.9m, 0.5 mile offshore, between Khawr al Hajar and Khawr al Jaramah, or about 0.5 mile off the entrance to Khawr al Jaramah in 18 to 22m, mud and sand.

11.4 Ras Sharh (22°34'N., 59°39'E.), a slightly projecting point, lies 4.5 miles W of Khawr al Jaramah; cliffs comprise the intervening coast. From this point to Sur, 6 miles farther W, the coast consists of low broken hills with cliffs, interrupted in places by sandy beaches.

Sur (22°34'N., 59°32'E.) has two settlements, one on each side of Wadi Fulayj, a narrow entrance channel leading into an extensive inlet which nearly dries. Ayqah (Aika) is located on the E side; Muqraymatayn (Umm Kareimatein) is on the W side.

Anchorage is available, in 14.6m, sand, with the E entrance point of Wadi Fulayj bearing 178°, 0.6 mile distant. It is not advisable to anchor closer in, as a heavy swell makes up quickly. A 4.7m patch lies 0.3 mile NNE of Ra's Ayqah.

It was reported (2001) that a fishing harbor, protected by breakwaters, has been constructed on the W side of the entrance to the inlet.

Qalhat (22°42'N., 59°23'E.), a small village, lies about 11 miles NW of Sur. Local small craft shelter in the lee of a small projecting point close inshore of Qalhat. Qalhat is sometimes mistaken for Tiwi, another village 11 miles farther to the NW.

11.5 Qalhat LNG Terminal (22°41'N., 59°24'E.) (World Port Index No. 48240) is situated about 1.4 miles SE of the village. The terminal consists of two T-shaped jetties extending

about 0.2 mile from shore in a semi-protected bay open to the sea.

Oman LNG Home Page

<http://www.omanlng.com>

Winds—Weather.—The terminal is sheltered, by the mountains to the S, from the strong winds of the Southwest Monsoon during the summer (June to September). During the remainder of the year, the terminal is exposed to the Northeast Monsoon.

Tides—Currents.—Currents are mainly tidal, but can be affected by the wind if blowing from the same direction for an extended period of time. Currents, which run parallel to the berthing face, are NW on the flood tide and SE on the ebb tide and rarely exceed a rate of 0.4 knot.

Depths—Limitations.—The LNG Jetty can accommodate vessels up to 125,845 dwt, with a maximum length of 310m and a maximum draft of 12.1m.

The MOF Condensate Jetty can accommodate vessels up to 13,000 dwt, with a maximum length of 140m and a maximum draft of 7.7m. An underkeel clearance of 2m is required to be maintained at all times.

Weather conditions which limit terminal operations are given in the accompanying table.

Aspect.—A conspicuous flare, 106m in height, is located in the terminal.

Pilotage.—Pilotage is compulsory for all vessels using the terminal. The pilot boards in position 22°43.0'N, 59°27.5'E. Berthing and unberthing can be done 24 hours.

Regulations—Vessels must send their ETA when departing their previous port. The ETA should also be sent 96 hours, 48 hours, 24 hours, and 5 hours prior to arrival. Any changes to the vessel's ETA should be sent, as follows:

1. A change of more than 12 hours from the initial ETA sent from the departure port.
2. A change of more than 6 hours following the 96-hour message and before the 24-hour message.
3. A change of more than 2 hours following the 24-hour message.

Anchorage.—Anchorage can be obtained about 2 miles E of the LNG Jetty, in a bottom of mud, sand, and shingle. Permission from the terminal is required to anchor.

Caution.—Fishing activity, mainly during the hours of darkness, occurs in the approaches to the terminal. Drift nets in excess of 1,000m long are used; both the nets and the fishing boats setting them are poorly lit. Because of this, approaching and departing the terminal should be made with caution, preferably maintaining a NE or SW course, as appropriate, until well clear of the coast.

Qalhat Terminal Operating Limitations			
	Wind speed	Wave height	Visibility
LNG Jetty			
Berthing	25 knots	2.0m	1 mile
Cargo operations	35 knots	2.0m	—

Qalhat Terminal Operating Limitations			
	Wind speed	Wave height	Visibility
Disconnection of loading arm	40 knots	2.0m	—
Unberthing	25 knots	2.0m	—
MOF Jetty			
Berthing	25 knots	1.0m	1 mile
Cargo operations	35 knots	1.0m	—
Disconnection of loading arm	40 knots	1.0m	—
Unberthing	25 knots	1.0m	—

Ras Ash Shajar (22°56'N., 59°12'E.), a low sandy cape, is well-defined only from close in. A shoal extends 0.5 mile offshore from the cape.

The mountains recede from the coast for a distance of 3.5 miles on both sides of the cape. During a shamal, small craft shelter very close inshore SE of the cape.

11.6 Ras Abu Dawud lies 28 miles NW of Ras ash Shajar. Low cliffs front the first 18 miles of this stretch of coast, which then becomes low and sandy until within 2 miles of Ras Abu Dawud, where it turns rocky.

About 10 miles NW of Ras ash Shajar, the Jabal Bani Jabir range recedes from the coast in a WNW direction and ends abruptly about 12 miles inland in a large bluff, which forms the SE entrance point to Wadi Hayl al Ghaff (Devil's Gap). This great valley stretches SW between two mountain ranges.

Jabal Qaryat (Qurayyat) rises to a height of 1,899m on the N side of Wadi Hayl al Ghaff. The peak is located at the S end of the mountain range extending NW from Wadi Hayl al Ghaff.

Daghmar (23°13'N., 58°59'E.), a small fishing village, is located on a prominent hill.

Foul ground extends up to 0.5 mile offshore from the point to a position 3 miles to the NW. A low, sandy point lies about 1.5 miles N of the village.

Qurayyat (23°16'N., 58°55'E.), a village, is located about 5 miles NW of Daghamar, on a sandy foreshore, at the foot of Jabal Abu Dawud.

Anchorage is available 1.5 miles offshore at Qaryat al Kabirah, in 22m, sand, with the rocky islet off the mouth of the inlet, close S of the village, bearing 227° and Ras Abu Dawud bearing 337°. Anchorage can be taken, in a depth of 9m, 0.2 mile offshore between the village and Ras Abu Dawud.

It was reported (1995) that a small fishing harbor, protected by breakwaters, was under construction in the vicinity of Qurayyat.

11.7 Ras Abu Dawud (23°19'N., 58°55'E.) is steep, rocky, broken up into several points, and not easy to identify from a distance. A rocky islet, 30m high, lies 0.1 mile N of the point.

During a shamal, small local vessels shelter in the small bay close S of the cape.

Cliffs front the shoreline for 4 miles NW of Ras Abu Dawud. From there to the village of As Sifah, 6.5 miles farther to the NW, the coast is low and sandy. In the vicinity of As Sifah the

coastal range swings inland, leaving a plain between the shore and the mountain.

Masqat lies 15 miles NW of As Sifah; the intervening coast consists almost entirely of cliffs alternating with sandy bays and inlets.

A range of rugged hills which extends to Ras al Hamra, about 5 miles WNW of Masqat, backs this stretch of the coast.

Jabal Abu Dawud, a detached light-colored mountain, rises abruptly from the coast in the vicinity of Ras Abu Dawud to a height of 1,219m.

A wide valley lies between this mountain and the range farther inland. From a distance, approaching from the SE, Jabal Abu Dawud presents an irregular outline; it appears as an island, steep on its seaward side with a long slope to the W.

The foot of Jabal Abu Dawud extends for 8 miles along the coast.

11.8 Ras al Khayran (23°31'N., 58°45'E.), a light-colored cliff, 18m high and backed by light-colored hills, lies 5 miles NNW of As Sifah. Four small sandy bays lie SE of the point.

Bandar al Khayran (Khairan) (23°31'N., 58°44'E.), a small harbor frequented only by fishing craft, is located S of the W of two islands lying close off the mainland immediately W of Ras al Khayran. The two islands are similar in appearance and are difficult to distinguish.

Yiti (23°33'N., 58°42'E.), a small village on the shore of a small sandy bay, is located about 3 miles WNW of Bandar al Khayran.

Hassar Shaikh Rock, 24m high, and a smaller rock, 15m high, to the E, stand on the foreshore of Yiti. These rocks appear black against the light-colored hills inland and are conspicuous.

Bandar Jissah (23°33'N., 58°39'E.), a small bay 2 miles N of Yiti, is difficult to distinguish from more than 1 mile offshore. A small steep islet, 48m high, divides the entrance to this bay into two channels.

The E channel is 0.3 mile wide, with a least depth of 12.8m in the fairway. The W channel is nearly blocked by a flat rock, with depths of only 2.7m on each side.

Anchorage is available in Bandar Jissah, in 7.3 to 12.8m; the greatest depths lie just inside the E entrance.

From Bandar Jissah to Masqat, 5 miles to the NW, a succession of rocky-cliffed headlands fronts the coastline, which is broken by small sandy bays and backed by numerous hills.

11.9 Jabal Bardah (Saddle Hill) (23°35'N., 58°36'E.), about 4 miles WNW of Bandar Jissah and about 2 miles inland, rises to a height of 408m. Two sharp peaks form the summit of this dark rugged mountain. In range, the peaks bear 250°; from the N, the peaks appear farther apart and are less conspicuous.

Ras al Kanada (23°37'N., 58°37'E.), about 4 miles NW of Bandar Jissah, terminates in a cliff, 76m high, with Pillar Rock, 31m high, about 0.1 mile to the N. Two small rocks lie 91 and 183m offshore from a point about 0.2 mile NW of Pillar Rock.

Jazirat Masqat (Muscat Island) (23°37'N., 58°36'E.) has a steep rocky shoreline; the W side of the island forms the E side of Khawr Masqat.

Caution.—A disused explosives dumping area, the limits of which may best be seen on the chart, lies about 17 miles ENE of Jazirat Masqat.

Masqat to Dawhat Dabbah

11.10 Between Ras Masqat and Ras ash Shutayfi, 1.5 miles to the WNW, the coast is broken by five bays; Khawr Masqat and Dawhat Matrah are the largest. From Ras Shutayfi the coast turns W for about 4 miles to Ras al Hamra.

Several small bays, separated by rocky headlands and encumbered with off-lying rocks, indent the shoreline. From Ras al Hamra, the coast continues W, then N for 190 miles, to Ras Diba.

Sahil al Batinah is that section of the coast lying between a position 15 miles W of Ras al Hamra and a position 135 miles farther to the WNW.

Ash Shamailiyah is the area comprising the remaining coastal section as far N as Ras Diba. The coast of Sahil al Batinah is sandy, with occasional sand hills; the general elevation along this whole section is about 8m. Inland, the country is mostly level for a distance of 12 miles.

Off Ash Shamailiyah, the terrain changes; the shoreline is fronted with cliffs and broken by sandy bays. Inland, the coastal plain narrows gradually until about midway along this section, where the hills slope downward to the shore.

Tides—Currents.—The W portion of the Gulf of Oman lies outside the region of alternating monsoon winds and possesses no currents related to them. The currents that do exist are variable and exceed 1 knot.

During the period from April to August, evidence indicates that currents set into the Gulf of Oman in directions between N and W; similarly, there appears to be a current setting out of the gulf during the period October to January.

Depths—Limitations.—Between Masqat and Ras as Sawadi the 200m curve lies about 5 to 15 miles offshore.

From NW of Ras as Sawadi, the curve parallels the coastline, at a distance of 13 to 16 miles, to the vicinity of Al Murayr, where it widens gradually to about 43 miles offshore at Ras Dabbah.

The Jazair Daymaniyat are the only off-lying dangers along this part of the coast. This area has not been thoroughly

surveyed and the harbors and inlets are suitable only for small local craft.

11.11 Ras Masqat (23°38'N., 58°37'E.) is the N extremity of Jazirat Masqat and the E entrance point of Khawr Masqat. It is a round sloping bluff, with cliffs to the S of it. The bluff is fronted by a reef, which is marked to the N by a lighted buoy. Fisher's Rock, 3m high, lies close N of the bluff.

A light, equipped with a racon, is shown from a tower standing on the N summit of the island, 0.1 mile S of Ras Masqat. A prominent tower is situated on the NW extremity of the island, W of the light.

Masqat (Muscat) (23°37'N., 58°37'E.), the capital, has ceased to be a commercial port. It is now served by the modern port of Mina Qabus (Port Sultan Qaboos) in Dawhat Matrah, 1.3 miles W of Ras Masqat.

Khawr Masqat, the site of the former port at the W side of Jazirat Masqat, now lies within a prohibited area.

Qal at Jalali, a fort, stands on a small hill, 46m high, about 0.5 mile S of Ras Masqat Light. It has been restored and is conspicuous, especially in the morning sun against the dark land behind it. The fort is illuminated at night.

The Royal Palace, an prominent gold and blue building, stands 0.2 mile WSW of Qal at Jalali at the head of Khawr Masqat. It is the largest structure situated along the seafront. The roof is flat and surmounted by a flag staff.

Hisar Mirani, a fort, stands close NW of the palace. It has three towers and a battery on the shore below it. This fort, which is illuminated at night, is conspicuous.

Sirat al Gharbiyah, another prominent fort, stands on a small promontory at the W side of Khawr Masqat, 0.4 mile SW of Ras Masqat Light. It is reported to be radar conspicuous.

Mina Qabus (Port Sultan Qaboos) (23°37'N., 58°34'E.)

World Port Index No. 48250

11.12 Mina Qabus, located on the NW side of Dawhat Matrah, is protected on the N by a breakwater extending SE from Ras Kawasir. The approaches to the port are contained within a prohibited anchorage area, which may be best seen on the chart.

Mina Qabus Home Page

<http://www.pscoman.com>

Winds—Weather.—The prevailing winds are NW and SE, with winter winds out of the SW and W and summer winds from the E. During January and February, the winds are fresh with some rainfall.

The fine weather experienced from March to May becomes very hot during the months of June through September.

Mina Qabus—Berthing Facilities			
Berth	Length	Depth	Remarks
No. 1	286m	13.0m	Multi-purpose berth. See Note.

Mina Qabus—Berthing Facilities			
Berth	Length	Depth	Remarks
No. 2	183m	13.0m	Multi-purpose berth. See Note.
No. 3	228m	10.2m.	Bulk cargo.
No. 4	183m	10.9m	Containers. See Note.
No. 5	183m	10.9m	Containers. See Note.
No. 6	198m	9.6m.	General cargo.
No. 7	183m	9.6m	General cargo. See Note.
No. 8	183m	9.6m	General cargo. See Note.
No. 9	122m	4.0m	Private berth.
No. 10	183m	4.0m	Private berth.
No. 11	183m	9.0m	Private berth.
No. 12	160m	8.0m	Private berth.
No. 13	152m	2.2m	Private berth.
Note. —These berths are in line. Larger vessels can occupy part of a second berth, if necessary.			

October brings the return of fine weather, with gradually cooling temperatures continuing until December. Strong shamals occur at all times of the year.

Winds of any force from NW to NE raise a considerable sea and swell in Khawr Masqat and Dawhat Matrah.

Tides—Currents.—The tides generally rise about 1.4m while spring tides rise 1.9m. A strong SE set, with a rate of up to 4 knots, has been reported to exist in the approach to the port.

Depths—Limitations.—The seaward approaches to the harbor are deep and clear of dangers, with the 20m curve lying about 0.2 mile NE of the breakwater head. The harbor entrance channel has a depth of 13m.

The outer part of the harbor has a dredged depth of 13m (1994). The center part has a dredged depth of 9m and the inner part has a dredged depth of 8m.

The port provides a total of 13 commercial berths, nine of which can accommodate ocean-going vessels. Berthing information is given in the accompanying table.

The port has facilities for container, general cargo, and ro-ro vessels. Vessels up to 260m in length, with a maximum beam of 38m and a maximum draft of 12.5m, can be accommodated.

Aspect.—A number of conspicuous silos stand in the NW part of the port, about 0.5 mile WNW of the breakwater head. Two prominent gantry cranes stand on the container quay, about 0.3 mile W of the breakwater head.

A conspicuous observation tower, 68m high, stands close S of Ras al Baz, about 0.5 mile SE of the breakwater head. It is illuminated at night.

For additional landmarks in the vicinity of Khawr Masqat, see paragraph 11.11.

For information on Jazirat al Fahl, see paragraph 11.14.

Pilotage.—Pilotage is compulsory for commercial vessels over 150 nrt and is available 24 hours. Pilots can be contacted

on VHF channel 14 and board between 0.7 and 1 mile NE of the breakwater head.

Regulations.—Vessels must send an ETA and request for pilotage through the agent 72 hours, 48 hours, and 24 hours in advance. The message must include length, draft, grt, and nrt.

Vessels should establish contact with Port Control 30 minutes before arrival on VHF channel 14 or 16, giving the following information:

1. Vessel name.
2. Flag.
3. Arrival draft, gross tonnage, nrt, and loa.
4. Last and next ports of call.
5. Type and tonnage of cargo for discharge and loading.

During major dredging operations, inbound vessels must contact the port control and confirm their ETA when 5 miles from the breakwater.

Special regulations are in force concerning dangerous or hazardous cargo. Vessels should be well-acquainted with these regulations before berthing.

Anchorage.—A designated waiting anchorage, the limits of which may best be seen chart, lies centered about 1 mile NNW of the breakwater. This anchorage is for vessels awaiting instructions within the territorial waters of the Sultan of Oman and no other anchorage may be used. All vessels intending to use this anchorage must contact Port Sultan Qaboos Port Control to request anchorage and give the following information:

1. Flag or port of registry.
2. Call sign, dwt, nrt, and grt.
3. Ports of call, including last port and next port.
4. Dangerous or hazardous cargo on board.

All vessels must be represented by a local agent before permission for anchoring will be granted.

Special regulations are in force for all vessels using the anchorage, and are subject to harbor dues, except for tankers waiting to proceed to the SBM moorings.

Directions.—Approaching from N or W, all vessels must steer to pass N and at least 1 mile E of Fahal Fairway Lighted Buoy (23°40.9'N., 58°32.6'E.), which is moored 2 miles E of Jazirat al Fahl. They must then remain at least 1 mile E of the lighted buoy before making the approach to the pilot boarding position in order to ensure adequate clearance from the tanker moorings in Mina al Fahl.

Under no circumstances should vessels approach or enter Khawr Masqat or wait in the prohibited anchorage area.

Mina al Fahl (23°39'N., 58°32'E.)

World Port Index No. 48255

11.13 Mina al Fahl, located in a shallow bight about 3 miles W of Mina Qabus (Port Sultan Qaboos), is centered within a Restricted Area, which may best be seen on the chart.

Winds—Weather.—See Mina Qabus (Port Sultan Qaboos), in paragraph 11.12.

Tides—Currents.—Spring tides rise about 3m.

Depths—Limitations.—Three SBM tanker berths, which may best be seen on the chart, lie up to 2 miles N of the coast and are connected to the shore facilities by submarine pipelines. Berthing limitations are given in the accompanying table.

There are also two inshore mooring berths for coastal tankers with drafts up to 4.5m.

Mina al Fahl—Berthing Limitations			
Berth	Depth	Vessel size	Maximum draft
SBM No. 1	34m	350,000 dwt	18.5m. See Note 1.
SBM No. 2	43m	554,000 dwt	See Note 2.
SBM No. 3	20m	100,000 dwt	14.0m
Note 1. —This is the maximum berthing draft. The maximum departure draft is 21.5m.			
Note 2. —No draft limitations.			

Aspect.—Numerous oil tanks line the shore in the vicinity of the port. Radio masts are charted about 2 miles ESE of Ras al Hamra. Six chimneys and a flare are charted, respectively, about 0.1 mile E and 0.5 mile SW of the radio masts.

Pilotage.—Pilotage is compulsory for tankers. Pilots can be contacted on VHF channel 12 and board about 1.5 miles NE of Jazirat al Fahl or 1 mile E of Fahal Fairway Lighted Buoy (23°40.9'N., 58°32.6'E.), depending on the current.

Regulations.—Vessels must send an ETA and request for pilotage 5 days, 96 hours, 72 hours, 48 hours, and 24 hours in advance to PETROMAR MUSCAT by telex or fax. Any change in excess of 2 hours must also be sent.

Vessels must then contact Fahl Control (Fahal Control) 2 hours prior to arrival on VHF channel 12.

The 5-day message must include the following:

1. Vessel's ETA (local time and date).
2. Time vessel will tender Notice of Readiness, if different from the ETA.

3. Confirmation that vessel is fully inerted to Oman Petroleum requirements.

4. Last port of call.

5. Next port of call.

6. Quantity of cargo required.

7. Time requested for deballasting prior to loading.

8. Maximum draft on arrival and trim.

9. Maximum draft on departure.

10. Safe working load of crane or hose-handling derrick.

11. Number, type, size, and safe working load of bow-stoppers for securing SBM mooring chains.

12. Bow to manifold distance in meters.

13. Flag of vessel.

14. Master's name.

15. Any deficiencies affecting performance.

16. Statement from master stating all lifting gear to be used is in good working order, with up-to-date certifications

17. Whether any maintenance or repairs planned in the anchorage.

18. Vessel's nrt.

19. Maximum hydrogen sulfide levels (parts per million in vapor) in vessel's cargo tanks.

20. Maximum loading rate with only one hose connected.

21. ISPS security level.

All vessels, whether in port or waiting off the port, should maintain a continuous listening watch on VHF channel 12. During loading operations, contact is made via a shore-provided UHF radio, with VHF channel 12 for back-up.

It has been reported VHF communication extends up to 80 miles N of the port, but only 20 miles E of the port.

The loading facilities are enclosed within a restricted area, which extends up to 3 miles seaward. Unless proceeding to the offshore terminal berths, all vessels must stay N of the Fahl Fairway Lighted Buoy and Jazirat al Fahl.

Anchorage.—An anchorage area, the limits of which may best be seen on the chart, lies centered 5 miles W of Jazirat al Fahl. The port control will assign anchorage berths, as appropriate. In all cases, tankers are required to anchor at least 2 miles clear of the coast.

Caution.—Several obstructions and areas of foul ground lie on the bottom in an area 1.5 to 3.5 miles W of Jazirat al Fahl and may best be seen on the chart.

11.14 Ras al Abyad (23°39'N., 58°30'E.), a sloping point, forms the W entrance point of Mina al Fahl.

Jazirat al Fahl (23°41'N., 58°30'E.) lies about 2 miles N of Ras al Abyad. The island is 85m high, steep-to, and precipitous. Cliffs overhang all but the SW extremity and the light color of the island shows up well against the mainland.

A light is shown from a framework tower, 6m high, standing near the center of the island.

The deep passage lying between this island and the coast is free of dangers.

Ras al Hamra (23°39'N., 58°29'E.), about 0.5 mile W of Ras al Abyad, is a red cliffy point, 46m high.

A desalination plant, which consists of a prominent building, six tall conspicuous chimneys, and associated storage tanks, stands close inland, about 5 miles WSW of this point. A jetty extends 0.5 mile N from the coast in the vicinity of the plant.

A prominent hotel stands 2 miles SW of Ras al Hamra. At night, the domes of the hotel are illuminated.

Between Ras al Hamra and As Sib, 18 miles W, the coastline recedes slightly to form the bight of Ghubbat al Hayl. Several small villages stand along this stretch of coast.

As Sib (23°41'N., 58°10'E.), which is difficult to identify, affords exposed anchorage, in a depth of 9m, sand, about 0.5 mile offshore. There is no shelter at all.

An international airport is located 1.5 miles inland, about 7 miles SE of As Sib.

Ras al Ghaf (Ras al Qaf) (23°42'N., 58°05'E.) is a broad, low point about 5 miles WNW of As Sib. A sandy shoal, with depths of 3.6m, lies 1.5 miles offshore N of Ras al Ghaf.

A prominent group of buildings, enclosed by a white wall, is situated at Bayt al Barakat, 1 mile W of Ras al Ghaf.

Caution.—A prohibited area, which may best be seen on the chart, extends up to 2.5 miles seaward from the shore in the vicinity of Ras al Ghaf.

11.15 Jazair Daymaniyat (23°50'N., 58°04'E.), known locally as Saba Jazair, consists of several groups of islands, islets, and rocks. These groups lie 7 to 9 miles offshore and parallel the coast for a distance of 12 miles to the W of As Sib. They are without water and are quite barren.

The 200m curve lies 5 to 6 miles N of the islands; the depths for several miles S of them are fairly regular, with depths of less than 30m. The bottom is mainly sand, mud, and shells. These islands form a nature reserve and are contained within a Restricted Area; they may not be approached within 2,000m without a permit.

The E group consists of Jazirat Kharabah, the E island, located 8.5 miles N of As Sib, and the detached rocks lying off of it. The island is 9m high and consists of black rocky points separated by white sandy beaches. A reef extends off the N and E sides. A depth of 3.4m lies 1.5 miles WSW of Jazirat Kharabah.

The middle group consists of seven islets and some detached rocks. The two largest islets are 16m and 25m high, with low light-brown cliffs, and are difficult to distinguish at night. The E islet in the group lies 3 miles WNW of Jazirat Kharabah. These islets are reported to be steep-to, with no off-lying shoals.

A light is shown from a metal tripod standing at an elevation of 27m on the summit of the W islet of the middle group. A racon is situated at this light.

The W group, located 4 miles WSW of the W islet in the middle group, consists of Jazirat Jun and three rocks. There are depths of 30m in the danger-free passage separating the W and middle groups. Jazirat Jun, light brown and difficult to see at night, is about 30m high near its W end.

Anchorage is available off a small sandy beach on the S side of the islet, in 12.8m, sand. This anchorage is sheltered from the N, although considerable swell sets around the islets during strong winds.

A rocky depth of 7.8m lies 0.5 mile S of Jazirat Jun. A rocky spit with depths of 3.2m extends SE for about 0.1 mile from the W rock in this group.

Clive Rock (23°50'N., 57°57'E.), a coral rock lying about 1 mile WNW of Jazirat Jun, has a least depth of 3.1m.

There are depths of about 25 to 35m at a distance of 0.5 mile from the rock. Clive Rock is visible under most conditions as a green patch.

Caution.—A nature reserve area, which may best be seen on the chart, encloses Jazair Daymaniyat. Fishing other than by local boats, anchoring, diving, and approaching within 200m of any island are prohibited.

11.16 Barka (23°42'N., 57°54'E.) is located about 10 miles W of Ras al Qaf. The town extends along the coast for about 3 miles. A conspicuous building with four towers stands in the center of the town.

Anchorage is available, in a depth of 9m, sand, 1 mile offshore. The open roadstead is unprotected. Depths decrease gradually toward the shore, but irregular depths of 9.1 to 16.5m extend NE from the anchorage for 3 miles.

Ras Suwadi (Suwadi Point) (23°57'N., 57°48'E.) is a low, sandy point located about 7 miles WNW of Barka.

Jazair Suwadi (23°57'N., 57°48'E.), seven in number, all lie within 1 mile of Ras Suwadi. Jabal Add, the largest and farthest E, is a table-topped islet, 87m high.

Cliffs front the seaward side of Jabal Add; there is a small sandy bay on the W side. The drying channel between the islet and Ras as Sawadi is only 0.2 mile wide. The other six islets are precipitous, with heights ranging from 15 to 37m.

Wudam (Said Bin Sultan Naval Base) (23°50'N., 57°32'E.) is the principal operational base for Oman's navy; there are no commercial berths or facilities. The principal berth for visiting vessels lies alongside the Operational Jetty, on the S side of the harbor.

Entry is restricted to authorized vessels only. Pilotage is not normally available. Authorized vessels should contact the base on VHF channel 74 when 2 miles from Fairway Lighted Buoy.

The berths along the outer face are reported to be dredged to a depth of 7m (1995). Two breakwaters enclose a basin about 0.6 mile in extent. The harbor is approached through a channel dredged (1992) to a depth of 8.5m. It is reported that the main harbor basin has been dredged (1995) to a depth of 6.5m.

A light, equipped with a racon, is shown from the head of the NW breakwater. A lighted fairway buoy is moored about 1.3 miles NE of the NW breakwater head. The entrance fairway is indicated by directional sector lights, ranges, and lighted beacons, which may best be seen on the chart.

The tidal currents in the vicinity of the harbor are weak.

A prominent water tower, 27m high, stands close S of the root of the NW breakwater. A prominent radio mast, 54m high, stands near the root of the SE breakwater. A stadium, 41m high, and a water tower, 32m high, are situated 0.2 mile S of radio mast. A conspicuous yellow building, a covered repair shed, stands on the S side of the harbor.

A conspicuous yellow minaret, with a white balcony and a green cupola, stands close to the shore in the center of Wudam Sahil, a fishing village located 1.5 miles SE of the harbor.

Caution.—Anchorage is prohibited within an area, shown on the chart, extending up to about 5 miles offshore in the vicinity of the harbor.

A restricted area extends up to 1.5 miles offshore in the vicinity of the harbor and may best be seen on the chart. Entry is prohibited without authority, other than for emergency or stress of weather, in this area.

11.17 As Suwayq (As Suwaiq) (23°51'N., 57°27'E.) is located about 5 miles W of Wudam. A large and prominent fort stands in the middle of the town. Two hills, light yellow and 213 to 300m high, stand 16 miles SW of the town and show up well from seaward against the dark mountains inland.

Al Khaburah (24°00'N., 57°06'E.), one of the most important towns on this coast, extends for 1 mile along the shore. A prominent fort, with two partly ruined towers, stands near the center.

Makhailif (24°07'N., 56°57'E.) is a small town. A conspicuous high fort stands in its vicinity and is the most prominent landmark along this coast.

Saham, a large inconspicuous town, is situated 4 miles NW of Makhailif. Some of the buildings and a tower, 137m high, are prominent from seaward.

11.18 Suhar (As Suhar) (24°23'N., 56°45'E.) lies 30 miles NW of Al Khaburah. A T-headed jetty, used for the export of bulk solid commodities, extends about 0.7 mile from the shore, about 1.8 miles NW of the town. The berth, 110m long, is reported to handle vessels up to 10,000 tons.

A prominent tower, 33m high, stands in this town and is sighted before the date groves which are continuous in this area. A prominent radio mast is situated 6 miles S of the town.

Anchorage.—Anchorage is available at Suhar, 1 mile offshore, in a depth of 9m, sand. Depths shoal gradually toward the shore.

11.19 Jabal Suhar (Hura Bargha) (24°17'N., 56°33'E.), located about 12 miles WSW of the town, rises from the plain between the shore and the mountain range farther inland. The conical peak is 511m high, light brown in color, and, when visible, a good landmark. When bearing less than 225°, this peak appears triangular in shape.

Majis (24°28'N., 56°40'E.) is a town with a conspicuous white minaret at its NW end. In the center of the town is a long low inconspicuous fort with a square tower at its NE corner.

A marine farm, marked by a light, is situated about 3 miles offshore in the vicinity of the town.

Shinas (Ash Shinas) (24°46'N., 56°29'E.), a small town, is located about 27 miles NW of Suhar. An inlet used by dhows is entered 1.5 miles N of Shinas; it extends parallel with the shore fronting the town.

Anchorage is available a short distance N of the town off the mouth of the inlet, in a depth of 9m. The depths shoal gradually toward the shore.

It is reported (1998) that a fishing harbor, protected by breakwaters, is being constructed in the vicinity of Shinas.

Khatmat Malahah (24°59'N., 56°21'E.) is a dark ridge of hills sloping down to the coast. The border between Oman and United Arab Emirates lies in the vicinity of this ridge.

Khawr al Kalba (25°02'N., 56°22'E.) is a village standing on the N side of a creek. Breakwaters extend about 900m ENE from each side of the creek to form a small craft harbor.

Kalba, a large village, stands 3 miles N of Khawr al Kalba; a large prominent building with a tower, which resembles a castle, is situated in it.

It is reported (1998) that a fishing harbor, protected by breakwaters, fronts the shore at Kalba.

Caution.—It is reported (1999) that construction of the Port of Sohar (24°31'N., 56°35'E.) is being carried out in an area extending up to 10 miles from the shore, about 15 miles SSE Shinas. It has been reported (2003) that the first phase of the project, consisting of two tanker berths, with a total length of 850m and a depth alongside of 17m, has been completed.

11.20 Sohar (24°31'N., 56°38'E.) is a major new port area under construction about 4 miles NW of Majis.

Sohar Home Page

<http://www.portofsohar.com>

Winds—Weather.—Winds are light to moderate; the prevailing winds are from between NE and SW. Summers are hot, with high humidity. Winters are much cooler.

Tides—Currents.—Tidal currents are variable and light, with speeds of 0.25 to 0.75 knots.

Depths—Limitations.—The port is approached through a buoyed channel with a least depths of 15.6. Only one-way traffic is permitted in the channel. The harbor basin has a dredged depth of 16.0m (2002).

Information on berthing facilities under construction is given in the accompanying table. All berths will have an alongside dredged depth of 16.5m.

At the S end of the harbor basin, six additional berths, which will have an alongside depth of 16.5m, are also under construction.

It has been reported (2003) that the first phase of the project, consisting of two tanker berths, with a total length of 850m and a depth alongside of 17m, has been completed.

Sohar Port Facilities				
Berth	Maximum vessel			Remarks
	Size	Length	Beam	
Jetty A				
Berth 1	40,000 dwt	180m	32m	Under construction on the E breakwater.
Berth 2	40,000 dwt	180m	32m	
Jetty B				
Berth 1	40,000 dwt	262m	38m	Under construction on the E breakwater.

Sohar Port Facilities				
Berth	Maximum vessel			Remarks
	Size	Length	Beam	
Jetty C				
Berth C1a	107,000 dwt	268m	43m	Under construction on the E breakwater.
Berth C1b	107,000 dwt	268m	43m	
Berth C2a	80,000 dwt	262m	38m	Under construction on the E breakwater.
Berth C2b	80,000 dwt	262m	38m	
Aluminum Quay				
Berth 1	—	—	—	Under construction on the S side of the E breakwater. Berth lengths will be 225m.
Berth 2	—	—	—	

Aspect.—The W breakwater is 3,063m long; the E breakwater is 2,931m. The head of each breakwater is marked by a light.

Pilotage.—Pilotage is compulsory for all vessels except for naval vessels, government vessels, or any vessel exempted by the harbormaster. Pilots should be requested from the harbormaster, via the vessel's agent, at least 3 hours before pilotage is required. The pilot boards in position 24°33.3'N, 56°37.7'E

Regulations.—Vessels send their ETA to the harbormaster 72 hours and 24 hours prior to arrival. The ETA is confirmed with the harbormaster 4 hours prior to arrival; the confirmation message will include the following information:

1. Vessel name and call sign.
2. Port of registry.
3. IMO number.
4. Master's name.
5. ETA and anticipated draft at departure.
6. Length overall.
7. Gross tonnage.
8. Cargo, with IMDG specifications, if applicable.
9. Insurance.
10. Quality vessel certificates, with company, place of issue, and date of issue.
11. Sohar Port tenant being called on.
12. Last ports of call.
13. Maximum loading rate.
14. Deballasting requirements.
15. Any crew changes, bunkering, stores, or medical assistance required.

Vessels should contact the harbormaster on VHF channel 16 or 71 to obtain permission to enter or leave the port.

Vessels may not enter the charted restricted area without a pilot on board.

Departing vessels normally have the right-of-way in the approach channel over arriving vessels.

Vessels over 70m long or greater than 200 gross tons are required to use tugs when entering and departing the port and when berthing or unberthing.

Vessels shall notify the harbormaster at least 1 hour prior to departing the port.

The maximum permitted speed in the harbor is 7 knots, unless otherwise directed by the harbormaster.

Anchorage.—Two designated anchorage areas, which are best seen on the chart, lie NE of the port.

Fujayrah Harbor (25°10'N., 56°20'E.)

World Port Index No. 48262

11.21 Fujayrah Harbor consists of a stretch of coast enclosed by two breakwaters. The N breakwater extends SE and S to overlap the S breakwater and form an entrance facing S.

Fujahrah Port Home Page

<http://www.fujairahport.ae>

Winds—Weather.—Strong gale force winds from W to NW may occur, especially from November to May.

Tides—Currents.—The tides rise about 2.6m at HW and 0.6m at LW.

Depths—Limitations.—The harbor entrance channel is dredged to a depth of 15m (2000). The N part of the harbor basin is dredged to a depth of 15m (2000); the center part is dredged to a depth of 12.5m (1986); and the S part is dredged to a depth of 7m (1986).

Fujayrah Harbor—Berthing Information					
Berth	Depth	Maximum vessel dimensions			Remarks
		Length	Draft	Size	
No. 1	10.5m	180m	10.0m	50,000 dwt	Containers. See Note 1.
No. 2	12.0m	200m	12.0m	50,000 dwt	Containers. See Note 1.

Fujayrah Harbor—Berthing Information					
Berth	Depth	Maximum vessel dimensions			Remarks
		Length	Draft	Size	
No. 3	12.0m	200m	12.0m	50,000 dwt	Containers. See Note 1.
No. 4	12.0m	200m	12.0m	50,000 dwt	Containers.
No. 5	12.0-15.0m	—	—	—	Located N of Berth No. 4
No. 6	15.0m	—	—	—	

Note 1.—Larger vessels may be accommodated with 24 hours notice.
Note 2.—Movement restrictions at Berth No. 1 through Berth No. 4 are, as follows:

1. Vessels drawing less than 11.5m—No restriction on movements.
2. Vessels drawing between 11.5m and 12.0m—Movements allowed only between 5 hours before to 4 hours after predicted HW.
3. Vessels drawing more than 12.0m—Movements allowed only with permission of the Harbormaster.

The harbor breakwaters extend about 0.6 mile from the coast and form an entrance about 215m wide.

Berthing information is given in the accompanying table. There are several mooring buoys in the harbor. There are facilities for ro-ro, general cargo, container, tanker, and livestock-carrier vessels.

It has been reported (2005) that two tankers berths, with a total length of 900m and an alongside depth of 15m, have been constructed along the inner side of the N breakwater and will soon be operational.

Vessels up to 275m in length, with a maximum draft of 12.5m, can be accommodated.

Vopac Enoc Terminal (Vopak Horizon Terminal) (25°12'N., 56°22'E.), a T-head jetty 1,000m long, is situated 2 miles N of Fujayrah harbor. Berth No. 1 the outer berth is 60m long, with a depth of 18m alongside; tankers are limited to a maximum arrival draft of 14.8m and a maximum sailing draft of 15.5m. Berth No. 2, the inner berth is 35m long, with a depth of 14.5m alongside; tankers are limited to a maximum arrival draft of 11.2m and a maximum sailing draft of 11.9m. Berthing and mooring dolphins are provided at each berth.

A finger jetty extends N from the N side of the approach trestle; Berth No. 3 is on the E side of the jetty, while Berth No. 4 is on the W side of the jetty. The jetty is approached from the SE through a buoyed channel, 0.8 mile long, which has a least depth of 17m.

An SPM is moored offshore, in a depth of 26m, E of the terminal. Vessels between 40,000 dwt to 175,000 dwt, with a maximum length of 300m and a maximum draft of 17.5m, can be accommodated.

Aspect.—Fujayrah Light is shown from a structure standing on high ground, 0.7 mile NW of the root of the S breakwater. A prominent radio mast stands at an elevation of 400m, about 1.7 miles NNW of the light.

Al Gurfah, a fishing harbor, lies 3 miles S of the port; two conspicuous radio masts stand about 0.6 mile W of it. Another conspicuous radio mast stands at an elevation of 137m about 3 miles W of this harbor.

Each breakwater head at Fujayrah is marked by a light. The light at the N breakwater head is equipped with a racon.



Fujayrah Harbor from S

The harbor entrance channel is indicated by a directional sector light and is marked on its W side by lighted buoys.

The signal station and port control tower, 28m high, stands near the root of the S breakwater.

Pilotage.—Pilotage is compulsory for entering the harbor and is available 24 hours. The pilot can be contacted on VHF channel 12 and boards about 0.5 mile E of Fairway Lighted Buoy.

Pilots for Vopac Enoc Terminal (Vopak Horizon Terminal) board 2.2 miles SE of the terminal.

Regulations.—Vessels should send an ETA message and a request for pilotage through the vessel's agents at least 72 hours in advance, confirming 24 hours and 12 hours prior to arrival.

The message should contain the following information:

1. Vessel's name.
2. Type of vessel.
3. NRT.
4. Vessel's condition.
5. ETA.
6. Last port of call.
7. Purpose of call.

8. ETD and next port of call.
9. Arrival draft.

All vessels should contact the port control on VHF channel 16 when within VHF range.

Vessels arriving at the offshore anchorages must inform the port control at least 2 hours prior to arrival of the following information:

1. Vessel's name.
2. Type of vessel and condition.
3. Agent's name.
4. IMO number.
5. Port of registry.
6. Flag.
7. GRT.
8. DWT.
9. Length.
10. Nature of call.
11. Last port of call.
12. Next port of call.
13. ETA.
14. Master's name.

Vessels intending to enter the harbor or to anchor within the port limits should establish contact with the port control as soon as possible on VHF channel 16 before entering within 4 miles of the coast. Such vessels must request instructions and keep a listening watch on VHF channel 16.

Vessels are required to pass starboard-to-starboard when entering and leaving the harbor, as shown on the chart. This ensures that inbound vessels have sufficient time to establish their inbound transit before passing between the mole heads; outbound vessels may turn immediately to port when clear of the head of the N mole.

Vessels not using Vopak Enoc Terminal (Vopak Horizon Terminal) are requested to remain outside the restricted area surrounding the terminal.

The port can be contacted by e-mail, as follows:

fujport6@emirates.net.ae

Single-hull tankers at or past 25 years from the date of delivery are prohibited from calling at the port or the offshore anchorage areas.

Anchorage.—Six designated anchorage areas, the limits of which are shown on the chart, lie E and NE of the port, as follows:

1. Anchorage Area A—vessels awaiting orders or intending a long stay.
2. Anchorage Area B—vessels requiring bunkering services.
3. Anchorage Area C—vessels requiring offshore services.
4. Anchorage Area D—vessels carrying hazardous cargo and for all LNG and LPG carriers, whether loaded or in ballast condition, requiring offshore services, including bunkering and deslopping.
5. Anchorage Area V (4 miles ENE of the entrance to Fujayrah Harbor)—inbound vessels using the Vopak Enoc Terminal.

6. Anchorage Area W—vessels awaiting a berth in the port.

7. Anchorage Area S—tankers involved in ship-to-ship operations.

Vessels must obtain permission from the port control before anchoring.

Movements of double-banked (side by side) vessels and rendezvousing between vessels underway and service boats at the offshore anchorages are prohibited.

Anchoring is prohibited between the charted anchorage areas and the shore.

Directions.—Vessels should properly observe the two-way route in the approaches to the port, which may best be seen on the chart. The inbound track lies on the S side of the route.

Caution.—Due to the existence of numerous submarine cables, anchoring is prohibited in an area, indicated on the chart, extending from the shore and lying between the parallels of 25°06.5'N and 25°09.5'N.

Vessels making a passage in the vicinity of position 25°12'N, 56°36'E should keep well clear of large tankers carrying out ship-to-ship operations in this area. These vessels, which are operating in pairs and are underway throughout the operation, are difficult to maneuver and should be displaying signals for vessels engaged in special operations.

Fishing zones, the limits of which may best be seen on the chart, front the shore to the N and S of the port. Commercial vessels are prohibited from entering these zones, except in an emergency.

Khawr Fakkan (25°21'N., 56°23'E.)

World Port Index No. 48263

11.22 Khawr Fakkan (Khor Fakkan), set in the SE portion of a bight in the coast, is a major transshipment point for cargo destined for ports around the region.

Winds—Weather.—Prevailing winds are from E to SE. Squalls out of the W to NW, up to force 8, occur occasionally.

Tides—Currents.—The tides rise about 2.7m HW and 0.6m at LW.

Depths—Limitations.—The entrance fairway, buoyed on its W side, has a dredged depth of 14.6m (1999).

The main container quay, formed by the inner face of the breakwater, provides 1,060m of berthing space, with depths of 11.6 to 14.6m alongside; it has been reported (2005) that there is a dredged depth of 15m alongside these berths. It has also been reported (2005) that an additional 400m long container quay, with an alongside depth of 16m, is under construction and is scheduled to be completed in 2006. There is also a cement jetty, 75m long, with a depth of 5m alongside.

Vessels with a maximum draft of 15m can be accommodated.

Sharjah Ports Home Page (Khawr Fakkan)

<http://www.sharjahports.gov.ae/khorfakan.htm>

Khorfakkan Container Terminal

<http://www.gulftainer.com>

Aspect.—The bight containing the port lies between Sirat al Khawr, on the S side, and Ras Lulayyah (Ras Luiyah), a rocky point about 2 miles NW. Sirat al Khawr is a peaked islet, 84m high, lying 0.2 mile off a hilly projection, about 80m high.

A breakwater extending about 0.5 mile NW from the N side of this hilly projection forms the port itself.



Northern Breakwater and Container Berth

A prominent radio tower, 126m high, stands near the root of the breakwater. A number of conspicuous container cranes are situated along the quay.

Jabal Sidr, a prominent hill, is located about 1.5 miles NW of the root of the breakwater. It is 109m high and surmounted by a conspicuous white palace. This palace has a red roof and is illuminated at night.

A conspicuous hotel, illuminated at night, stands on the foreshore, about 0.3 mile NNE of the palace. A prominent building, with five towers which are floodlit at night, is situated on the foreshore, 1 mile S of the hotel.

A lighted fairway buoy, equipped with a racon, is moored about 1.3 miles NE of the breakwater head.

Pilotage.—Pilotage, which is compulsory for all vessels over 150 nrt or greater than 50m long, is available 24 hours. Pilots can be contacted by VHF and board about 0.5 mile E of Fairway Lighted Buoy.

Regulations.—Vessels should send an ETA and request for pilotage through their agents and Khawr Fakkan Port Control 72 hours, 48 hours, and 24 hours in advance. The message should include the vessel's draft, length, and cargo details.

Vessels approaching the port should contact the port control on VHF channel 67 or 16 when 10 miles, 5 miles, and 2 miles from the port.

Vessels on arrival must inform Khawr Fakkan Port Control on VHF of the following information:

1. Vessel's name.
2. Date and time of arrival.
3. Anchor position.
4. Flag.
5. Local agent.
6. GRT.
7. NRT.
8. Last port of call.
9. Next port of call.
10. Purpose of anchorage.

Vessels entering and leaving the port do so only under direction of Port Control and are to avoid stopping or anchoring in or near the restricted entry area. All other vessels should remain outside the restricted entry area.

Vessels should maintain a watch on VHF channel 16 from 12 hours before their ETA.

For information concerning deep-sea pilotage, see paragraph 11.1.

Anchorage.—The following anchorage areas lie the indicated distance and direction off the harbor entrance:

1. Area A—2 miles ENE. For inbound vessels under 120m long.
2. Area B—4 miles ESE. For inbound vessels over 120m long and vessels less than 120m long requiring bunkering and offshore services E of 56°26'E.
3. Area C—6 miles ENE. For vessels over 120m long requiring bunkering and offshore services.

It was reported (1983) that anchorage could be obtained in the vicinity of position 25°30'N, 56°40'E. This area is known locally as Norwegian Bank, although no significant reduction in depths was observed.

Caution.—Anchoring is prohibited within territorial waters unless the vessel is waiting to enter Khawr Fakkan or requiring certain facilities from the port. Large tankers are not permitted to anchor within 10 miles of the coast.

Fishing zones, the limits of which may best be seen on the chart, front the shore to the N and S of the port. Commercial vessels are prohibited from entering these zones, except in an emergency.

A restricted entry area, marked by lighted buoys, extends up to 0.5 mile NW, 1.2 miles NNE, and 0.7 mile E, respectively, of the NE side of the container terminal. The restricted entry area includes the approach to Khawr Fakkan from N, the NW and SW coasts of the island of Sirat al Khawr, and the channel between the island and the mainland. Construction is in progress (2005) in the area E of the container terminal.

An explosives dumping ground area (disused 1996), the limits of which may best be seen on the chart, lies centered about 34 miles ESE of Khawr Fakkan.

11.23 From Khawr Fakkan, the coast continues N for 16 miles to Ras Diba. A fishing harbor, protected by breakwaters, lies 1.5 miles NNE of Ras Lulayyah. An airfield is situated about 0.5 mile SW of this harbor.

Zubarah, a small village, stands close N of the fishing harbor. The coast is low, sandy, and bordered by date groves in this vicinity. The mountains stand only a short distance inland.

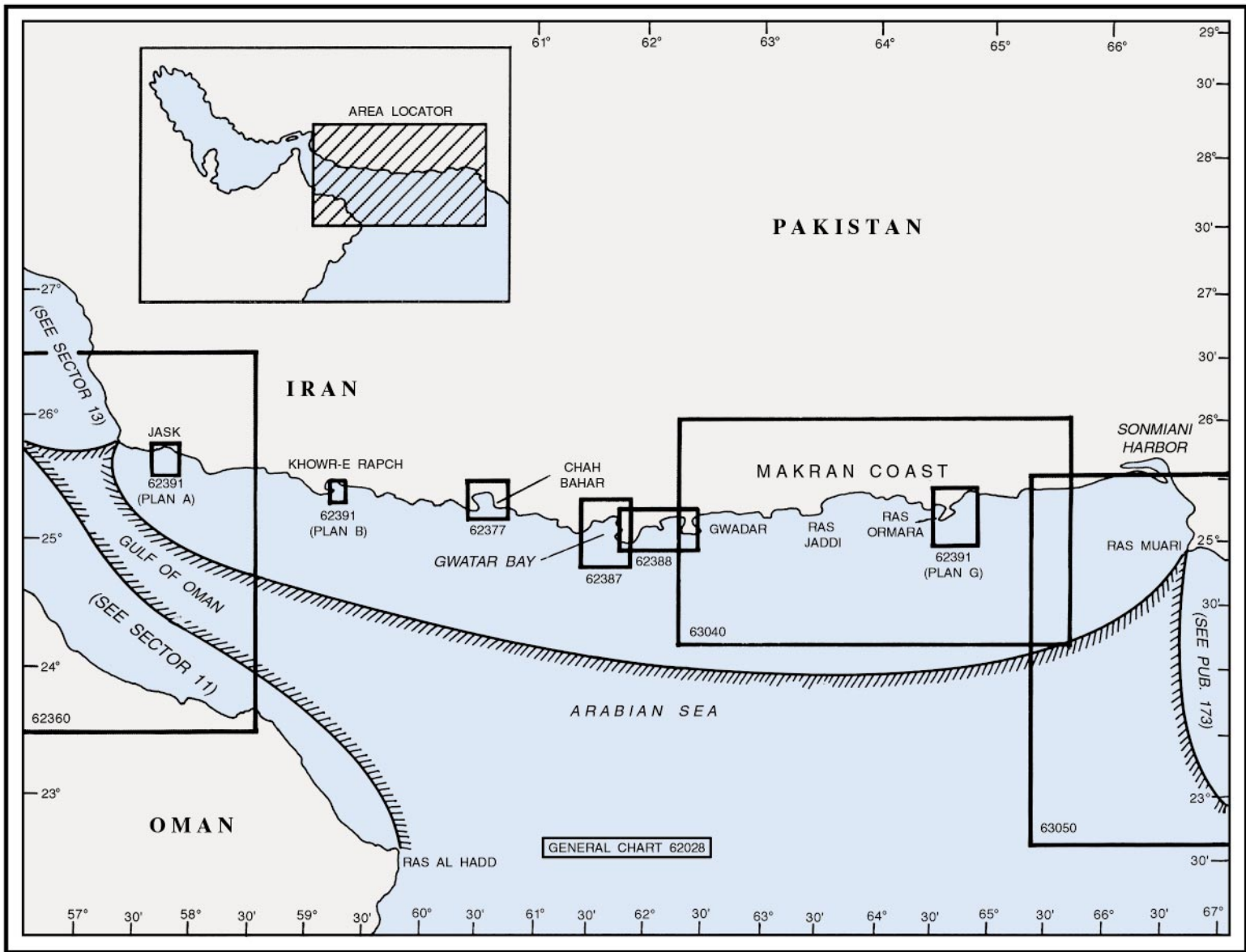
Jazirat Badiyah, an islet, lies close offshore, 3 miles N of Ras Lulayyah. It is 58m high and joined to the coast by a causeway.

Beyond Jazirat Badiyah, the coast becomes more rugged, changing to rocky points separated by many sandy bays, with mountains rising abruptly a short distance from the shore.

Ras Diba (25°36'N., 56°22'E.) is a projecting point formed of moderately high cliffs. A cliffy sand bluff located about 1 mile W of the point is conspicuous from N but not from E. An islet lies close offshore, 0.5 mile NW of the point.

It is reported (2001) that a conspicuous radio mast stands on the point.

Caution.—An anchorage prohibited area, the limits of which may best be seen on the chart, extends up to 12 miles seaward between Khawr Fakkan and Ras Diba.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 12 — CHART INFORMATION

SECTOR 12

PAKISTAN AND THE SOUTH COAST OF IRAN—RAS MUARI TO DAMAGHEH-YE KUH

Plan.—This sector describes the coast of Pakistan and the S coast of Iran between Ras Muari and Damagheh-ye Kuh (Ras al Kuh). The sequence of description is W from Ras Muari.

General Remarks

12.1 Winds—Weather.—The NE winds along the Makran Coast prevail from November to January. The onset of the Southwest Monsoon along this coast in early June brings increasing wind and more cloud, both of which persist until September, though with some annual variation in time and intensity.

Force 8 gales are infrequent but during December and January strong NW winds are common. About 30 per cent of the July monsoons may reach force 6 and occasionally force 8.

High winds are infrequent in the transition periods on the Makran Coast, except during brief squalls. Fog is rare here.

The land and sea breezes on the Makran Coast are prominent during winter. The sea breeze is often persistent, especially during the beginning of the season, that it overcomes the Northeast Monsoon winds during the day.

Depressions from W occasionally pass over Iran toward N India, accompanied by consequent wind shifts, during which S winds will likely be experienced.

During spring, winds over the NW part of the Arabian Sea are most likely SW or W. On the Makran Coast, light to moderate winds prevail, with considerable variation as to direction.

Along the W portion, the first effects of the Southwest Monsoon are usually felt in May.

During the summer season, the winds of the Southwest Monsoon of the Arabian Sea reach the Makran Coast. These winds are deflected by the coast into E or SE winds. However, a branch of this monsoon enters the Gulf of Oman and extends as far as Jask.

The time of the onset of the Southwest Monsoon varies considerably at different places along the Makran Coast. Its full effect is usually felt earlier on the W portion than on the E.

During early June, the Southwest Monsoon winds, which have already begun along the W Makran Coast, extend E and are prevalent along the entire coast. On the E coast, W to SW winds become fully established in July and blow with moderate strength.

Over the open sea off the Makran Coast, winds during June and July average force 5 or 6. Winds may reach gale force in occasional squalls.

During August there is a marked decrease in wind force, and in September there is a general recession of the Southwest Monsoon over the entire area.

Remnants of the monsoon may last along the W coast until the end of October.

After the withdrawal of the Southwest Monsoon and before the beginning of the Northeast Monsoon, which usually become established in November, winds are light and variable.

Tides—Currents.—The current pattern over the whole of the Arabian Sea varies continually. From January to March, these currents have a common tendency to set towards the W and NW.

Near the coast of Pakistan, a current setting to the SE becomes evident in late January or February and gains in constancy and strength during the next few months.

From February through mid-April, the transition period of the Northeast Monsoon and Southwest Monsoon, the ocean currents are extremely variable.

By the end of April, S and SW winds prevail and give rise to an E and SE drift that builds up to a maximum in July and August and decreases during September.

During November a general clockwise circulation is set up in the Arabian Sea as a result of the Northeast Monsoon.

In December, the NE winds prevail over the sea and the period of W drift begins. Tidal currents in the N part of the Arabian Sea attain a velocity of 1.5 knots.

Tides along the Makran Coast are diurnal, with a range of about 2m.

Aspect.—The coast between Ras Muari and the Pakistan-Iran border consists of long stretches of sandy shore backed by valleys or coastal plains, but these low-lying shores are interrupted in a number of places by stretches of cliffs backed by hills and mountains.

Farther inland are segments of mountain ranges, with elevations up to 915 to 1,220m, lying approximately 10 miles from the sea. The coast is largely uninhabited, there being only six or seven small coastal villages and no developed ports.

The seaward approaches to this coast are, in general, clear, with the exception of a group of islets, rocks, and shoals centering on Astola Island. Aside from the Astola Island group, there are only a few scattered dangers, most of which lie closer inshore.

The coast W from the Pakistan-Iran border is a low, almost barren, sandy coastal plain varying from less than 1 mile to about 50 miles wide, but is generally 2 to 20 miles wide; detached hill masses and tablelands are scattered along the plain. Many intermittent streams occur, with marshy areas and mangrove swamps near the coast in places. Spurs of coastal mountain ranges extend to within about 1 to 5 miles of the coast in places; the coastal range reaches heights of about 457 to 915m within 25 miles of the shore.

The offshore approaches are deep and generally clear. There are some scattered shoal patches near the coast in widely separated places. The shore is fringed in several locations by a sand or mud shoal extending up to about 3 miles offshore.

Depths—Limitations.—From a position about 10 miles SW of Ras Muari, the 50m curve follows the general trend of the coast to a position about 3 miles SE of Ras Nuh, the E extremity of Gwadar Head. All dangers are contained within this curve. Outside the 40m curve, the depths increase rapidly to more than 200m.

Because of volcanic disturbances long ago, vessels navigating along the N side of the Arabian Sea, between 66°00'E, and 61°10'E, are advised to keep outside the 50m curve. If it is necessary to navigate close to land, vessels should do so with caution, as the charted depths are reported to be unreliable.

Ras Muari to Gwadar Head

12.2 Ras Muari (Cape Monze) (24°50'N., 66°40'E.), rising to an elevation of 140m about 0.5 mile E, is a bluff sloping headland forming the SW extremity of the Jhil Range (Lakki Hills). This range, extending about 10 miles NE from Ras Muari, is a ridge with a nearly level crest, but it has some prominent hummocks, the highest being 237m. A shoal spit, with depths of less than 18m, extends about 4 miles SW from Ras Muari.

A light is shown from a prominent tower, 51m high, standing about 1 mile SE of the W end of the cape.

Nancowry Shoal, with a least depth of 10m, lies 2 miles SW of Ras Muari.

Beauchamp Reef (24°50'N., 66°35'E.), a ridge of sand and gravel with a least depth of 8.1m, lies 4 miles W of Ras Muari.

Sonmiani Bay (25°12'N., 66°38'E.) is entered between Ras Muari and Ras Kachari, about 60 miles NW. The shore of the bay for about 20 miles N of Ras Muari is indented between rocky points; then NW and W it is sandy and covered with low jungle.

The bay fronts a plain about 35 miles wide that is between the **Pab Mountains** (25°10'N., 66°40'E.) and the **Haro Range** (25°30'N., 66°05'E.), both over 914m high. A river, flowing through a swamp before entering the sea, drains the plain.

The **Hab River** (24°55'N., 66°40'E.), flowing into the sea about 4 miles NNE of Ras Muari, is salty for several miles within its entrance, except during freshets. A sandy spit extends from the N side nearly across the river entrance. The entrance channel of the river is tidal and nearly dries; it has a depth of 2.7m at HW and breaks across the entrance.

12.3 Churma Island (24°52'N., 66°36'E.), 4.5 miles NW of Ras Muari, is steep-to, barren, and uninhabited. From the S, its steep, light-colored hills appear to rise to a peak, but from the W, the island appears flat-topped, with sloping sides. It is used as a bombardment target. There is a least depth of about 7.6m between the island and the mainland.

Except for sheltering small craft during the Southwest Monsoon, the island affords very little protection.

Khalifa Point (24°57'N., 66°40'E.), low and sandy, is fronted by shoal patches lying as far as 1.5 miles offshore. A bank, with depths less than 5.5m, lies up to 2 miles offshore for about 7 miles N of Khalifa Point. Above and below-water rocks lie on this bank.

Kaio (25°01'N., 66°41'E.), a rocky islet, lies on foul ground; a detached drying rock lies almost 1 mile NW of the islet. The coast for 3 miles N of Kaio is hilly; then to the entrance of Sonmiani Harbor, 22 miles NNW of Kaio, the coast consists of sand hillocks partially covered with grass and bushes.

Caution.—An explosives dumping area and a disused explosives dumping area, which may best be seen on the chart,

lie, respectively, about 95 miles SW and 56 miles WSW of Ras Muari.

12.4 Sonmiani Harbor (25°25'N., 66°32'E.), used only by local craft, is entered between two sandy points. The harbor consists of a lagoon, which is generally shallow, with partially drying sand banks.

A shoal flat, drying in places, extends across the harbor entrance, forming a bar with a maximum depth of 1.5m. During the Southwest Monsoon, seas break heavily across the entrance.

The preferred channel is close to the E shore of the lagoon; it has a depth of 9.1m, decreasing considerably within 3 miles.

A vast swamp extending NW of the harbor to the foot of the **Haro Range** (25°40'N., 66°10'E.) is fed by a river discharging into its N part during heavy rains. The spring range of tide in the harbor is about 2.5m; the mean range is about 2m.

Anchorage can be taken outside the bar, in a depth not less than 9.1m, with Churma Island bearing about 173°.

The **Phor River** (25°25'N., 65°55'E.) lies about 28 miles W of Sonmiani Harbor; the intervening coast is low and interspersed with sand hills. Anchorage can be taken W of the river, in a depth of about 9m.

Chandra Gup (25°27'N., 65°52'E.), a landmark consisting of several white-colored conical hillocks about 104m high, stands about 9 miles W of the Phor River, at the E end of a detached group of low hills.

Ras Kachari (25°22'N., 65°44'E.) is located at the S end of some low cliffs, inland of which rises the detached group of low hills. The coast between Ras Kachari and Ras Malan, 30 miles W, appears from seaward as a succession of rugged mountains, light-colored, with lower whitish clay peaks known as "shur" fronting them.

Jazirat Chahardam (25°18'N., 65°38'E.) consists of some rocks, up to 9m, high lying off the coast. Boats can land inside the rocks. Between the rocks and **Jabal Hab** (25°20'N., 65°27'E.), 12 miles W, a ridge of high hills slopes down to the coast.

The Hingol River, entered 2 miles E of Jabal Hab, is used by small craft with a draft up to 1.8m. The river bed, drying in places, winds through Jabal Hab. The coast W of Jabal Hab is formed of low sand hills.

12.5 Ras Malan (25°19'N., 65°12'E.) is a prominent bluff, with a steep face on its seaward side and a level summit.

Clay cliffs rise abruptly from the sea to the summit of the bluff, 625m high, about 4 miles N. From seaward, the bluff appears as a long light-colored tableland ending in cliffs.

Anchorage can be taken NE of Ras Malan, in a depth of 7.3m, about 1 mile offshore with **Gurangatti** (25°36'N., 65°15'E.) bearing 000° and Ras Malan bearing 230°.

Gurangatti is a remarkable square-topped mountain, about 1,264m high, resembling a castle with bastions; its sides appear nearly vertical.

Jabal Hinglaj (25°30'N., 65°25'E.), wedge-shaped, rises 1,109m about 20 miles W of Ras Kachari.

Ras Ormara (25°10'N., 64°36'E.) is the SW point of a high peninsula which has cliffs on all sides and, when seen from S, appears wedge-shaped. The peninsula is accessible only from the S, where several valleys break the line of cliffs.

A sandy isthmus connects the middle of the peninsula with the mainland. The coast for 19 miles W of Ras Malan is cliffy, then to the isthmus it is sandy and low.

A river runs into a lagoon fronted by a bar about 6 miles W of Ras Malan.

Chandra Kup (25°21'N., 64°40'E.), a conspicuous, white cone with a mud crater, stands about 4 miles inland and N of Ormara. In certain lights, the cone may appear dark; strong winds may obscure it with blown sand. Several small, white mud volcanoes rise about 2 miles E of Chandra Kup.

Ormara (25°12'N., 64°38'E.), a village located on the SE side of the isthmus, consists of some stone houses, mosques, and mat huts. The village is the center of a shark-fishing industry. A conspicuous radio mast stands at the W side of Ormara. High sand dunes appear N of the village. A light is shown at the E end of Ormara.

12.6 Rodrigues Shoal (25°11'N., 64°45'E.), consisting of two rocky ridges with a least depth of 4.9m, are separated by a gully. A passage between the shoal and peninsula W has been swept to a depth of 8.2m. Depths from 5 to 10m extend about 11 miles E from East Point. Depths from 1 to 3.2m are charted up to 2 miles S of the coast between Ras Ormara and East Point. A dangerous wreck lies 1.5 miles S of the E extremity of the shoal.

Dimi Zarr (East Bay) (25°14'N., 64°43'E.), lying E of the isthmus of Ormara, is the usual anchorage in the area. Depths shoal regularly in the bay, which has a bottom of mud and sand, except inshore.

Dimi Zarr is open to E winds, which may blow strongly at least once during the Southwest Monsoon, and are accompanied by rain. Tidal currents are weak in the bay and set NE and SW, following the curve of the land.

During the monsoon season, and at any time after April, a long swell may round the E end of Ras Ormara, raising a surf on the beach and causing vessels at anchor to roll heavily.

Landing is best effected between Ormara and the sand dunes N of the village.

Anchorage can be taken, in 7.3m, with the E point of the Ormara peninsula bearing 177°, distant 2.5 miles, and the radio mast bearing 250°. Light draft vessels can anchor, in 5.5m, closer inshore. Chandra Kup, bearing 345°, leads into the bay through the swept passage between Ras Ormara and Rodrigues Shoal.

It has been reported (2002) that a Pakistani naval base is being developed in the East Bay.

12.7 Padi Zarr (West Bay) (25°14'N., 64°32'E.), a bay open to W and SW weather, provides shelter and anchorage during E winds, but landing ashore is more difficult than it is in Dimi Zarr.

Anchorage can be taken, in a depth of 5.5m, with the W end of Ras Ormara bearing about 180°.

Ras Sakanni (25°13'N., 64°26'E.) is the NW entrance point of Padi Zarr. From this point W, the coast is bordered by continuous light-colored cliffs which form the sea face of the Kangar Hills; a wide plain lies between the Kangar Hills and the Taalo Hills to the NE.

Between **Ras Basol** (25°17'N., 64°14'E.), at the W end of the cliffs, and **Khor Kalmat** (25°20'N., 64°04'E.), a large inlet, is a

shallow bight with a low, sandy shore. A bar, with a depth of 2m and on which the sea breaks, fronts the entrance of the inlet.

Tidal currents are strong at the entrance and entry is difficult because of rocks lying 1 mile outside the bar.

Local craft, with a draft of 2.7m, are reported to enter the inlet through an E channel over the bar. There are depths over 7.5m in the inlet after clearing the bar.

12.8 The Makran Coast extends W from Khor Kalmat for nearly 140 miles to the frontier of Iran. Depths off this coast may be unreliable due to volcanic disturbances. For 12 miles W of Khor Kalmat, the coast is low, with depths of, less than 5.5m existing as far as 4 miles offshore. Farther W the coast rises and is backed by continuous ridges which extend to the barren N shore of Pasni Bay, where they are 300m high.

Navigation along this part of the coast is impeded by the land being obscured by dust haze, which is especially prominent from April to June. Vessels should sound continuously and remain in depths greater than 20m.

Astola Island (25°06'N., 63°50'E.) is table-topped and bordered by steep cliffs. There is a small boat harbor near the NW corner of this uninhabited island, which is visited only by religious people and fishermen during the Northeast Monsoon. A light is shown from the island. Sail Rock (Gurab) lies 0.5 mile S of the island. Passage between the island and rock is not recommended.

Webb Bank, about 5 miles SSE of Astola Island, is a narrow rocky ridge, with a least depth of 5.7m. Breakers are reported between the bank and Sail Rock and at least 6 miles W of the bank.

Caution.—The sea breaks on Webb Bank during the Southwest Monsoon and vessels approaching Pasni from SE should not close Astola Island and its adjacent dangers within 6 miles; any closer approach must rely on local knowledge.

12.9 Pasni (25°15'N., 63°28'E.), a small port with several thousand inhabitants, is located on the W shore of Pasni Bay, 3 miles N of **Ras Jaddi** (25°14'N., 63°30'E.), the W entrance point of the bay. The coast in the area is low, sandy, and without vegetation.

Landmarks consist of high white sand dunes SW of town, a conspicuous radio mast about 1 mile N of town, and a prominent white building about 0.5 mile S of the mast.

Vessels on passage from the Persian Gulf will call occasionally. There are no landing facilities. Shadi Kaur is a large, shallow creek entered 1.5 miles N of Pasni. Drying banks encumber the mouth of the creek, which can be entered by small craft at HW.

Jabal Zarrin (25°12'N., 63°30'E.), a conspicuous, high, brownish-colored hill shaped like a barn when seen from E or W, appears from the S as a long, notched ridge with sloping ends. In the bay between Ras Jaddi and Jabal Zarrin, there is a group of clay hills of fantastic shape which rise about 0.1 mile inland. A light is shown on Jabal Zarrin.

Anchorage can be taken, in a depth of 6.4m, sand, about 2 miles E of Pasni, with Ras Jaddi bearing 194°, or farther offshore, in a depth of 7m. During the Southwest Monsoon, a heavy ground swell occurs in Pasni Bay, which causes a considerable surf to break along the shores.

Ras Shamal Bandar (25°15'N., 63°06'E.), about 23 miles W of Jabal Zarrin, is the bluff W point of a bay bound by a low shore and fronted by a coastal bank. Small vessels can find shelter from W winds in the W part of the bay, but should not close the shore in a depth less than 11m.

12.10 Ras Kappar (25°13'N., 62°47'E.), about 18 miles W of Ras Shamal Bandar, is the S end of a table-topped hill, with bluff extremities about 211m high.

The coast between Ras Kappar and Jabal Sur, about 15 miles W, is sandy, rising to low hills with clay peaks.

Jabal Sur (25°13'N., 62°29'E.) is a wedge-shaped clay hill rising steeply, with a vertical cliff at its E end and a low isthmus connecting it with the mainland. This part of the coast is backed inland by a mountain range which ends abruptly at Gar-e-Kuh. This feature takes the form of two great vertical steps descending from a height of 450m and is a good landmark.

Jabal-i-Mehdi (25°13'N., 62°25'E.), a precipitous white clay ridge with vertical cliffs on its S side, rises abruptly from the plain at the root of the isthmus, about 3 miles W of Jabal Sur. A double peak is conspicuous about 2 miles W of this remarkable ridge.

Gwadar East Bay (25°10'N., 62°23'E.) is entered between Jabal Sur and **Ras Nuh** (25°05'N., 62°24'E.), a high cliff at the E end of Jumbel Kuh, a peninsula formed of high, white bluffs, prominent from the E and appearing as a wedge-shaped island. The W side of the bay is formed by a low, sandy isthmus connecting the peninsula and mainland. A light is shown from Ras Nuh with a temple standing close to the cliff. Tidal currents in the bay are imperceptible.

Gwadar (25°08'N., 62°18'E.), a town near the S end of the isthmus, has a conspicuous telegraph office building standing N of town; 0.5 mile farther N is the Wali's Fort, white and square, with a tall flagstaff at its SE corner. The mosque in town is prominent.

New port facilities scheduled to open in 2005 are under construction on the N side of Jumbel Kuh. The port will initially consist of three multipurpose berths, with a total length of 600m; a 4,500m-long approach channel, dredged to depths of 11.5 to 12.5m; and a turning basin with a diameter of 450m. The berths will accommodate bulk vessels up to 30,000 dwt and container vessels up to 25,000 dwt.

Anchorage, sheltered from W and SW winds, can be taken in Gwadar East Bay, with the telegraph office bearing between 250° and 262°, as close inshore as draft will permit, in order to obtain smoother water and to facilitate communication with the town.

During the Southwest Monsoon season, a ground swell setting around Ras Nuh can cause vessels at anchor to roll heavily.

Directions.—If approaching the anchorage from the E, keep in depths of 20 to 25m; even if the weather is hazy, it should hardly be possible to miss seeing the cliffy peninsula. A rocky spit extending 1 mile S from Ras Nuh is marked by a ripple; during the Southwest Monsoon, it is marked by breakers.

If approaching the anchorage from W, it is inadvisable, especially in hazy weather, to enter depths less than 22m until Ras Nuh bears less than 350°.

In hazy weather, if not bound for Gwadar, keep in depths greater than 37m. At night, watch out for fishing vessels with their nets out.

12.11 Gwadar West Bay (25°10'N., 62°16'E.) is entered between **Ras Kamiti** (25°06'N., 62°16'E.) and **Ras Pishukan** (25°06'N., 62°05'E.). The bay recedes about 8 miles.

The shores of the bay are low, except near Toshdan Kuh, a range of low hills in the NW part of the bay. Ras Pishukan consists of narrow, rocky cliffs, with a rocky spit on which the sea breaks, extending about 0.3 mile SE.

Anchorage can be taken in the bay, in a depth of 7.3m, with Ras Kamiti bearing 198°, distant 1.5 miles, or on the W side of the bay with Ras Pishukan bearing 182°, distant 3 miles, in the same depth.

Bandar Ganz (25°05'N., 61°53'E.) is entered between Ras Pishukan and Ras Ganz, about 9 miles WSW.

Anchorage can be taken by small vessels during W winds, about 1 mile offshore, in a depth of about 6m.

Ras Ganz (25°01'N., 61°50'E.) is the light-colored bluff E of a promontory which forms a very good landmark from the W. The village of Ganz is located 4 miles N of the point.

Katagar (25°04'N., 61°48'E.) is a high promontory which separates Bandar Ganz from Gwadar Bay to the W. Its S side is an unbroken line of cliffs, with sandy beaches at its foot.

12.12 Ras Jiwani (25°01'N., 61°43'E.) is the W point of Katagar. Remarkable hills with rugged peaks back the coast and extend nearly to the **Dasht Kaur** (25°10'N., 61°40'E.). The bottom off Katagar is very uneven in depths of less than 20m. An aero light, with a radiobeacon, is shown 5 miles NE of Ras Jiwani.

Gwatar Bay (Khalij-e Gavater) (25°05'N., 61°35'E.) is entered between Ras Jiwani and Damagheh-ye Pasa Bandar, a point about 15 miles WNW. The gradual decrease of soundings toward the coast S of the bay is a useful guide to vessels approaching at night or in thick weather.

The water in the bay and its approaches becomes discolored after heavy rains and there is much driftwood. Depths and dangers are best seen on the chart. Landing is good, even during the Southwest Monsoon, in a bay 1.5 miles N of the W end of Ras Jiwani and 1 mile S of the village of Jiwani.

There is a white, rectangular stone fort close inland of the head of the bay, which has low shores backed by extensive mangrove swamps.

Dasht Kaur, the largest on the Makran Coast, empties into the NE part of the bay. A bar, on which the sea breaks at times, lies in the river mouth. The river is shallow except during flood.

Damagheh-ye Pasa Bandar (25°04'N., 61°25'E.), the W entrance point of Gwatar Bay, is a cliff at the E end of a low ridge. Two islets lie on foul ground about 2 miles E of this point, which is marked by a light.

Kuh-e Pushat (Castle Hill) (25°06'N., 61°23'E.) is a high, square rocky hill lying about 4 miles N of Damagheh-ye Pasa Bandar. Its summit looks like a fort, but the hill does not show until bearing less than 340°.

The little village of **Gavater** (25°09'N., 61°30'E.) has a prominent white fort with two towers on its W side.

Anchorage can be taken in a small bay N of Damagheh-ye Pasa Bandar, in depths of 2.7 to 5.5m, mud.

12.13 Damagheh-ye Zarin Sar (Ras Bris) (25°08'N., 61°10'E.) rises at the W end of a range of conspicuous white cliffs which mostly backs the coast W of Damagheh-ye Pas Bandar. The coast is cliffy and fringed with a shoal which extends about 1 mile offshore in the vicinity of Damagheh-ye Zarin Sar.

From this point W, the coast consists of rocky hills and cliffs decreasing in height towards Damaghe-ye Chah Bahar.

Inland of these hills and cliffs is a vast plain which extends many miles to the W. Natural landmarks include Siah Kuh, a dark round hill about 233m high, with sheer cliffs on its seaward side.

Khaki Kuh (25°21'N., 60°55'E.) is a mountain range about 610m high, extending E and W with a vertical S face and deeply indented crest. This range, composed of white clay, is very conspicuous in the sunlight. From the W, the range shows a double peak with a bluff SE.

Khalij-e Chah Bahar (25°20'N., 60°32'E.) is entered between Damaghe-ye Chah Bahar and Ras Puzm, about 8 miles W. A mountain range parallels the coast within the head of the bay. Quoin, a 690m peak, and a sharp spiked peak about 10 miles W, are conspicuous from seaward.

A radio mast, standing at an elevation of 210m about 2 miles N of Chah Bahar, is very conspicuous.

Another conspicuous mast, 54m high, stands on the low ground about 1 mile ENE of Damaghe-ye Chah Bahar. A group of four masts, standing about 2 miles inland from the head of the bay, is also conspicuous.

It was reported (1998) that another prominent radio mast, 189m high, stands 0.4 mile inland at the head of the bay.

Damaghe-ye Chah Bahar (25°17'N., 60°36'E.) is a low rocky point surmounted by a tomb and some flat-topped buildings. A light, equipped with a racon, is shown from a lattice tower, 9m high, standing on the point.

The point is fronted by a shoal which is marked by a lighted buoy moored about 0.8 mile W of the light.

Ras Puzm (Damaghe-ye Puzm) (25°17'N., 60°28'E.) is the end of a promontory, the sides of which are formed by low cliffs. A light is shown from a beacon standing on the point.

Konarak (25°21'N., 60°24'E.), a village, is located on the W shore of the bay.

12.14 Chah Bahar (Chabahar) (25°17'N., 60°38'E.) (World Port Index No. 48550) is a town with limited facilities but a climate healthful to Europeans due to the prevalence of SSE winds.

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Winds—Weather.—The SSE winds cause a heavy sea to break on the shores around the bay except at the town, which is well-sheltered. From about mid-June to October, the harbor is closed due to swells from the Southwest Monsoon.

Depths—Limitations.—Shahid Beheshty Jetty extends about 0.5 mile N from the shore. Beach Jetty (Kalantari Jetty),

close E of Shahid Beheshty Jetty, extends 0.6 mile NW from the shore and provides berths for small craft and barges, as well as container vessels. Berth information is contained in the accompanying table.

Chah Bahar—Berth Information			
Berth	Length	Maximum draft	Remarks
Shahid Beheshty Jetty			
No. 1	150m	8.3m	General cargo and containers. Can accommodate vessels up to 25,000 dwt.
No. 2	150m	8.3m	Can accommodate tankers up to 25,000 dwt.
No. 3	150m	9.0m	General cargo and containers. Can accommodate vessels up to 25,000 dwt.
No. 4	150m	9.0m	General cargo and containers. Can accommodate vessels up to 25,000 dwt.
Beach Jetty (Kalantari Jetty)			
No. 5	175m	10.3m	General cargo and containers. Can accommodate vessels up to 40,000 dwt.

Aspect.—Besides the radio masts mentioned above in paragraph 12.13, no landmarks are particularly prominent. A mosque, with a somewhat prominent minaret, is located about 2 miles ENE of Damaghe-ye Chah Bahar.

A lighted buoy is moored near the head of Shahid Beheshty Jetty.

Pilotage.—Pilotage is compulsory for vessels anchoring or berthing. The port can be contacted on VHF channel 13, 16, 18 or 25. Pilots board close outside the bay.

Anchorage.—A designated anchorage area, the limits of which may best be seen on the chart, lies in the middle of the bay, close within the entrance points, and has depths of 10 to 12m.

Anchorage can be taken by small vessels, in a depth of 7m, sand, about 1 mile NNW of Damaghe-ye Chah Bahar. Local craft can anchor, in a depth of 4m, about 0.5 mile off the town.

During the Southwest Monsoon (early June to late October) a heavy SSE swell rolls into the bay, but sheltered anchorage can be taken, with no swell, about 4 miles E of Konarak.

Caution.—An obstruction, with a depth of 16m, lies about 3 miles SE of Ras Puzm and is marked by a lighted buoy.

12.15 Ras-e Rashedi (25°20'N., 60°12'E.) is the E extremity of an inaccessible table-topped promontory.

The coast between Ras Puzm and **Ras-e Puzm** (25°20'N., 60°17'E.), the E entrance point of Klalij-e Puzm, a small bay, is

cliffy. Ras-e Rashedi is the W entrance point of the bay. The shores of the bay are low and sandy. Depths of less than 11m exist as far as 2.5 miles off the S side of Ras-e Rashedi.

Baklang (25°17'N., 60°13'E.), a steep-to rock with a depth of 0.8m, lies 2.5 miles SE of Ras-e Rashedi. When covered, the rock cannot be seen in calm weather, and should not be approached closer than depths of 30m at night. Approximately 0.5 mile to the SE of Baklang Rock is a shoal with a least depth of 8.3m.

Anchorage can be taken, in 7.3m, off Puzm, a fishing village on the E side of Khalij-e Puzm, close N of the point. Anchorage may also be taken in the center of Khalij-e Puzm, in a depth of 8m, sand.

Ras-e Tang (25°20'N., 59°52'E.) is a rocky promontory extending about 1 mile offshore and connected to the shore by a sandy isthmus. Vessels should not approach the point in depths of less than 20m, as soundings give little warning of the proximity of the point.

A 4m patch lies about 0.7 mile SE of the promontory's E end. Shoal patches, with depths of 2.4, 4, and 4.5m, lie respectively 1.5, 2, and 2.5 miles W of the promontory's W end. There is a bay between this point and Ras-e Rashedi; a village is located about 1 mile N of Ras-e Tang.

A group of brown hills, about 4 miles E of the latter point, make a good landmark. Kuh-e Kalat, a great range of white clay cliffs with a prominent outline, extends 22 miles WNW of Ras-e Tang. A 200m sheer cliff, which shows up well from S and SW, rises about 4 miles from the E end of Kuh-e Kalat.

Several high conical peaks rising NE and SW of **Ras-e Maki** (25°23'N., 59°35'E.) are excellent landmarks.

12.16 Khor Rapch (Khor Rabch) (25°27'N., 59°15'E.) is the mouth of a large tidal inlet encumbered with mud and sand flats. The entrance has very low sandhills on either side.

Anchorage may be obtained, in a depth of 8m, sand, about 3 miles S of the entrance.

Ras-e Meydani (25°23'N., 59°05'E.) is composed of white cliffs extending W for 3 miles. The terrain inland is a great plain extending W for about 60 miles. The coast W of Ras-e Meydani is very low, sandy and intersected by several streams, some of which are navigable by small craft at various stages of the tide. Local knowledge is necessary.

A lighted buoy, whose position is unreliable, marks the outer edge of the coastal bank which extends at least 3 miles off Ras-e Meydani. Care should be exercised when approaching this coastal bank, as the soundings in the area give little warning of its existence.

Ras-e Sadij (Damagheh-ye Sadich) (25°33'N., 58°41'E.) is a coastal point near which a river flows through swampy ground into a tidal creek fronted by a shallow bar. A range of bare, white hills of sand extends 6 miles W along the coast from Ras-e Sadij.

The low coast W of Ras-e Sadij is intersected by several inlets, off which small craft can anchor with local knowledge.

Mountain ranges rising inland are good landmarks and are best seen on the chart.

Guh Kuh (26°06'N., 58°25'E.), 36 miles NNW of Ras-e Sadij, rises to a height of 1,900m and appears to be nearly detached from the neighboring mountains. When seen from SE,

its E side shows as a great bluff, but when seen from W, its summit appears round.

Anchorage can be taken off the mouth of the **Rud-e Gabrig** (25°36'N., 58°20'E.), in a depth of 9.1m, 2 miles offshore.

Ras-e Jagin (25°34'N., 58°07'E.) is a very low and sandy point. Swampy terrain and a low plain extend inland to low hills, so that the point is difficult to identify offshore. A drying spit extends at least 0.5 mile SW of the point.

Deep water lies 1 mile seaward of the spit, but depths in the entire area fluctuate and extreme caution is necessary.

12.17 Khalij-e Sharqi-ye Jask (East Jask Bay) (25°39'N., 57°54'E.) is entered between Ras-e Jagin and Ras-e Jask, about 18 miles WNW. The NE shore of the bay is low and fronted by sandy banks extending 0.5 mile offshore. The NW shore is rocky and level, with a sandy foreshore and low cliffs and ledges in places. Hills come to within about 1 mile of the head of the bay and terminate in a ridge of high, white cliffs. The best landing place is about 0.5 mile ENE of Ras-e Jask.

Anchorage, somewhat sheltered from W winds, can be taken, in depths of 11 to 14m, close off the NW shore of the bay, which is open SE and NE. The bay has a very light ground swell. During the Southwest Monsoon, the surf on the shore is heavy.

Ras-e Jask (25°38'N., 57°46'E.), marked by a light, is the end of a peninsula projecting SW from the coast.

Two white-topped radar domes and several radio masts, 45m high, standing close NNE of Ras-e Jask are conspicuous. Two red and white checkered water towers, 50m high, standing 2.5 miles NE of Ras-e Jask, make good landmarks from about 5 miles offshore.

Kuh-e Gikan (Jebel Dangiya) (25°50'N., 57°43'E.), a detached mountain peak, makes an excellent landmark and is radar conspicuous when approaching the peninsula from SE.

The W side of this mountain forms a great bluff which shows up well except from the W. When approaching the peninsula, it appears like an island on radar until within 10 miles.

Jask (25°38'N., 57°46'E.) (World Port Index No. 48540), a small town, extends along the shore of the peninsula. A breakwater extends 0.3 mile NNW from the coast about 0.5 mile NNE of Ras-e Jask. A berth, 150m long, is situated on the E side of this structure. There is a naval facility in the town.

Anchorage, partially sheltered from S winds but open to the shamal, can be taken, in a depth of 7m, about 1 mile NNW of Ras-e Jask. Larger vessels can anchor, in a depth of 8m, mud, about 2.3 miles NW of Ras-e Jask.

Caution.—A submarine cable, which may best be seen on the chart, extends seaward from a point on the S shore of the peninsula, close ENE of Ras-e Jask.

Submarines exercise in the waters off of Ras-e Jask.

12.18 Khalij-e Jask (Jask Bay) (25°40'N., 57°45'E.), entered W of Ras-e Jask, has shores bound by sand hills up to 6m high.

Mason Shoal (25°37'N., 57°42'E.), lying 3 miles WSW of Ras-e Jask, has a least depth of 3.7m over coarse sand, coral, and shells. A shoal flat, with depths of 4.6 to 5.5m, extends at least 2 miles NW from Ras-e Jask. With local knowledge vessels can pass between the shoals.

Damagheh-ye Kuh (Ras al Kuh) (25°48'N., 57°18'E.) is a low, sandy point lying about 26 miles WNW of Ras-e Jask. A lighted buoy is moored close W of the point. This entire stretch of coast is very low and is broken in places by several shallow inlets.

A light is shown from a framework tower, 20m high, standing on a small mound, 2.7 miles NNE of the point. A racon is situated at the light.

Tidal currents set E on a falling tide along the coast and W on a rising tide. Current velocities increase nearing Damagheh-ye Kuh. Coastal shoal flats extend at least 1.5 miles off the coast in places.

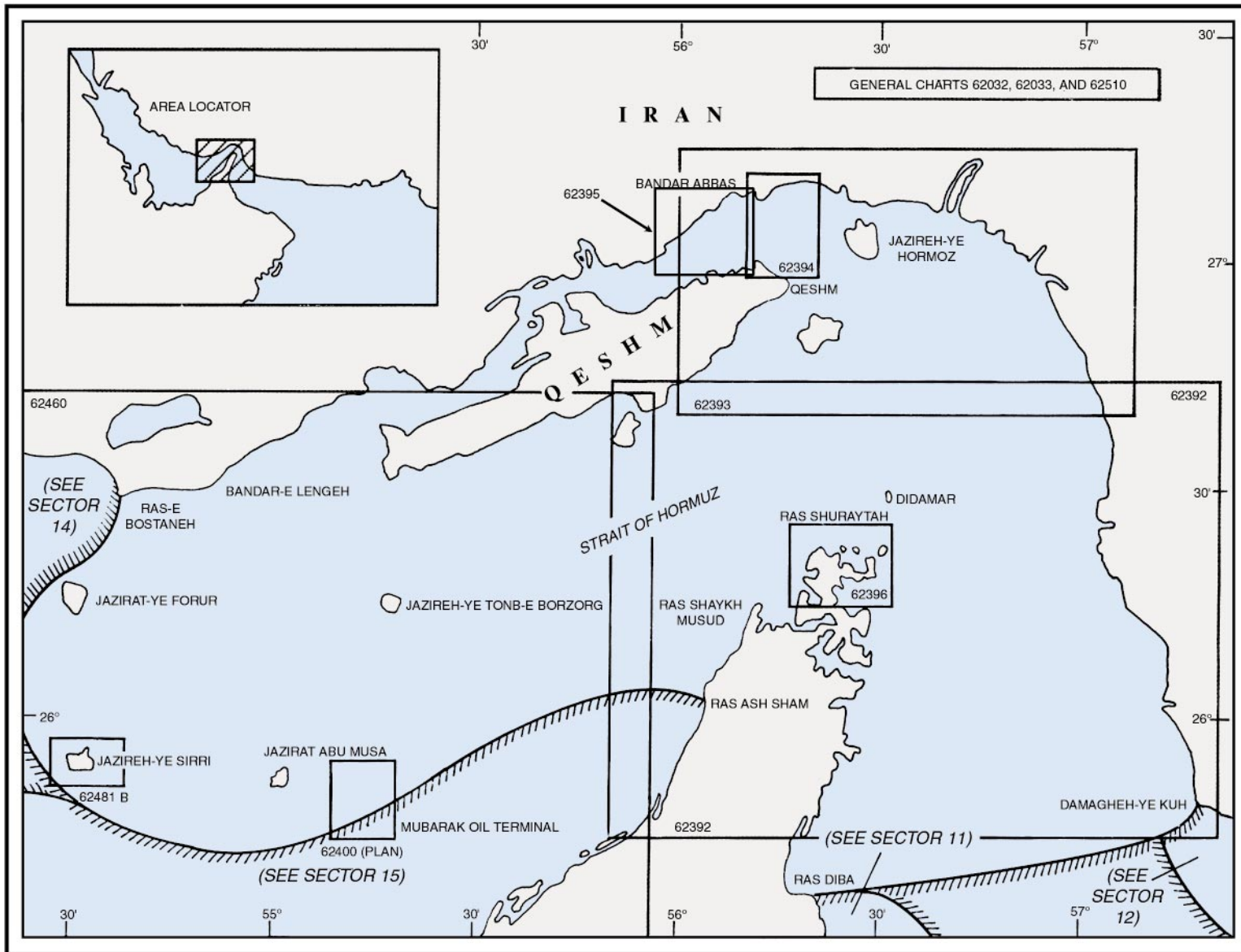
Caution.—An IMO-adopted Traffic Separation Scheme (TSS), which may best be seen on the chart, lies in the waters off Damagheh-ye Kuh. The area lying between the E sepa-

ration limit and the coast has been designated as an Inshore Traffic Zone.

12.19 Gahha Shoal (25°42'N., 57°29'E.), a small, detached steep-to patch, with a least depth of 2.4m, lies 3 miles offshore and 16 miles WNW of Ras-e Jask. An isolated shoal, with a depth of 18.2m, lies about 3 miles S of Gahha Shoal.

Vessels are cautioned not to approach the coast in depths of less than 50m between Ras-e Jask and Damagheh-ye Kuh, due to the presence of Gahha Shoal and other obstructions mentioned above.

Par Kuh (25°56'N., 57°40'E.), rising to 920m, is separated from Kuh-e Gikan by a gap with precipitous cliffs. Par Kuh is serrated in outline and has a long slope W; on its S slope is a natural pillar of rock. This mountain is a conspicuous landmark.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 13 — CHART INFORMATION

SECTOR 13

THE STRAIT OF HORMUZ AND THE ENTRANCE TO THE PERSIAN GULF

Plan.—Features of special interest to ships passing into the Persian Gulf via the Strait of Hormuz are described first. These features include the coasts of Ru us al Jibal and As Salamah wa Banatuha, the S side of Jazireh-ye Qeshm, and the islands and dangers SW of Jazireh-ye Qeshm.

The coast of Iran, N and W from Damagheh-ye Kuh to Ras-e Bostaneh, is then described.

General Remarks

13.1 Winds—Weather.—During the winter in the Gulf of Oman, the winds are mainly N with NW being the prevailing direction. The average wind speed is 7 to 11 knots. Calms are more frequent than in the Persian Gulf.

The Gulf of Oman is affected by W depressions; sometimes a secondary one of these depressions forms in the area of the Strait of Hormuz.

Strong squall winds from the E, accompanied by rain, are frequent. In the spring, the winds are variable.

In general, there is a decrease in the NW winds and an increase in the SW winds until May. The average wind speed is 6 to 10 knots.

In the month of June, NW and N winds are still comparatively frequent.

During July the prevailing winds are from the SE. On the N shores of the Gulf of Oman the early morning winds are from the E. During the day the winds veer, and by early evening they blow from SE to SW.

In June, before the Southwest Monsoon becomes fully established over the Arabian Sea, tropical cyclones occasionally form on the N boundary of the advancing SW winds. These storms have been known to reach the Gulf of Oman, giving rise to heavy gales.

In September and October, the frequency of SE winds in the Gulf of Oman gradually decreases, and that of the NW winds increases. The average wind speed is reported to be between 2 and 6 knots.

On the coast, the winds are for the most part light and variable, with frequent calms in the early morning.

In the Persian Gulf and the Strait of Hormuz, the hottest months of the year are July and August. While in the Gulf of Oman, the warmest month is June. Over the whole region, January is the coolest month.

Bad visibility in the Persian Gulf and the Gulf of Oman may be caused by early morning fog, salt haze, or dust. Of these dust is by far the most common.

Bad visibility caused by dust haze is more frequent on the S coast of Iran than in the Persian Gulf, and in the latter it occurs more often on the Arabian side.

Dust haze may occur in all seasons but is far less frequent during and immediately after the winter rains.

During the summer months when the rains cease and the temperature rises, the ground dries up and fine dust is carried up into the atmosphere.

Dust storms and sandstorms occur in all parts of the Persian Gulf and the Gulf of Oman in all seasons. They are most frequent during the months of June and July.

In winter, dust storms are associated chiefly with the passage of W depressions, and in summer with strong shamal winds.

Fog occurs at times near the shores of the Persian Gulf and may be dense. It is present only in the early morning and never lasts more than a few hours. It is associated with anticyclone weather during the winter months.

Tides—Currents.—In the Gulf of Oman, the general circulation is counterclockwise throughout the year. During the Southwest Monsoon, the current setting NE past Ra's al Hadd divides. The larger branch continues NE and E across the N part of the Arabian Sea; however, the smaller branch strikes the N coast of the Gulf of Oman and is deflected W. Some of the current passes through the Strait of Hormuz by the E coast of Ru us al Jibal, setting S and SE along the coast of the Gulf of Oman.

During the Northeast Monsoon, the currents setting W across the N part of the Arabian Sea turn SW and pass Ra's al Hadd. Some of the currents continue W into the Gulf of Oman along the Khalij Sawqarah coast.

A small portion of this current passes into the Persian Gulf through the Strait of Hormuz, but for the most part it is deflected by the E coast of Ru us al Jibal and turns S and SE toward Ra's al Hadd, joining the currents passing S of that point.

Through the Strait of Hormuz, there is a distinct inward flow from the Gulf of Oman during the Southwest Monsoon and a slightly outward flow during the remainder of the year.

During this latter period, some water continues to flow into the Persian Gulf. These currents tend to hug the Iranian side of the strait.

In the SE part of the Persian Gulf, there are sometimes strong currents setting between NE and E, especially in January and in April, May, and June.

The range of the tide in the Persian Gulf does not exceed 3m. In the S part of the Persian Gulf it is less than 2m.

Strong winds blowing in a constant direction for a long time can raise or lower the sea level, while causing a change in the direction and strength of the tidal current.

Aspect.—This section describes the waters and adjacent land areas of the passage into the Persian Gulf from seaward. The description begins in the N part of the Gulf of Oman between Ras Diba and Damagheh-ye Kuh, on the Iranian coast about 53 miles ENE.

This approach has adequate depths for large ships and leads first N to the vicinity of Didamar (Little Quoin), thence SW through the Strait of Hormuz, and thence W into the gulf passing among the islands that lie SW of Jazireh-ye Qeshm.

The sea distance along this approach is approximately 170 miles to a position SSW of Ras-e Bostaneh. Jazireh-ye Qeshm is an island bordering the NW side of the Strait of Hormuz.

The Ru us al Jibal promontory and the Musandam Peninsula, a N projection of the Western Hajar range, which divides the Gulf of Oman on the E from the Persian Gulf on the W, are

composed of dissected limestone mountains and are very steep, rugged, and barren.

The Musandam Peninsula is indented by numerous inlets. The coast of Iran included in this sector forms the E and N sides of this entrance into the Persian Gulf and extends from Damagheh-ye Kuh to Ras-e Bostaneh, a distance of about 210 miles. The shore and coastal terrain along this coast are heterogeneous in nature.

On the Gulf of Oman, the low sandy shores are interspersed with sea cliffs where tablelands reach the shore, and with areas of tidal inlets and mangrove swamps.

All these types of shore are backed by a narrow broken coastal plain, terminated on the N side by heavily eroded coastal mountain ranges.

In the Strait of Hormuz, the islands are predominantly rough and volcanic, but there are stretches of low, sandy shores and some marshy regions. The mainland coastal terrain is mostly low and sandy, with occasional rocky stretches of shore and with several large marshy areas.

The coastal plain is, in general, narrow and backed by rough high mountains.

Pilotage.—Pilotage for the Persian Gulf and the Strait of Hormuz is available from pilots based at Khawr Fakkan and Fujairah (UAE). For further information, see paragraph 11.1.

Regulations.—All vessels heading for Iranian ports should report to Bandar Abbas Port Control on passing Ras al Kuk, stating their ETA at the Strait of Hormuz and their destination. If clearance is not received before passing Bandar Abbas, vessels should proceed to the Bandar Abbas anchorage.

Two IMO-adopted Traffic Separation Schemes exist in the waters described by this sector; one lies E of the Musandam Peninsula, while the second passes N and S of Jazireh-ye Tomb-e Bozorg and Jazireh-ye Forur. Both are best seen on the appropriate chart.

Caution.—It has been reported that some charted oil production platforms in the Persian Gulf may have been removed. In many cases, all that remains of the platform are pipes from 3.1 to 6.1m above the waterline; these pipes do not show up well on radar and are a hazard to navigation.

Submarines, both surfaced and submerged, exercise frequently in the Strait of Hormuz.

Coast of United Arab Emirates—Ras Diba to Ras Shuraytah

13.2 Ras Diba (25°36'N., 56°22'E.) is a projecting point formed of moderately high cliffs. A cliffy sand bluff about 1 mile W of the point is conspicuous from N but not from E. An islet lies 0.5 mile NW of Ras Diba.

Ru us al Jibal (25°50'N., 56°10'E.), a mountainous promontory of which the Musandam Peninsula is the N end, extends about 48 miles N from Ras Diba. This mountainous promontory has precipitous coasts, and overhanging cliffs in some places, but at the mouths of the valleys are many small sandy bays.

The E side, as well as the N part of the W side, of Ru us al Jibal is indented by numerous inlets in which for the most part the depths are considerable. The Musandam Peninsula has an especially irregular coastline.

Except for scanty vegetation in some of the fissures of the hills and some date groves in a few of the small valleys, the land is barren.

The inhabitants of the promontory are herdsmen and fishermen. The mountains of Ru us al Jibal, when seen from E, appear to have two principal peaks.

Jabal Qawah, which has a small notch in its summit, rises to a height of 1,795m about 12 miles NW of Ras Diba.

Jabal al Harim (Jabal ash Sham), a small table-topped peak about 14 miles N of Jabal Qawah, is 2,057m high and has a small notch in its S part.

Winds—Weather.—The prevailing wind in the Gulf of Oman is W; also important is the NW shamal, which may be varied between June and September by the SE kaus. In this area there is sometimes a heavy swell and the sea may make up suddenly, especially, when the tidal current is strongly opposed by a shamal.

Depths—Limitations.—There is deep water close offshore along the E coast of Ru us al Jubal. The few detached dangers are well clear of shipping lanes and are described with related features.

13.3 Dawhat Diba (25°39'N., 56°18'E.) is a bay formed between Ras Diba and the coast 6 miles NW. Three spurs of a mountain range slope down to the bay, where depths of 27.4m decrease toward a sandy beach.

Diba, which has a harbor enclosed by breakwaters, is one of two villages located at the head of the bay.

Anchorage, open to E winds, can be taken in suitable depths throughout the bay and, in 21.9m, with **Ras Haffah** (25°44'N., 56°19'E.) bearing 067°, distant 0.3 mile.

Dawhat Haffah (25°44'N., 56°18'E.) is a constricted land-locked inlet not noticeable from seaward, as it lies behind a moderately high peninsula.

Two villages are located at the head of the inlet. Ras Haffah is the S entrance point.

The coast N of the point is formed of steep cliffs interspersed by small coves and backed by mountains, some detached and conspicuous from N.

Ghubbat Agabah (Ghubbat Aqabah) (25°55'N., 56°24'E.), a bay entered between two points, affords shelter to small craft from the nashi, the worst wind on this coast.

These small vessels can anchor off the village of Agabah (Aqabah), located at the NW corner of the bay, whereas ships should anchor well offshore.

Limah (25°56'N., 56°26'E.) is a village at the head of a sandy bay entered between Ras Limah and a point about 2 miles NW.

Jazirat Limah, an islet, lies off Ras Limah. Strong currents flow through the deep channel between the point and the islet.

Mountains in the area are reported to rise abruptly to great heights.

Anchorage can be taken, in a depth of about 21.9m, off Limah but, the bay is open to E and NE winds. Landing is made on the S side of the bay.

13.4 Dawhat Qabal (26°02'N., 56°24'E.) is a deep-water inlet indented by coves and bound by steep cliffs. About 1 mile SW of the head of the inlet, the mountains rise abruptly to form a tremendous bluff.

From the N entrance point of Dawhat Qabal to **Ras Sarkan** (26°05'N., 56°28'E.), a vertical cliff, the coast consists of deeply-furrowed cliffs.

Khawr Habalayn (Ghubbat al Ghazirah) (26°07'N., 56°26'E.), entered between Ras Sarkan and **Ras Dillah** (26°08'N., 56°29'E.), is an inlet extending 9 miles WNW.

This deep-water inlet has a rocky bottom at the entrance but has a mud bottom inside. Ras Dillah, a sheer cliff with a conical top, is the extremity of a peninsula.

The shores of this inlet are high, precipitous, and deeply indented. The village of Habalayn is located at the head of the N arm of the inlet. A mosque with four arches is conspicuous at the E side of Habalayn. Depths of 20.1m in the inlet entrance decrease gradually to the sandy head of the inlet.

Anchorage can be taken in suitable depths throughout the inlet and also in 14.6m, sand, with the mosque in Habalayn bearing 191°.

Ghubbat ash Shabus (26°10'N., 56°28'E.), entered between Ras Dillah and **Ras Bashin** (26°12'N., 56°29'E.), has depths over 21.9m. The inlet has shores consisting of high, steep-to cliffs and a few small sandy beaches. Ras Bashin is light red in color and steep-to.

A 12m high pinnacle rock lies 0.2 mile offshore, about 0.5 mile N of Ras Bashin. A reef, with a depth of 1.8m, is reported to lie close off the shore in the vicinity of the rock.

Jabal Sibi, a remarkable cone with a flat scalloped top, rises over 915m about 4 miles NW of Ras Bashin.

There are several villages along the shores of the inlet.

13.5 Jazirat Umm al Fayyarin (26°11'N., 56°32'E.) is a light-colored, steep-to islet lying 3.5 miles E of Ras Bashin. Landing may be made on its SE side.

From Jazirat Umm al Fayyarin, strong tidal currents entering the Persian Gulf on the flood tide usually set N along the coast as far as Jazirat Musandam and then continue NNW toward As Salamah wa Banatuha and W toward Ras Shuraytah.

Tidal currents flowing out of the gulf usually set in the opposite direction with a rate of 2 to 3 knots increasing to 4 knots at springs off Ras Musandam.

Dawhat ash Shishah (26°17'N., 56°27'E.) is a bay entered between Ras Khaysah (26°15'N., 56°30'E.) and **Ras Qabr al Hindi** (26°19'N., 56°31'E.).

The bay is separated from two inlets on the W side of Ru us al Jibal by a narrow ridge. The shores of this deep-water bay are precipitous and steep-to. There are a few sandy beaches in several coves.

Jabal Khaysah, with a conical peak, is a prominent eminence, rising 1.5 miles WSW of Ras Khaysah.

About 3 miles within the entrance lie three islets; the largest and S is known as Jazirat Hamra (Red Islet). There are villages located on the W and NW shores of the bay.

Ras al Bab (26°22'N., 56°30'E.), the NE extremity of the Musandam Peninsula, is a high, sheer limestone cliff. This headland, together with all islands and islets off the N end of Ru us al Jibal, have been undermined by sea action.

Fakk al Asad (Bab Musandam) is a deep-water strait, about 0.2 mile wide and clear of dangers, that separates Ras al Bab and Jazirat Musandam.

Power vessels with local knowledge transit the strait; the NW flood tidal current sets against the W cliffs.

Jazirat Musandam (26°23'N., 56°32'E.) is a precipitous island, except on its E side, where landings can be made in small coves. Three peaks mark the S end of the island.

Tawakkul (Bu Rashid) (26°24'N., 56°29'E.) is a steep-to precipitous islet. A 2.1m rocky patch lies about 0.5 mile W of the islet.

13.6 As Salamah wa Banatuha (26°30'N., 56°32'E.) is a group of three islets known as The Quoins. **Didamar** (26°29'N., 56°32'E.), also known as Little Quoin, is wedge-shaped. Both the N and S ends of the island form a bluff, with the S end being the higher. A light is shown from a position close by a radio tower located on the island.

A reef extends about 0.5 mile N of the island. Ennerdale Rock, a sharp pinnacle with a least depth of 15.5m, lies about 2 miles SW of Didamar.

Fanaku (Gap Islet) (26°30'N., 56°31'E.), in the form of a peak with cliffs on all sides, lies about 1 mile NNW of Didamar. The area between the islets is encumbered with rocks, reefs, and shoals, on which overfalls occur.

As Salamah (Great Quoin) (26°30'N., 56°30'E.) is a wedge-shaped islet with the vertical side at its SE end. Landing can be made on its NW side. A reef, with a least depth of 3.7m, extends about 0.2 mile S from the islet; a detached above-water rock lies almost 91m from the N side of the islet.

The Inshore Traffic Zone for the Traffic Separation Scheme in the Strait of Hormuz encompasses the islands mentioned above, and may best be seen on the chart.

Tidal currents in the vicinity of As Salamah wa Banatuha set NW and SE, attaining a rate of 3 to 4 knots at springs. Near Kachalu and Jazirat Tawakkul, their rate is strongest and they cause broken water.

In calm weather, at springs, the noise of the rips caused by these currents can be heard at a considerable distance.

Khawr Kumzar (26°20'N., 56°25'E.) is a deep inlet open to the nashi, which often blows hard in the winter.

Anchorage, secure and sheltered from the shamal, can be taken, in a depth of 42m, about 1 mile NNE of a fishing village located at the head of the inlet.

Two distinct peaks mark **Ras Mukhaylif** (Ras Mukhalif) (26°22'N., 56°25'E.). Jazirat Abu Sir, about 0.5 mile N of the headland, is a cliffy islet marked by a high peaked hill. A precipitous above-water rock lies in the strait between rock and the headland. Mushkan, a group of detached above-water rocks, lies about 0.6 mile NNW of Jazirat Abu Sir.

Coast of United Arab Emirates—Ras Shuraytah to Ras ash Shamm

13.7 Ras Shuraytah (26°23'N., 56°23'E.), located 2 miles WNW of Ras Mukhaylif, is the N end of a narrow promontory, on the S end of which is Round Hill.

The sides of the promontory are precipitous, except for a short, sandy isthmus connecting it with the mainland. Makhbuk (Sakhr al Makhruq), a conspicuous rock having vertical N, W, and E sides, lies 137m N of Ras Shuraytah.

The W side of the Musandam Peninsula, S of Ras Shuraytah, is deeply indented by several inlets and fronted by Jazirat al Ghanam.

From offshore and N of Musandam, Jabal al Harim, with its tabletop, is visible over the other mountains.

Tides—Currents.—The tidal currents in the N approach to Khawr al Quway set ENE and WSW; in the strait itself they normally set N and S at a maximum rate of 2 knots, but inshore there is a back eddy which runs in the opposite direction. In addition, there is normally a current setting N at a rate of 1 to 2 knots.

In Khawr al Quway itself, 0.5 mile S of Ras Salib, the combined current and tidal current at springs was observed to set in a SSW direction for only about 2 hours on either side of HHW setting NNE during the remainder of the tidal cycle, with the maximum rate at LW.

The tidal currents E of **Ras Shaykh Masud** (26°15'N., 56°13'E.) are weak, but NW of a line joining that point and the N end of Jazirat al Ghanam, about 11 miles NE, they set SW and NE at a rate of 1.5 to 2 knots.

Depths—Limitations.—Most of the coast is steep-to. The only off-lying dangers are Raqq Shuraytak, with a depth of 3m, lying 0.5 mile N of Makhbuk, and depths of 9.1m existing 1.5 miles offshore, in the vicinity of Al Jirri and Bakhah.

The Strait of Hormuz

13.8 The Strait of Hormuz (26°35'N., 56°15'E.), between the N and W sides of the Musandam Peninsula and the E part of Qeshm, is deep and clear of dangers.

Regulations.—The Omani authorities have issued regulations restricting the use of the Inshore Traffic Zone to vessels under 19.7m in length and sailing vessels.

An IMO-adopted Traffic Separation Scheme (TSS) exists in the waters of the Strait of Hormuz, and is best seen on the chart.

Additionally, the area S of the TSS has been designated as an Inshore Traffic Zone, which shall not normally be used by through traffic which can safely use the appropriate Traffic Lane of the adjacent TSS.

Directions.—See paragraph 13.24 for directions through the Strait of Hormuz.

Caution.—Deep-draft ships heading W in the Inshore Traffic Zone should avoid Ennerdale Rock.

Jazirat al Ghanam (26°22'N., 56°21'E.), located 1.5 miles SW of Ras Shuraytah, is a barren, uninhabited island, with a high hill dropping off to a sheer cliff at its S end.

Ras Salib (26°22'N., 56°22'E.) extends 0.2 mile E from the NE side of the island. A drying reef extends S of the point; another drying reef extends E from the root of Ras Salib.

A pier extends in a SE direction from shore at Ras Salib. A drying wreck, marked by a light, lies about 0.2 mile SSW of the end of the pier.

13.9 Khawr al Quway (26°21'N., 56°22'E.) is the strait between the W side of the N end of the Musandam Peninsula and Jazirat al Ghanam. It is deep in the fairway and has a least width of 0.2 mile.

A rock, with a depth of less than 1.8m, lies 46m off the S end of Jazirat al Ghanam. A high white cairn, standing at least 0.5 mile SW of Ras Salib, is conspicuous when entering the strait from the N.

There are two villages at the E end of the strait and several landing beaches along its sides, with a stone pier in shallow water at Salib beach.

Anchorage are available throughout Khawr al Quway, in depths of 23 to 31m, sand and gravel. The strait should be entered from the N, allowing for tidal currents in the approach.

Ships should not anchor within about 0.7 mile of the S entrance of the strait because of strong eddies and the velocities of the N currents.

The S entrance is considered better to enter at night, as **Ras Qabbah** (26°19'N., 56°21'E.), the W entrance point of Khawr Bustan, is a good radar target at 13 miles distant.

Anchorage can be taken 137m off the head of the pier at Ras Salib or, in 11m, about 183m from the head of **Khawr Bustan** (26°19'N., 56°22'E.).

Ras Musandam Naval Base (26°22'N., 56°22'E.), an Omani naval facility, is located on the W side of the N part of Khawr al Quway. Entry is restricted to authorized vessels only. Vessels must contact the base on VHF channel 74 when 5 miles from the base. Authorized vessels must also obtain permission, on VHF channel 74, to use the Inshore Traffic Zone prior to entering the area.

A restricted area, which includes all of Khawr al Quway, the N and S approaches to Khawr al Quway, and the W coast of Jazirat al Ghanam, is bounded by lines joining the following positions:

- 26°23.4'N, 56°22.7'E. (Sakhr al Makhruq)
- 26°22.7'N, 56°21.0'E.
- 26°21.1'N, 56°20.4'E.
- 26°19.1'N, 56°20.2'E. (Ra's Khutaymah)

No vessel over 20m in length may enter this area without prior approval from the Royal Navy of Oman. Vessels are also required to contact Ras Musandam Naval Base on VHF channel 16.

Khawr Ghubb Ali (26°17'N., 56°21'E.) is a narrow inlet almost 4 miles long, that is deep and clear of dangers. The entrance lies between high cliffy hills; the inlet provides shelter from all winds except the shamal.

A drying reef lies 91m offshore and 183m N of the N entrance point. Jabal Sibi, within the head of the inlet, is a good landmark.

Anchorage can be taken, in 21.9m, sand, with the 335m peak rising 0.3 mile SE of the village at the head of the inlet bearing 132°, distant 1 mile.

13.10 The Shamm Peninsula (26°15'N., 56°20'E.) separates Khawr ash Shamm from Khawr Ghubb Ali. The coast of the peninsula is cliffy. There is a village midway along the coast between the inlets.

Jabal Shamm is an 890m peak located about 2 miles NNE of the S end of the peninsula.

Ras Shakhs (26°13'N., 56°17'E.), with its conspicuous white sandy beach, forms the W entrance for the constricted channel leading into Khawr ash Shamm.

A spit, with a depth of 5.8m at its outer end, extends about 0.3 mile N from Ras Shakhs.

The entrance has strong tidal currents at springs, is scarcely perceptible from close offshore, and has a least depth of 23.8m. Jazirat Seghir lies on the S side of Khawr ash Shamm, about 2 miles ESE of the S end of the Shamm Peninsula.

Several villages, some inhabited during the summer months only, are located at the head of coves indenting the shores of Khawr ash Shamm. Sibi, the largest village, is located in a cove at the SE corner of the inlet.

Shamm village is situated in a cove on the N side of the inlet, about 2 miles NE of the S end of the Shamm Peninsula.

Anchorage can be taken N and S of Jazirat Seghir, in depths of 27.4 to 32.9m, in the cove N of Jazirat Sibi, about 0.5 mile from the head of the inlet. There is sheltered anchorage 0.5 mile off Shamm village, in a depth of 5.5m.

Khawr Khasab (26°12'N., 56°15'E.) is entered between two points, on one of which stands a square fort, in ruins. Khasab, a town at the head of the inlet, is barely visible from seaward except for the fort, which is prominent.

A harbor, used only by local vessels, formed by a breakwater extending about 201m ENE from the inlet's W shore contains two quays; one is 90m long and the other is 60m long, both of which have an alongside depth of 4m. A drying sand bank extends about 0.5 mile N from the head of the inlet.

Landing at HW is best effected on the W end of the beach at Khasab. At LW, keep E of the fort and proceed up the creek that runs along its W wall.

Tidal currents at the inner anchorage are variable in direction and strength, but farther offshore the velocities increase.

Anchorage can be taken, in summer, in a depth of 12.8m, good holding ground; however, during winter, anchorage should be taken in not less than 18.3m.

The inlet is well-sheltered from the shamal, which blows from SW in this vicinity; it is open to strong N winds in winter, but they are rare and short in duration. A vessel can anchor, in 14.6m, with the fort bearing 193°, distant about 0.3 mile.

Caution.—It has been reported (2003) that facilities for cruise ships, as well as for container and general cargo vessels, are under construction.

Numerous fish traps exist in the approaches to Khasab. They are usually located within 5 miles of the coast; their positions are subject to frequent change.

13.11 Khawr Hanah (26°14'N., 56°13'E.), a cove, affords anchorage outside its entrance, in depths of about 34 to 40m, with Ras Shaykh Masud bearing about 306°, distant 1.5 miles.

Ras Shaykh Masud (26°15'N., 56°13'E.), a conspicuous, cliffy headland, has two small coves with white sandy beaches on its N side.

The terrain rises gradually from the point to Fine Peak, rising about 1,400m, 9.5 miles S. When seen from N, the peak has a rounded top, but from E or W, it appears as a cone with a long slope on its N side.

Anchorage.—A circular anchorage area, with a radius of 1 mile and charted depths of 48 to 57m, is centered on position 26°17.5'N, 56°15.0'E, about 3 miles NE of Ras Shaykh Masud.

The coast SSW of Ras Shaykh Masud is open to the shamal, from which there is no shelter. Ras Shaykh Masud is marked by a light.

Ras al Jirri (Ras al Jari) (26°13'N., 56°11'E.) is a conspicuous salient cliff when seen from the NW or SW.

Al Jirri (Al Jari) is a fishing village located along a sandy beach at the foot of some hills.

Al Jadi, another village, is located about 3.5 miles farther SSW.

Bukha (26°09'N., 56°09'E.), a village, stands on the shore of an open bight. Depths of less than 5.5m are charted up to 1.5 miles NW and up to 0.5 mile NE of the town.

A prominent white fort with a tower at one corner stands on the W entrance point. Another fort stands at the head of the bight, while a third fort is located 0.5 mile E of the village.

Anchorage can be taken, in a depth of 40m, with the fort on the W entrance point bearing 160°, distant 1 mile. In this position the tidal currents set parallel to the coast.

Bukha Oil Field (26°15'N., 56°03'E.), marked by a lighted production platform, is located about 7.7 miles NW of Bukha. A submarine oil pipeline extends 18 miles S from the platform to the shore close S of Mina Saqr. This pipeline is not buried and may reduce charted depths by up to 2m.

The coast between Bukha and Ras ash Sham, about 6 miles SW, is steep, rocky, and interspersed with small, sandy beaches.

There are several fishing villages reported at the various beaches. Ras ash Sham is described in paragraph 15.2.

The Strait of Hormuz—South Side of Jazireh-ye Qeshm and Adjacent Islands

13.12 Jazireh-ye Qeshm (Qeshm) (26°44'N., 55°40'E.), the largest island in the Persian Gulf, extends about 59 miles WSW from its E extremity at the town of Qeshm. The island, lying nearly parallel with the coast of Iran, is separated from the mainland by Toreh-ye Khowran (Khuran) (Clarence Strait). The light-colored table-topped hills on the island have precipitous sides that are remarkable in appearance.

There are just a few towns and villages on Jazireh-ye Qeshm. From the hills W, behind the town of Qeshm, a low plain extends across the island for several miles; farther W are some table-topped hills, precipitous on their seaward sides.

An eminence, with a white conical top located about 15 miles SW of Qeshm, rises between a long plateau and a very high whitish hill with a cone at its S end.

Jabal Biscoe (26°49'N., 55°54'E.), with a high-peaked summit, is prominent. All heights show up well from offshore.

Qeshm (26°58'N., 56°17'E.), a town located at the NE extremity of the Jazireh-ye Qeshm, is fairly level and well-built, but earthquakes have destroyed a large part of it. There are several domed water tanks close S of town. A fort standing in the NE part of town, with a seven-arched building close N of it, are good landmarks from E.

The terrain behind and S of the town rises gradually to a hill with a flat summit and steep N and W sides. There is a long boat pier N of town. A coastal shoal and drying flats front the town and extend as far as 1.5 miles offshore.

Tidal currents over the shoals and flats attain a rate of 2 knots at springs.

Shoal patches, with depths of 3.4 to 4.7m, are charted 1.5 miles ENE to 1.5 miles SE of the town.

Anchorage.—To the N of the town of Qeshm is a good berth, in a depth of 11m, about 2 miles offshore. Vessels can anchor closer in, draft permitting, in depths of 6.4 to 8.2m, mud, with the fort bearing 180°, distant about 0.5 mile.

The anchorage near the town is well-sheltered from the shamal, and the nashi does not raise a heavy sea; however, the

tidal currents cause a vessel at anchor to lie broadside to the prevailing wind and to ride uneasily.

Qeshm Bunkering Anchorage (26°33'N., 55°45'E.), used by ocean-going vessels undergoing ship-to-ship bunkering operations, lies in the Qeshm Free Area (QFA) about 8 miles SW of Jazireh-ye Qeshm and is best seen on the chart. It has been reported (2005) that the vessel's ETA should be sent 72 hours, 48 hours, and 24 hours in advance; QFA authorities can be contacted on VHF channel 71 or 72.

13.13 Jazireh-ye Larak (26°51'N., 56°21'E.), barren and consisting of many high, rugged hills, has generally steep-to shores. The island is similar in appearance to Jazireh-ye Hormoz (see paragraph 13.27) when seen from the SE at night; however, soundings are deeper from the former island at equal distances offshore.

About 1 mile SW of the highest peak on Jaziret-ye Larak is the perfectly conical light-colored peak which is one of the best landmarks in the area as seen from NW or SE.

There is an old fort and small village on the N coast of the island and a sandy beach 2 miles W of the village.

A light is shown from a metal framework tower atop a house near the center of Jazirehye Larak.

Anchorage.—Between the village and the low sandy point on the N coast, anchorage can be obtained about 0.5 mile offshore and 0.3 mile from the edge of the drying sands, in a depth of about 24m.

Off the village the bottom is rock, and in this vicinity the coastal reef extends about 183m offshore. The anchorage is sheltered only from the shamal and is not recommended.

Ras-e Khargu (26°41'N., 55°56'E.) is a low, rocky point, marked close E by a white cairn, about 25 miles SW of the town of Qeshm. Most of this stretch of coast consists of rocky patches and sandy beaches. This coast is open to the shamal, which blows from between SW and WSW. Small craft obtain shelter in various shallow coves.

Suza (26°47'N., 56°04'E.) and **Masen** (26°44'N., 56°00'E.) are two small villages on this coast. A remarkable isolated crag, which shows up well from the E, rises W of Masen.

13.14 Jazireh-ye Hengam (26°39'N., 55°53'E.), lying about 1 mile SW of Ras-e Khargu, is barren and rather dark-colored. Hills decrease in height from the N end to the S end.

Mitre Hill, about 2 miles from the N end of the island, has a conspicuous double peak. Table Hill, about 0.5 mile NW of Mitre Hill, is also conspicuous on some bearings. A light is shown from a square tower at the E side of the island.

A submerged wellhead is charted 11 miles ESE of the light; a radio mast lies about 3 miles N of the same light. There are two villages, one on the W side, and Hengam-e Jadid, the larger one, on the S side of the island.

Hengam Sound (26°41'N., 55°54'E.) is the strait between the NE side of Jazireh-ye Hengam and Jazireh-ye Qeshm.

Maundrell Shoal (26°41'N., 55°57'E.), with a least depth of 4.6m, lies in the outer entrance of the strait.

Vessels should not pass between the shoal and Jazireh-ye Qeshm. Shoals at the E entrance constrict the fairway to 0.5 mile, with a least depth of 9.6m; the W entrance has a least depth of 9.6m.

White Point (26°40'N., 55°55'E.) and **Ras-e Masheh** (26°41'N., 55°53'E.) are the E and N points of Jazireh-ye Hengam. A cairn marks the former, while the latter is marked by a beacon. Rocky shoals fringe the sides of Hengam Sound and several shoal patches lie as far as 1 mile off the N and S sides of the sound.

Tidal currents set NW and SE in the E entrance to Hengam Sound and attain a rate of 2.5 knots at times. Landing can be made at a shallow pier near Ras-e Masheh.

Anchorage can be taken NW of Ras-e Masheh, but the best position appears to be in 12.8 to 16.5m, with the beacon on that point bearing not less than 124°, distant about 0.3 mile. The depths in this vicinity are irregular, and the bottom is sand and mud. This anchorage is partially sheltered from the shamal, which in this vicinity blows from SW.

A convenient berth is about 0.5 mile N of Ras-e Masheh with the beacon bearing 183°, distant about 0.3 mile, but, although the holding ground is good, this position is open to a strong shamal and slight sea. This anchorage is not recommended during the winter months. During the hot weather, cool wind there is said to be felt in this position. Sheltered anchorage can be obtained NE of Ras-e Masheh, but the bottom is hard. Strong tidal currents and eddies are found here.

13.15 Ras-e Salakh (26°41'N., 55°45'E.), about 10 miles W of Ras-e Khargu, is a sandy point with a rocky beach.

The hills inland of the point form a plateau. There is a village about 1 mile inland of Ras-e Khargu and Quoin Hill, about 8 miles NW of the point, is a conspicuous wedge-shaped eminence.

The coast between Ras-e Salakh and **Ras-e Tarkun** (26°38'N., 55°36'E.) is low, sandy, and backed by cliffs facing N with high, broken hills farther inland. Shoals and rocks front this stretch of coast. A high black chimney close E of Ras-e Tarkun is conspicuous, except when seen from the E. A pier, which dries, is located in front of the chimney.

Anchorage can be obtained about 0.5 mile off Ras-e Tarkun, in a depth of 7.3m. It should be approached with the chimney bearing 013° in order to avoid a dangerous rock off that point.

Landing is bad because a ridge of sand, which nearly dries, lies about 183m off and parallel with the beach. The best place is reported to be a short distance W of the path leading to the main building of the oil company located near the conspicuous black chimney previously described above.

Kish Kuh (26°41'N., 55°32'E.), about 397m high, is conspicuous about 4 miles WNW of Ras-e Tarkun. A range of dark-red hills runs in a N to S direction a few miles W of Kish Kuh. These hills exude salt, which dries, leaving a noticeable brine deposit on the plains between the hill and coast.

A stone hut, located 7.5 miles WSW of Ras-e Tarkun, is reported to be useful for fixing the position of a vessel approaching the inshore channel around the W end of Jazireh-ye Qeshm.

13.16 Ras Kakun (26°34'N., 55°22'E.) and **Ras-e Dastakan** (26°32'N., 55°18'E.), the latter forming the low, rocky SW extremity of Jazireh-ye Qeshm, are separated by two shallow bights.

A light is reported to be shown from a white beacon on Ras-e Dastakan.

Close SW of Ras Kakun is a conspicuous islet, about 3m high, while close off the point separating these two bights is a flat rock, which dries about 1.5m and shows up well.

Another rock lies close offshore, about 0.6 mile NW of the flat rock. An overhanging rock, resembling a shark's jaw, is located about 1 mile NNW of Ras-e Dastakan.

The Hummocks (26°35'N., 55°18'E.), nearly 3 miles NNE of Ras-e Dastakan, are three prominent hills. The W hummock is table-topped, the middle one has a rounded summit, and the E and highest is 141m high and table-topped.

The latter hummock is almost joined to a tableland, which extends in an E to W direction for about 4 miles and terminates E in a bluff.

The S sides of The Hummocks, as well as the S side of the tableland, are precipitous.

The Flat (26°30'N., 55°18'E.), an extensive shoal area with depths of 3.7 to 5.5m, lies off the SW end of Jazireh-ye Qeshm, from which it is separated by a navigable channel.

The outer edge of The Flat lies about 9 miles off the S coast of the island and 5.5 miles off the W coast.

Discolored water, at times almost dark brown, extends for a considerable distance outside The Flat.

The Strait of Hormuz—Islands and Dangers Southwest of Jazireh-ye Qeshm

13.17 An IMO-adopted Traffic Separation Scheme (TSS) lies in the waters SW of Jazireh-ye Qeshm, and is best seen on the appropriate chart. The westbound lane passes N of Jazireh-ye Tonb-e Bozorg and Jazireh-ye Forur, while the eastbound lane passes S of both islands.

Vessels are reminded that the International Regulations for Preventing Collisions at Sea apply, and that vessels not using a Traffic Separation Scheme shall avoid it by as wide a margin as is practicable.

Jazireh-ye Tonb-e Bozorg (26°16'N., 55°18'E.), brownish-colored and level in outline, is enclosed by the 20m curve, which lies up to 1.5 miles S of the island. A small peaked hummock near the SE end of the island is conspicuous when seen from the NE or SW. The E side of the island consists of low cliffs, whereas the N and S ends are sandy beaches.

Foul ground, on which lies above and below-water rocks, extends at least 1 mile off the SW side of the island. A shallow stony spit extends about 0.5 mile from the SE end.

A military camp is located close inland of the SW end of the island, which is reported to be a good radar target at a distance of 15 miles. There is a boat jetty at the SW end of the island.

Mariner Shoal (26°22'N., 55°12'E.), with a least depth of 6.9m, lies with its least depth about 7 miles NW of Jazireh-ye Tonb-e Bozorg. Depths off this shoal are irregular and the area should be avoided.

13.18 Coote Rock (26°17'N., 55°24'E.), with a least depth of 8.2m, lies with its shallowest part about 5 miles E of the NE extremity of Jazireh-ye Tonb-e Bozorg. Tidal currents of 2 to 3 knots cause strong tide rips over this rock.

Detached patches, with depths of 34 and 19.7m, lie about 2.5 miles N and 3.7 miles W, respectively, of the N extremity of Jazireh-ye Tonb-e Bozorg; tide rips form over these features.

A bank, with a least charted depth of 12.6m, extends up to 7 miles S of the island.

Anchorage, sheltered from the shamal but open to the nashi, can be taken, in 14 to 20m, off the E side of Jazireh-ye Tonb-e Bozorg, where the tidal currents are not so strong as S of the island.

There is anchorage off the S side of the island, in 11 to 13m, but the tidal currents here set strongly E or W. During strong SE winds, sheltered anchorage can be taken about 0.4 mile off the NW side of Jazireh-ye Tonb-e Bozorg, in depths of 13 to 15m, with the light structure bearing 098°.

Allowance should be made for the tidal current when a ship is approaching this anchorage. The best landing place, except when the nashi is blowing, is on the beach of the bight N of the SE extremity of the island.

Landing can also be made on a sandy beach, on the NW side of the island or, without difficulty, on the rocks off the village on the S side.

Saleh Oil Field (26°10'N., 55°42'E.), located about 28 miles E of Jazireh-ye Tonb-e Bozorg, can best be seen on the chart. A submarine pipeline extending SE from the oil field to an offshore oil berth can best be seen on the chart; the berth, known as **Hulaylah Oil Terminal** (25°59'N., 55°24'E.) is described in paragraph 15.4. From the berth, the pipeline continues to the shore.

Caution.—A dangerous wreck, with a least charted depth of 18.8m, lies about 19 miles ESE of the light on Jazireh-ye Tonb-e Bozorg.

13.19 Jazireh-ye Tonb-e Kuchek (26°14'N., 55°09'E.), marked by a light, is a small, barren, uninhabited island. On its NW side is a dark hill with two small peaks. The island is steep-to except on its W side, where there is an above-water rock, and on its SE side, where a reef extends about 1 mile offshore. Anchorage can be obtained, in depths of less than 20m, about 0.5 mile offshore, in most places around the island.

Jazireh-ye Abu Musa (25°53'N., 55°02'E.) is mostly low, but there are numerous hummocks, some of which are dark brown in color due to iron oxide. A ridge of high hills rises on the W side of the island. Jabal Halwa, a conspicuous hill of light-pinkish color, from which a light is shown, rises abruptly in the N part and is visible in all directions.

The N part of the island rises to a prominent reddish-colored hill with two peaks. The ruins of a large house are visible in the NE part of the island. Two rocks, which break in moderate weather, lie near the edge of shoals which extend as far as 0.4 mile off the E side of the island.

Drying flats extend up to 0.5 mile off the three bights forming the S side of Jazirat Abu Musa. A sunken rock and foul ground, with a least depth of 3.7m, lie about 0.5 mile SW of the village on the island's W point; lesser depths lie SSW and SE of this shoal.

The W side of Jazireh-ye Abu Musa is fronted by islets and above and below-water rocks and reefs. This coast should not be approached closer than 1 mile.

Anchorage, sheltered from the shamal, can be taken, in a depth of 12.8m, sand, near the S end of the E coast of the island.

Anchorage can also be taken, on very good holding ground off the S part of Jazireh-ye Abu Musa, with Jabal Halwa bear-

ing 352°, distant 2.5 miles. Tidal currents at the anchorages set SW and NE, with a rate of 1 knot at springs.

Torlesse Rock (25°54'N., 55°01'E.), with a depth of 2.3m, lies 1.5 miles W of the N extremity of the island. The sea breaks heavily on this rock in rough weather. A bank, with a least depth of 15.1m, lies about 6 miles NNW of the N extremity of Jazireh-ye Abu Musa. The bank is marked on its E side by a light float.

13.20 Mubarek Oil Terminal (25°49'N., 55°00'E.) is located about 9 miles ESE of Jazireh-ye Abu Musa. Within the restricted oilfield there are numerous oil well heads and associated structures, some exhibiting lights, together with unlighted obstructions and submarine pipelines. A production platform stands in the center of the oilfield, with a flare structure standing 0.3 mile NE.

Depths—Limitations.—There is an SPM located about 0.7 mile SW of the production platform. A tripod drilling platform stands about 2 miles NNE of the SPM. The SPM, lying in 49.7m, is designed to handle tankers of up to 275,000 dwt.

Vessels are normally moored during daylight hours only, but may sail at any time.

Pilotage.—Pilotage is compulsory for tankers using the terminal. A Mooring Master will board in the tanker anchorage located about 6.5 miles ENE of the Floating Oil Storage Vessel; helicopter boarding may be used. The Mooring Master remains on board until the vessel's departure.

Regulations.—Tankers should signal their ETA 72 hours, 24 hours, 12 hours, and 4 hours in advance through Bahrain (A9M), or at any time a change of 1 hour in the original ETA occurs.

The 72-hour message should contain the following information:

1. ETA.
2. Last port of call.
3. Any sickness on board?
4. Does the vessel have a clean bill of health?
5. Cargo quantity and grade to be loaded (in long tons).

The 12-hour message should include whether the vessel is ready to load. The 4-hour message should give the precise ETA.

Tankers are moored during daylight hours only, but may unmoor at any time.

When within range, contact the terminal on VHF channel 71. Mooring Masters only, when aboard ship, may transmit messages via radiotelephone. There are no facilities at the terminal, but stores and provisions can be obtained from Ash Shariqah or **Dubbayy** (25°16'N., 55°17'E.).

Caution.—Tankers should navigate with caution in the vicinity of the oilfield and may not enter this restricted area without a Mooring Master aboard.

Tankers can anchor in a circular area 1 mile wide, with depths of about 40m, located close outside the SE limit of the restricted area.

13.21 Jazireh-ye Forur (26°17'N., 54°31'E.) rises in dark-colored volcanic hills to a table-topped conical peak. The island is steep-to on its N, E, and S sides.

Several detached above and below-water rocks lie close off the W side of the island. Ships approaching Jazireh-ye Forur

during poor visibility should do so with caution, as the tidal currents set strongly past the island and soundings give no warning as to its proximity.

The island is a good radar target, with an echo range of 16 miles under normal conditions. The rocky coast of the island is backed by cliffs. There are a few sandy bays where landing can be made in the vicinity of former villages located at the S and E sides of the island.

Anchorage can be taken, in 49m, sand and shells, about 0.3 mile offshore with the village on the E side of the island bearing about 240°. Anchorage has also been obtained, in 37m, with the village bearing about 257°. Anchorage can be taken in a small bay at the S end of the island, in a depth of 31m, sand and shells.

In suitable weather, landing can be made on the E part of a steeply shelving beach. Anchorage can be taken off the W side of the island, in a depth of 12.8m, rock and sand, with the summit bearing 090°, distant about 2 miles.

Forur Shoal (26°26'N., 54°32'E.), located 6.5 miles N of Jazireh-ye Forur, is described in paragraph 14.2.

13.22 Jazireh-ye Bani Forur (26°07'N., 54°27'E.) is an island with a conspicuous dark-colored saddle hill on its E side. A light is reported to be shown from a beacon on the SE side of the island.

A rocky reef, partly above-water and sometimes marked by breakers extends about 1 mile NNW from the island.

An unexamined depth of 14.6m lies about 2 miles SSW of the island. Lesser depths may exist over this shoal.

Jazireh-ye Sirri (25°55'N., 54°32'E.) (World Port Index No. 48535) has several small hills on the N part of the island where there are houses and small date groves.

Two islets, together with some rocks awash, lie as far as 0.5 mile off the W and N sides of the island; the E and SE sides are steep-to. There is a village, with a tower nearby, about 2 miles from the SE extremity.

Depths—Limitations.—Sirri Oil Loading Terminal is reported to be a T-type jetty, with a berthing face 190m long and an alongside depth of 24m, located on the SE end of the island. The following limitations apply at the berth:

1. Minimum size—80,000 dwt.
2. Maximum size—330,000 dwt.
3. Minimum length—240m.
4. Maximum length—365m.
5. Maximum sailing draft—23.77m.

Vessels berth port side-to, with the bow facing any wind. Tidal currents are reported to run strongly at the loading terminal, making berthing difficult at times.

Pilotage.—Pilotage is compulsory and is available 24 hours. The pilot boards about 5 miles WSW of the SW extremity of Jazireh-ye Sirri.

Regulations.—The vessel's ETA should be sent via fax (+98(0)21-871-6345) to Production and Planning and Export Coordination (attention Sirri Marine) 96 hours and 48 hours in advance.

Vessels should start contacting the terminal on VHF channel 16 beginning 4 hours before arrival.

Vessels may not enter the port limits without a pilot on board.

Anchorage.—Anchorage for vessels awaiting a berth at the terminal may usually be obtained, in a depth of 60m, more than 1.5 miles E of Sirri Light. Anchorage off the island is indifferent, as the holding ground is bad; N and W of the island it is considered unsafe.

Due to the existence of submarine pipelines, anchoring is prohibited within 1 mile of Sirri Oil Terminal and also within the pipeline area marked on the chart extending SW from the island.

13.23 Sirri Oil Field A (25°45'N., 54°08'E.) is located about 24 miles WSW of Jazireh-ye Sirri. Sirri Oil Field C and Sirri Oil Field D are located close E of Sirri Oil Field A. A pipeline connects Sirri Oil Field A to Sirri Oil Field C. Gas and oil pipelines connect Sirri Oil Field C and Sirri Oil Field D to Jazireh-ye Sirri. Sirri Oil Field E lies about 11 miles SE of Jazireh-ye Sirri and is connected to it by a pipeline. The locations of all these oil fields are best seen on the chart.

Caution.—Submarine pipelines, submerged wellheads, and various other obstructions, both above and below-water, exist in this area. The oil and gas pipelines are not buried and may reduce charted depths by as much as 2m.

The area between Jazireh-ye Sirri and **Jazirat Halul** (25°41'N., 52°25'E.) has not been thoroughly surveyed and uncharted shoals have been reported.

An unsurveyed wreck was reported in 50m about 2 miles E of Jazireh-ye Sirri.

The Strait of Hormuz—Directions

13.24 If approaching the Strait of Hormuz from the Gulf of Oman and westbound, vessels should enter the appropriate lane of the Traffic Separation Scheme E of the Musandam Peninsula.

Proceeding as safe navigation permits, enter the appropriate lane of the Traffic Separation Scheme between Jazireh-ye Tonb-e Bozorg and Jazireh-ye Forur. If E bound, observe the Traffic Separation Schemes as listed above.

Keep a good eye out for traffic, especially for southbound vessels at either end of the latter Traffic Separation Scheme. If Eastbound or westbound, and passing S of the Traffic Separation Scheme off Jazireh-ye Tonb-e Bozorg, take care to avoid Saleh Oilfield, the dangers associated with it, and the wreck charted about 10 miles SW.

If passing N of Jazireh-ye Abu Musa and Jazireh-ye Sirri, take care to avoid the 15.1m shoal N of the latter island and Jazireh-ye Bani Forur.

If passing S of both islands, proceed as safe navigation permits, keeping in mind Mubarak Oilfield, Fath Oilfield, and Sirri Oilfield, and that depths are irregular E and S of Jazireh-ye Abu Musa. The strong tidal currents present here should be guarded against.

Coast of Iran—Damagheh-ye Kuh to Bandar Abbas

13.25 Damagheh-ye Kuh (Ras al Kuh) (25°48'N., 57°18'E.) is described in paragraph 12.18. Shoal water, steep-to on the outer edge, extends 1 mile off the point. A light is shown from the point.

The small inlet NW of Damagheh-ye Kuh is frequented by local craft. There is a village reported about 3 miles NE of the point.

The entire coast for over 100 miles between Damagheh-ye Kuh and Bandar Abbas is very low, with a plain extending inland to the foot of mountain ranges.

Tidal currents off the E shore of the Gulf of Oman set N and S. The currents E of Damagheh-ye Kuh are weak, but N along the coast they attain a rate of 2 knots at springs.

Anchorage can be taken, in 11.0 to 18.3m, about 1 mile SW of Damagheh-ye Kuh and 0.5 to 0.7 mile offshore. This anchorage is open to the shamal.

Caution.—Caution should be exercised when approaching this stretch of coast as it is not well known and soundings and radar are of little aid.

13.26 Kuh-e Mobarak (25°51'N., 57°19'E.), a remarkable, isolated 101m high light-colored rock, is located in a swampy plain, 0.5 mile inland and 3 miles N of Damagheh-ye Kuh. In its upper E corner is a small hole, which appears open when seen from NW or SE.

The rock is conspicuous when seen against the light-colored hills behind it. When the rock is seen from NW or SE and the low land is not in sight, it appears as an outlying rock. It is reported that Kuh-e Mobarak is radar conspicuous under normal conditions.

Several inland ridges extending parallel to the coast have features which are conspicuous from offshore.

Karai Jump (26°10'N., 57°16'E.) is a conspicuous light-colored high hill which appears as a peak with nearly precipitous sides when seen from NW or S.

Kuh-e Zangiak (26°12'N., 57°33'E.), a prominent mountain, appears conical in shape when seen from the S or NW.

Proserpine Rock (25°57'N., 57°16'E.), close offshore, is 16m high and wedge-shaped, with the bluff on its W end. An inlet close N of the rock leads to a village.

Ras-e Shir (Ras osh Shire) (26°01'N., 57°12'E.) is a low point off which a mud flat of less than 5.5m extends as far as 3 miles offshore.

Rudkhaneh-ye Gaz (26°26'N., 57°04'E.), a river entered from seaward, has an entrance hard to identify. There is a conspicuous double-peaked hill rising about 10 miles ESE of the river mouth; however, the peak is often obscured by haze.

Bandar-e Sirik (26°29'N., 57°05'E.) is difficult to see from seaward due to the low coastline and sand dunes. Sirik village, located inland, is scarcely visible. Landing can be made about 0.5 mile N of Bandar-e Sirik.

A light is shown from a beacon about 0.5 mile NE of Bandar-e Sirik.

Kuhestak (26°47'N., 57°02'E.), a village, may be identified by a large conspicuous white fort standing on a hill close E of the village.

The shamal blowing from the WSW raises heavy seas along the coast N of Kuhestak. The hills in the vicinity of Kuhestak recede, leaving a wide plain expanding for 20 miles or more until they reach mountain ranges.

A very high needle-pointed hill, rising about 9 miles ESE of Kuhestak, is an excellent landmark along this coast.

An overhanging peak, 820m high, rising about 20 miles NE of Kuhestak, appears as two peaks when seen from the SSW.

This peak is located at the S end of a range which extends NNW.

Khovr-e Minab (27°08'N., 56°49'E.), a salt water mangrove river, is the port for Minab, which is situated about 15 miles ENE of the entrance.

From Khovr-e Minab to Bandar Abbas, about 28 miles WNW, the coast is low, swampy and fronted by mud flats for at least 2 miles offshore.

13.27 Jazireh-ye Hormoz (27°04'N., 56°28'E.) (World Port Index No. 48530), lying with its N extremity about 3 miles off the coast of Iran, consists mostly of rugged hills of various colors. The highest of some white-peaked hills in the middle of the island is very sharp, with a long slope on its E side. The S and SW coast are cliffy. Various colored earth cover the hills, which are formed of rock salt.

A fort, in ruins, stands on the N extremity of the island; close S of the fort is Hormoz, a village consisting of mat huts.

About 0.2 mile S of the fort is a minaret, about 21m high. Red oxide, brought from the interior of the island, is loaded into dhows near the fort for transfer to vessels at the anchorage. The NE side of the fort presents a remarkable appearance when seen from seaward, as it is a red purplish color from the oxide dust.

Pilotage is compulsory for ships proceeding to the anchorage.

Ships must first anchor off Bandar Abbas to obtain pratique, clear customs, and embark a pilot and labor gang. Ships can sail without a pilot. The vessel's ETA is given to Bandar Abbas 48 hours prior to arrival. Landing at the jetty near the fort is not easy, as it dries at LW.

A stone pier, about 183m long and with a depth of 3.7m at its head, is located about 0.5 mile ESE of the fort. The pier is used for loading lighters.

Shoal flats, with depths of less than 4.8m, extend between 2 and 4 miles off the W side of the island.

Euphrates Patch (27°02'N., 56°24'E.), lying at the SW extremity of the island, has a depth of 2.4m and is marked S by a lighted buoy.

A constricted channel separates the shoal flats extending N of Hormoz from the shoal flats fronting the mainland; channel depths may best be seen on the chart.

Anchorage can be taken in the channel N of the island, in depths of 12 to 14m, mud, with the ruined fort bearing about 231°, distant 0.5 mile. Small vessels can anchor near the village. During the E winds of the nashi, vessels may shift to the W side of the N extremity of Jazireh-ye Hormoz. Tidal currents set WNW and ESE at a rate of 1.5 to 2 knots.

Directions.—From a position about 2 miles E of the E side of the island, a vessel should steer NW until the fort on the island bears about 262°. Then steer W, passing close S of the lighted buoy moored ENE of the island. When the fort bears 228°, change course and steer on this bearing to the anchorage.

Vessels proceeding W from the anchorage should pass about 0.4 mile N of the fort, the track is 085° and will lead through the channel in a least depth of about 6.4m. When the high peak of Jazireh-ye Larak bears 188°, course may be changed W or SW as required.

Bandar Abbas (Bandar Shahid Bahonar) (27°09'N., 56°12'E.)

World Port Index No. 48520

13.28 Bandar Abbas is located on an open bay about 5 miles W of the town of Bandar Abbas, and is the main base for the Iranian Navy. The port is protected by a breakwater.

Winds—Weather.—See paragraph 13.1 for further information.

Tides—Currents.—Spring tides rise about 3m at Bandar Abbas, while the neap rise is about 2.1m. At the merchant anchorage, the flood sets WNW while the ebb sets ESE, both attaining rates of 2 to 3 knots. Off Bandar Abbas, the currents set E and W, with rates up to 3 knots. Within the breakwaters, the currents are negligible.

Depths—Limitations.—The approaches to the merchant anchorage have a least charted depth of 14.6m, but shoal ground which has already been described lies off the land and islands along the route.

An obstruction, with a depth of 21.5m, is charted about 5 miles SSW of Jazireh-ye Hormoz.

Bandar Abbas is entered through a channel, dredged to a depth of about 9m, over a width of 100m. The channel leads to a turning basin of the same depth, which provides access to the remainder of the port.

A berth, which can accommodate vessels up to 14,000 dwt, lies on the W side of the turning basin.

The Commercial Basin, dredged (1977) to a depth of 10.5m, lies N of the turning basin and provides six berths, with a total length of 1,050m, along its W face; further information can be found in the accompanying table. A T-headed oil pier, which can accommodate a vessel with a maximum draft of 10.0m, lies off the E side of the entrance to the Commercial Basin, while a bulk solid berth lies close N of the oil pier.

Bandar Abbas—Berth Information .		
Berth	Depth alongside	Remarks
Commercial Basin		
No. 1	9.0m	General cargo.
No. 2	8.9m	General cargo.
No. 3	8.9m	General cargo.
No. 4	8.9m	General cargo and grain.
No. 5	9.1m	General cargo.
No. 6	7.3m	General cargo.
Naval Basin		
No. 7	6.3	First berth on N side of Naval Basin.

The Naval Basin, E of the turning basin, was dredged (1977) to a depth of 8m, and has several berths devoted to military use. The piers along the E side of Commercial Basin are also reported to be military installations. Use caution when berthing here, as problems have been reported.



Bandar Abbas Breakwater

Under normal circumstances, vessels with a maximum length of 183m and a draft of 10m can be accommodated. Vessels with a draft of up to 10.4m can enter at HW.

Aspect.—The town of Bandar Abbas stands on a bare sandy plain, rising to higher ground one or two miles inland.

A conspicuous white hotel stands on the shore SW of the town, with a pier carrying a sewage outfall extending 0.2 mile seaward of it.

A conspicuous wreck is charted about 4 miles SSE of the pier. A red and white checkered tank, showing red lights, stands 2.5 miles NNW of the harbor entrance. A conspicuous water tower stands about 2 miles NNE of the harbor entrance.

A prominent water tank and several silver-colored tanks stand on the NW and NE corners of the Commercial Basin.

Two conspicuous chimneys, painted red and white in bands, stand about 6 miles WNW of the harbor entrance. Three conspicuous cranes stand alongside the drydock on the N side of the Naval Basin.

Pilotage.—Pilotage is compulsory. Vessels are usually boarded about 1 mile off the Bandar Abbas breakwaters. The port office requires 48 hour notice prior to arrival.

It is recommended that, due to the existence of unlighted and unmanned vessels lying in or near the port approaches, a pilot should be embarked in the outer approaches to the port before entering the anchorage areas.

Regulations.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for regulations pertaining to vessels in Iranian waters.

Upon arrival at the anchorage, vessels should contact Port Control on VHF channel 16 and forward arrival information.

Anchorage.—Merchant vessels can find anchorage in the Merchant Vessel Anchorage, charted 5 miles SE of the harbor, in charted depths of 10.9 to 20.5m. Naval vessels anchor in the charted area SW of Bandar Abbas harbor entrance, in depths of 6.5 to 11.2m. Anchorage is prohibited in an area, best seen on the chart, off the town of Bandar Abbas.

Directions.—The pilot boarding ground or the anchorages may be approached from seaward by passing either side of Jazireh-ye Larak, keeping in mind the foul ground in the area and the strong sets encountered here.

Take care when using the entrance range for Bandar Abbas, as the range beacons are reportedly difficult to see until about 0.5 mile off the harbor entrance.

Caution.—Prolonged periods of winds from the N or NE can reduce the sea level by as much as 1m.

A hovercraft approach area has been established close N of the dredged area. Mariners should proceed with caution in this area due to the possible presence of hovercraft.

13.29 Bandar Shahid Rejaie (27°06'N., 56°04'E.) (World Port Index No. 48495) is situated about 8 miles WSW of Bandar Abbas.

Iranian Ports and Shipping Organization Home Page
<http://www.ir-pso.com/rajaie>

Depths—Limitations.—The port is approached via a 4-mile long and 250m-wide channel. The channel, which is marked by lighted buoys and a lighted range, had a reported depth of 13.5m.

Basin No. 1 and Basin No. 2, with depths of 14m and 11.5m, respectively, have a total berthing length of 4,843m.

Container, ro-ro, and bulk vessels up to 45,000 dwt can be accommodated.

The petroleum terminal, on the E side of the harbor, can accommodate vessels up to 75,000 dwt.

Bandar Shahid Rejaie—Berth Information		
Berth	Depth alongside	Remarks
Petroleum Pier		
No. 1	14.0m	Can accommodate vessels up to 70,000 dwt.
No. 2	14.0m	Can accommodate vessels up to 70,000 dwt.
Bunker Terminal		
—	9.7m	Located close N of Petroleum Pier.
Basin No. 1		
No. 3	11.0m	Grain. Can accommodate vessels up to 80,000 dwt
No. 4	13.0m	Grain. Can accommodate vessels up to 80,000 dwt

Bandar Shahid Rejaie—Berth Information		
Berth	Depth alongside	Remarks
No. 5	13.0m	Containers. Can accommodate vessels up to 30,000 dwt.
No. 6	13.0m	Containers. Can accommodate vessels up to 30,000 dwt
No. 7	13.0m	Containers. Can accommodate vessels up to 30,000 dwt
No. 8	10.0m	Barge and ro-ro traffic. Can accommodate vessels up to 45,000 dwt.
No. 9	6.5m	
No. 10	11.0m	
No. 11	11.0m	
No. 12	11.0m	
No. 13	11.0m	
No. 14	11.5m	
Quay head between Basin No. 1 and Basin No. 2		
No. 15	13.0m	
No. 16	13.0m	
No. 17	12.5m	
No. 18	12.7m	
Basin No. 2		
No. 19	11.5m	
No. 20	11.5m	
No. 21	11.5m	
No. 22	11.5m	
No. 23	11.5m	
No. 24	11.0m	

Aspect.—Lights are shown at the harbor entrance.

Pilotage.—Pilotage is compulsory. Pilots board, as follows:

1. Large vessels—in the Merchant Vessel Anchorage charted SE of Bandar Abbas.
2. Smaller vessels—near Fairway Lighted Buoy.

Small vessels, with prior arrangement, board the pilot near the breakwaters.

Regulations.—It was reported that vessels should anchor in the Merchant Vessel Anchorage off Bandar Abbas to pick up port officials.

Upon arrival at the anchorage, vessels should contact Port Control on VHF channel 16 and forward arrival information.

Hormozgen Steel Marine Complex Terminal (27°07'N., 56°07'E.), which handles bulk steel products and crude oil, is situated 3 miles NE of Bandar Shahid Rejaie. The terminal consists of a trestle jetty extending 1 mile SE from the shore.

The jetty head provides berthing length of 312m and can be approached from the E through a channel dredged to a depth of 14m. Vessels up to 60,000 dwt can be accommodated. A restricted area, as shown on the chart, has been established close N of the dredged channel.

Bostanu Shipyard (27°03'N., 55°58'E.) is a new shipyard being constructed in a protected basin about 5.5 miles WSW of the entrance to Bandar-e Shahid Rejaie.

Coast of Iran—Bandar Abbas to Ras-e Bostaneh

13.30 Toreh-ye Khowran (Clarence Strait) (26°58'N., 55°44'E.), which separates Jazireh-ye Qeshm from the coast of Iran, is contracted near its center to a width of about 2 miles between **Ras-e Pahel** (26°59'N., 55°45'E.) and **Ras-e Laft** (26°57'N., 55°44'E.).

A submarine gas pipeline is laid across the strait adjacent to the points. The E half of the strait as far as Ras-e Laft is navigable by vessels of moderate size, with the least depth in the fairway appearing to be 8.2m. To the W of Ras-e Laft, the first part of the strait is divided by an island into two channels, with the passage leading E of the island being the recommended one.

From the juncture of these two passages, at the SW end of this island, the channel to the W end of Toreh-ye Khowran is known as Khowr-e Jafari.

The strait W of Ras-e Laft appears to have a least depth in the fairway of 5.1m, which is found in the W entrance. With good visibility, and sounding continually, transit of the strait is possible for a shallow draft vessel with local knowledge.

The passage should be made in daylight and will take 8 or 9 hours. If possible, negotiate the narrow center of the strait at LW and slow speed so the banks will be visible.

Caution is advisable in attempting transit as there are no buoys, surveys are unreliable, and currents are strong.

A mountain range extends W for about 50 miles from Ras-e Pahel. This range is separated from the main range N by a wide valley. In it are mountains attaining heights over 1,220m. From Finger Peak, located about 5 miles inland from the shore of **Bandar-e Biscoe** (26°55'N., 55°52'E.), a range trends N to within 1.5 miles of the coast, where it turns W and forms a coastal range of low, irregular hills.

Sugar Loaf Hill, near its W end, is the only conspicuous summit of this range. Shaikh Musa, a detached hill, rises 1.5 miles W of Sugar Loaf Hill. The S side of this hill is sheer, forming a good mark for vessels approaching from E.

Ras Miln (Ras Milne) (27°00'N., 56°10'E.) is a bold and conspicuous promontory. Jabal Salsul is a peaked, precipitous hill rising 0.5 mile SSE of Ras Miln.

13.31 Jabal Horton (26°59'N., 56°06'E.) is a conspicuous wedge-shaped hill backing a low point. A detached patch of sand and rock, with a depth of 2.7m, lies about 2 miles W of Jabal Horton.

Ras-e Kuveh (26°57'N., 55°59'E.) is a steep-to well-defined point backed by a high plateau. There is a water tank near the point. Zaynabi is a high tableland which parallels the coast WSW of Ras-e Kuveh.

It has been reported (2004) that a 600m long jetty has been built at Ras-e Kuveh. The jetty is approached from NE using a

channel, marked by lighted buoys, lying off the N coast of Jazireh-ye Qeshm and passing S of Bostanu Patches. Depths of as little as 10.7m exist in this marked channel.

Sheltered anchorage can be taken, in 8.2 to 12.8m, good holding ground, between **Bostanu** (27°05'N., 56°01'E.), a village, and **Bostanu East Bank** (27°04'N., 56°05'E.).

Laft Qadim (26°57'N., 55°46'E.), a small rocky point with a pier nearby, has a mosque and water tank in the vicinity that are fairly conspicuous. There are villages between Laft Qadim and a plateau inland. A shoal, with a depth of 4.6m, lies 0.5 mile NNE of Ras-e Laft.

Sheltered anchorage can be taken, in a depth of 11 or 7.5m, about 0.3 and 0.2 mile, respectively, NW of Ras-e Laft. Tidal currents set W on a rising tide and E on a falling tide.

Caution.—An overhead power cable, vertical clearance unknown, crosses the channel E of Ras-e Laft, in the general vicinity of charted prohibited anchorage area. The cable is supported in its center by a tower.

Khowr-e Guran (26°53'N., 55°43'E.), although tortuous, is the preferred channel, entered close W of Ras-e Laft, that leads through the W part of Toreh-ye Khowran. The least depth in the channel is 7.3m in the very constricted passage about 3 miles N of **Guran** (26°43'N., 55°37'E.).

Mangroves mark the sides of the channel; a beacon marks the S side of the channel at its entrance W of Ras-e Laft.

Laft (26°54'N., 55°46'E.) is a small town at the foot of a high hill which rises from the beach to the cliffs. A fort, in ruins, with three former towers, and a very high hill 1 mile ENE, are both prominent.

13.32 Khowr-e Jafari (26°44'N., 55°34'E.), in the W side of Toreh-ye Khowran, extends W for 16 miles, from the junction of the N channel and Khowr-e Guran, the preferred channel described above, to Ras-e Basa idu.

The mainland on the N side of the channel is low and fronted by an extensive sand bank; the S side of the channel is fringed by mud flats, which partly dry in places and extend as far as 1 mile offshore.

A middle ground, with a depth of 2.7m, lies in the channel NE of Ras-e Basa idu and N of **Gumri** (26°38'N., 55°21'E.).

Gumri and **Dar Kuh** (26°39'N., 55°24'E.) are villages with date groves that can be seen from the channel. The channel S of Ras-e Basa idu is reported to have a least depth of 6.4m, but charted depths are considerably less than this.

Directions.—From a position about 3 miles WSW of **Guran** (26°43'N., 55°37'E.), proceed through the fairway by keeping about 0.5 to 1.5 miles off the S shore until N of **Kunar Siah** (26°40'N., 55°25'E.).

Then change course S and proceed along the S edge of the extensive sand bank on the N side of the channel in a depth of 7.4m until past the middle ground, when course is changed SW for the anchorage off Ras-e Basa idu.

Ras-e Basa idu (26°39'N., 55°16'E.), on which the ruined village of Basa idu is located, is a cliff, about 6.1m high, with a level summit. A building, in ruins, is conspicuous when approaching the cliff from the SW.

Beacon Shoal (26°38'N., 55°14'E.), partly drying in places, consists of rock at its NE end and sand elsewhere. A white wooden beacon, with a cross topmark, stands on the NE end of

the shoal. There is a sand spit extending over 3 miles S of the shoal and mud flats between the shoal and the shore to the E.

The Gut (26°40'N., 55°16'E.), an area about 183m wide and at least 20.1m deep, lies about 0.4 mile NW of Ras-e Basa idu.

Anchorage can be taken, in depths of 9.1 to 12.8m, good holding ground of clay, about 0.3 mile NW of Ras-e Basa idu, or farther NE. This anchorage is sheltered from the shamal by Beacon Shoal. Care should be taken to avoid anchoring in The Gut.

Vessels lying to a single anchor, when the wind direction is in opposition to the tidal current, ride very uneasily. The tidal current rate is 3 knots at springs.

Caution.—The roadstead off Ras-e Basa idu is not recommended for vessels with a draft over 6.1m, and those drawing more than 5.1m should not enter the roads until the tide has risen above mean sea level. At night, vessels should anchor, in about 11m, off the W edge of The Flat and await daylight.

13.33 A range of mountains extends W from the coast on the N side of the SW entrance of Toreh-ye Khowran. The E end of this range is a rounded eminence about 10 miles N of Ras-e Basa idu.

Grubb's Notch (26°50'N., 55°00'E.) is a prominent mountain of the range with a saddle-shaped summit 900m high. Jabal Lengeh, a conspicuous mountain, which rises to a height of 1,190m, stands 12 miles W of Grubb's Notch. This eminence is light brown in color, appears dome-shaped, and is visible 45 miles on a clear day.

The terrain between this mountain and Kuh-e Bostaneh, about 19 miles SSW, is an extensive plain which becomes swampy after rains.

The coast extending SW from the low point located about 5 miles NNW of Ras-e Basa idu is both low and hilly. A mountain rises 405m about 5 miles W of the point. A long light-colored ridge and a table-topped hill, rising 7 and 9 miles SW of the mountain, are conspicuous.

Bandar-e Hamiran (Bandar-e Homeyran) (26°41'N., 55°06'E.) is a bight bound SW by **Ras osh Shavari** (26°39'N., 55°04'E.), a low, sandy point. A shoal, with a least depth of 3.2m, lies 1.5 miles off the head of the bight.

Anchorage can be taken, in a depth of 7.3m, between the shoal and coast.

Bandar-e Kong (26°35'N., 54°56'E.) is a town extending along the sandy coast which contains many fine houses and mosques. The coastal waters along this entire stretch of coast is imperfectly surveyed and should be approached with caution.

Landing on the beach near the town is bad at LW, as the sand dries out in ridges for about 0.5 mile, with depths of 0.3 to 0.6m between the ridges.

Anchorage, sheltered except from SW squalls, can be taken, in a depth of 9m, mud, about 2 miles off the town.

13.34 Bandar-e Lengeh (26°33'N., 54°53'E.) (World Port Index No. 48490) consists of many formerly well-kept houses standing on a narrow strip of foreshore which is clearly visible in the forenoon.

A conspicuous tall minaret, painted in yellow with a green top, stands at the SW end of town. Also prominent are a white water tower and radio masts marked by obstruction lights.

Anchorage can be taken, in 10.1m, good holding ground of clay, about 0.5 mile SE of the customhouse. Small craft can anchor closer inshore, in depths of 7.9m. The anchorage is sheltered except from the squalls, which raises a heavy sea. A conspicuous stranded wreck lies about 5 miles E of the town.

Ras-e Kharyu (26°31'N., 54°51'E.), a low and sandy point with a rocky beach, is reported to show up well on radar.

Shenas (26°31'N., 54°50'E.) is a bight located between Ras-e Kharyu and Ras-e Shenas, a low and sandy point about 3.25 miles further SW. Shoals of less than 5.5m lie as far as 0.5 mile off the shores of the bay. A village is situated about 3 miles inland. About 1 mile WNW of Ras-e Shenas are high, white sand hills rising near the beach.

Tidal currents off the bay attain a rate of 1.5 knots, causing the water to be discolored.

Anchorage, sheltered from the shamal, can be taken, in depths of 9 to 12.8m, in Khalij-e Shenas. The nashi does not raise a heavy sea as the bay is protected by The Flat and Qeshm.

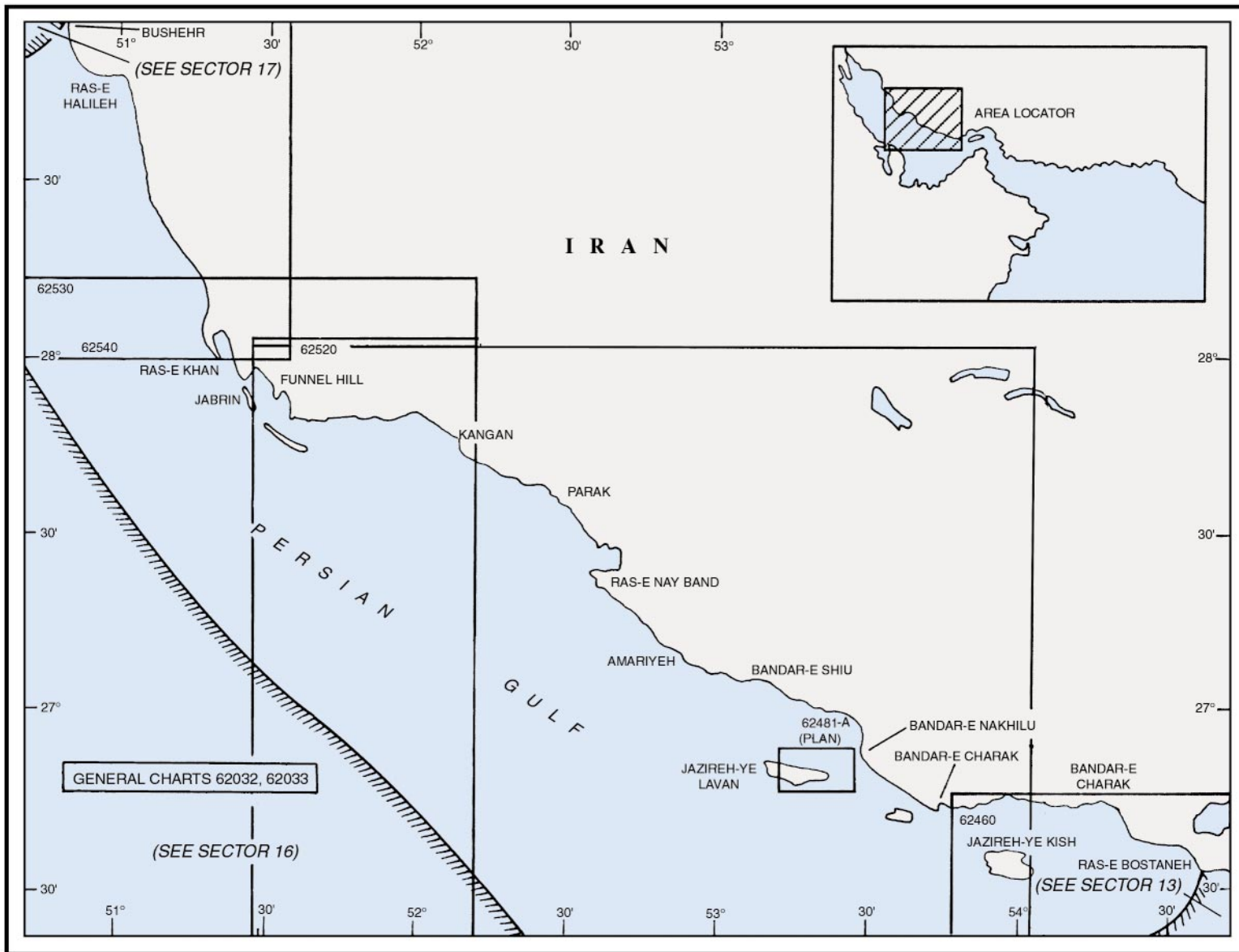
13.35 Ras-e Bostaneh (26°30'N., 54°37'E.) is a low point, brown in color, located at the W end of a slight recession of the coast, which is fronted by a rocky beach and shoals of less than 5.5m lying as far as 0.5 mile offshore.

A light is shown from a beacon on the point. There is a fishing village 2 miles E of the point, off which anchorage can be taken, in depths of 7.3m.

Kuh-e Bostaneh (26°34'N., 54°41'E.) is a prominent detached group of dark volcanic hills of very irregular outline. The highest part is a ridge reported near the middle of the group. Near the S end of this ridge, about 5 miles NE of Ras-e Bostaneh, is a peak, about 533m high, which resembles a tower. The peak is conspicuous, especially when seen from E or W.

Between Kuh-e Bostaneh and the hills NW of Bandar-e Lengeh, the land rises in a gentle slope from the coast to a height of about 91m, but then falls in cliffs to the S edge of the low plain between that mountain and Jabal Lengeh.

Behind Kuh-e Bostaneh are several dark-colored summits; the peak situated about 17 miles NNW of that mountain is about 457m high, haystack-shaped, and conspicuous.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 14 — CHART INFORMATION

SECTOR 14

THE PERSIAN GULF—IRAN—RAS-E BOSTANEH TO BUSHEHR

Plan.—This sector describes the coast, islands, and dangers along the NE side of the Persian Gulf from Ras-e Bostaneh to Bushehr. The sequence of description is WNW and NW from Ras-e Bostaneh.

General Remarks

14.1 Winds—Weather.—The shamal is the most common wind in this area and blows from between WNW and NNW. The winter shamal is often squally and more violent but of shorter duration than the summer shamal. The latter is a persistent NW wind which blows for several days at a time in June and July, with lulls at night.

The shamal normally slackens considerably in August. The kaus is a SE wind. The topography or shape of the land in any particular area has a tendency to affect or modify wind direction and velocity. Strong and generally irregular currents are reported off several coastal areas.

Aspect.—The NE side of the Persian Gulf between Ras-e Bostaneh and Bushehr includes about 355 miles of mainland coast and several small off-lying islands. In general, the maximum offshore depths range from about 56 to 92m. The coastal plains are mostly narrow and are backed by ranges of high rough mountains which generally run parallel to the coast.

Regulations.—The Iranian authorities have stated that all vessels bound for Iranian ports should report to Bandar Abbas Port Control on passing **Ras al Kuh** (25°48'N., 56°17'E.), stating their ETA at the Strait of Hormuz and their destination. If clearance is not received before passing Bandar Abbas, the vessel should proceed to the Bandar Abbas anchorage.

Anchorage.—The entire coast, which trends NW, is exposed to the shamal or the kaus. None of the anchorages along this coast afford shelter, except for small craft, from both these winds.

Anchorage can be taken offshore along a considerable part of this coast. Bottoms are mostly mud with some variations of sand, coral, and gravel.

Caution.—It has been reported that some charted oil production platforms in the Persian Gulf may have been removed. In many cases, all that remains of the platforms are pipes extending from 3.1 to 6.1m above the waterline. These pipes do not show up well on radar and are a hazard to navigation.

Ras-e Bostaneh to Ras-e Nakhilu

14.2 Ras-e Bostaneh (26°30'N., 54°37'E.) is described in paragraph 13.35. The coast for about 160 miles NW is indented by several open bights, with villages located along the shores at the head of the bights.

The major off-lying islands off this coast are inhabited, except for **Jazireh-ye Shotur** (26°48'N., 53°25'E.), and support sparse, scattered cultivation. All of the islands have gentle slopes rising to inland plateaus.

The coastal area in the SE part of this stretch consists of a low plain, from which rise disconnected rough hills backed by mountainous foothills.

From the plain which backs Bandar-e Charak to the plain which backs Bandar-e Nakhilu, there is a narrow coastal plain closely backed by steep rough ridges paralleling the coastline.

From NW of Bandar-e Nakhilu, the coastal plain, where existent, is broken, narrow, and closely backed by steep rugged ridges and hill masses.

Near Ras-e Nay Band, the cliffy shore is backed by an almost flat plateau. Many small fishing villages are found along the coast. Anchorages of varying size and degree of shelter from the shamal and other winds are available along the coast and off the islands.

The most important anchorages, all open to the shamal, are in the bights fronting the villages of Bandar-e Moghuyeh, Bandar-e Charak, and Nakhilu; those off Chiruyeh, Jazireh-ye Kish, and Jazireh-ye Lavan are all sheltered from the shamal.

Khalij-e Moghuyeh (26°35'N., 54°32'E.), an open bay, has low sandy shores backed by broken ground.

Shoal flats, with depths of 5.5m, front the shores of the bay and extend at least 2 miles off **Ras-e Yarid** (26°35'N., 54°26'E.), where its outer edge is steep-to and marked by discolored water.

Forur Shoal (26°26'N., 54°32'E.), with a least depth of 4.9m, is composed of coral, rock, shell, and sand. Between this shoal and Ras-e Bostaneh, the tidal currents are strong over irregular depths, causing tide rips in places.

14.3 Bandar-e Moghuyeh (26°36'N., 54°30'E.), a large village at the head of the bay, has several towers and a fort with three conspicuous, square towers located behind the village.

Anchorage can be taken on the E side of the bay, about 1 mile offshore and in front of the village. There are depths of 7.3m, clay, at the anchorage, which is considered dangerous during the shamal, but affords good shelter from the kaus. The bay is open to the suahili, which probably raises a heavy sea, but the holding ground is good at the anchorage.

Bandar-e Hasineh (26°39'N., 54°22'E.) is a village with a large fort fronting it. The terrain backing the village rises to a rugged group of hills terminating in **Kuh-e Namaki** (26°40'N., 54°26'E.). Anchorage, which is open to the shamal, can be taken off the village.

Bandar e-Charak (26°44'N., 54°17'E.), a coastal town with several towers, has a customhouse. The house of the local ruler and the ruins of a fort standing on a hill are prominent. A water tank is conspicuous on the S side of a hill rising 1.5 miles W of town.

There are two rocky points 2 and 3 miles WSW of Bandar e-Charak; **Ras-e Tahuneh** (26°42'N., 54°12'E.), on which is the village of Bandar-e Tahuneh, is 1.5 miles farther WSW. The foreshore between the points is rocky.

Anchorage, sheltered from the prevailing winds, but open to the suahili, can be taken off Bandar-e Charak, in 7.3m, mud, with Ras-e Tahuneh bearing 267° and the ruined fort bearing about 005°. The shamal sends in some swell; vessels should anchor as close-in as their draft permits.

The anchorage is well sheltered from E winds. Small vessels can anchor about 0.5 mile off Bandar-e Tahuneh, with Ras-e Tahuneh bearing about 295°, distant 0.5 mile.

14.4 Bandar-e Korzeh (26°45'N., 53°58'E.), a village at the head of a small bay which is steep-to, is located on a plain which extends to the foot of a range. Anchorage, sheltered from the shamal, can be taken close off the village.

Kalat (26°43'N., 53°54'E.) is a fishing village with a conspicuous, round tower standing in a fort on a hill behind the village. Other towers stand in Kalat; about 1 mile E are several water tanks.

Anchorage can be taken, in about 7m, sand, close offshore S of Kalat, with the W extremity of the land bearing 260°. The anchorage is sheltered from the shamal and partially from the nashi, about 0.5 mile offshore, little shelter will be obtained.

Landing at the village is reported bad and often impracticable. Depths in the anchorage may be less than charted.

Chiruyeh (26°43'N., 53°45'E.) is a village on the W side of a bay whose W entrance point is **Sar-e Chiruyeh** (26°42'N., 53°44'E.). The sea breaks on a flat extending offshore between Kalat and Sar-e Chiruyeh.

The village has a conspicuous fort with a square tower at each corner and a prominent tower standing on the shore 0.4 mile NE of the fort. Sar-e Chiruyeh is low and steep-to on its S and E sides.

A 5.5m shoal extends off the point for about 0.5 mile and less water than is charted is reported 1.5 miles SW of the point. Landing can be made on the steep-to sandy beach opposite the village.

Anchorage, open to E winds but sheltered from the shamal, can be taken off the village, in a depth of 14.6m. The coast between Sar-e Chiruyeh and **Ras-e Nakhilu** (26°51'N., 53°29'E.) rises steeply to hills, which decrease and level off as the latter point is reached.

The shore NW of Sar-e Chiruyeh is fronted by a sandy shoal of 5.5m which extends at least 1 mile offshore and is marked by discolored waters. Local craft anchor on this shoal but the area is open to E weather.

Ras-e Nakhilu is low and poorly defined, but is marked by a lighted beacon. The coast in this vicinity should not be approached in depths of less than 30m.

Off-lying Islands and Dangers

14.5 Jazireh-ye Kish (26°32'N., 53°59'E.), an island light-brown in color, is difficult to distinguish at night. The shores of the island are low and consist of sandy beaches between rocky points. Inland the terrain rises to a plateau about 44m high, with the E and W ends of the island formed of low cliffs. There are villages along the N side of the island; a light is shown on the S side. Two conspicuous water towers stand near the point. Near the center of the island there are two prominent radar domes.

Reefs fringing the island are mostly steep-to, extending as far as 1 mile offshore in places. A conspicuous stranded wreck, lying off the W side of Jazireh-ye Kish, provides a good radar target. Vessels passing S of the island should keep in depths greater than 36m; passing N of the island is not recommended at night unless visibility is good, and even then vessels should keep at least 2 miles offshore unless proceeding to an anchorage.

Tidal currents in the passage between Jazireh-ye Kish and the mainland are reported to be strong and very irregular.

Sare Masheh (26°34'N., 54°01'E.), the low sandy NE point of the island, has a spit, with a depth of 6.4m, extending nearly 0.5 mile offshore. A ruined fort with two towers stands on the point.

Masheh (26°33'N., 54°02'E.) is a village strung out for 1 mile along the coast S of the point. There is a military post in the village, several large buildings, and a jetty. This jetty has three berthing faces, with a total berthing length of 600m. The N face is 200m long and can accommodate a maximum draft of 5.5m at HW. Vessels up to 2,500 dwt, with a maximum length of 60m, can be handled at the jetty. Pilotage is not available.

In summer, good anchorage can be taken, in 14.6 to 16.5m, mud, off the N part of the village with the fort on Sar-e Masheh bearing between 283° and 294°.

In winter, anchorage can be obtained in the above position or N of Sar-e Masheh, in 18.3m, with the fort bearing 180°, distant about 0.5 mile. The latter position is partially sheltered from the shamal, which in this locality blows from W.

Anchorage can also be taken, in 19.5m, about 2 miles off the N side of the island, but it is exposed to the prevailing winds.

Sambarum Bank (26°34'N., 53°44'E.), with a depth of 10m at its S end, and steep-to, lies about 9 miles W of Jazireh-ye Kish.

14.6 Jazireh-ye Hendorabi (26°40'N., 53°38'E.), a brownish-colored island, is difficult to distinguish at night. The E and W extremities of the island consist of low cliffs. Reefs fringe the greater part of the island, extending as far as 1 mile offshore in places.

There is a village midway along the N coast. Tidal currents setting toward the island and coast in its vicinity are reported to be strong N of the island.

Anchorage, open to the shamal, can be taken off the village, in depths of 10 to 15m, rock.

Jazireh-ye Shotur (26°48'N., 53°25'E.) is a very small island lying 0.5 mile E of Jazireh-ye Lavan. The island is fringed with reef extending up to about 0.1 mile offshore; a bank, with depths of less than 11m, extends about 1 mile S and the same distance E from it.

A 12.9m patch is about 4 miles ESE of Jazireh-ye Shotur. A light is shown from the island.

During NW winds, anchorage can be taken, in 7.3m, about 0.8 mile SSE of the E end of the island.

Jazireh-ye Lavan (26°48'N., 53°18'E.), a brownish-colored island, rises to hummocks from its low E and W extremities.

There is a prominent tower standing in Lazeh, a village located 1 mile NW of the E end of the island. A red-and-white painted radio mast, showing red obstruction lights, stands on the E end; another mast stands about 0.5 mile WSW.

The installations of an oil terminal are located in the E part of Jazireh-ye Lavan, where several flares, oil tanks, and conspicuous yellow towers can be seen. At night, the glare from the flares may obscure the navigational lights.

A spit, with depths of 3.7 to 4.6m, extends off the E end of the island.

The passage between Jazireh-ye Lavan and Jazireh-ye Shotur should not be used except by small craft. About 5 miles W of the cliffy SE end of the island is a low, sandy point, on which stands the village of Qort, marked by a tower. The coast between Qort and the W end of Jazireh-ye Lavan consists of rocky cliffs fringed by reefs.

Landing can be made in a small bight located 2 miles E of the NW end of the island. Cliffs bordering the N coast of Lavan are reef-fringed. A bank, with depths of less than 10m, extends 1.5 miles N and W from the W extremity of the island.

Anchorage.—During SE winds, sheltered anchorage can be taken, in 7 to 13m, sand and rock, about 0.5 mile NE of Lazeh.

With the onset of a strong shamal it is necessary to get underway as the wind then blows from WNW.

Caution.—Jazireh-ye Lavan is extremely difficult to distinguish in hazy weather and soundings are of little use when approaching it. Vessels using the passage between the island and the coast in the vicinity of Ras-e Nakhilu should not close the coast in depths less than 27m. Tidal currents are quite strong between the islands and the coast.

Jazireh-ye Lavan Oil Terminal (26°48'N., 53°25'E.)

World Port Index No. 48480

14.7 The L-shaped pier of the oil terminal is located 2.5 miles W of the E end of the island.

Winds—Weather.—For most of the year, the wind is from NW, but sometimes, particularly during the winter, strong SE winds, sometimes lasting for several days, may occur. The loading pier is sheltered from NW winds but is exposed to winds from the S. Berthing may not be possible during SE winds.

Tides—Currents.—Tidal currents at the oil terminal change at about 1 to 2 hours after HW and LW; there are only short periods of slack water. During springs, rates of up to 2 knots are common. Sometimes unberthing is difficult during full ebb.

Depths—Limitations.—Tankers can berth alongside both sides of the outer arm of the pier, which is 378m long.

At No. 1 Berth, on the S side of the pier, tankers of 150,000 to 225,000 dwt, with a minimum length of 168m and a maximum departure draft of 19.2m, can berth alongside.

At No. 2 Berth, on the N side of the pier, tankers of 25,000 to 65,000 dwt, with a minimum length of 168m, a maximum length of 259m, and a maximum departure draft of 10.0m, can berth alongside.

The underkeel clearance required by the terminal is 0.9m at all times. Mariners are to be cautioned that the above-mentioned limitations are maximums and are subject to clearance.

Three submarine oil pipelines are landed 0.4 mile W of the root of the oil pier. The E pipeline is laid S for 75 miles to the

Sassan Oil Field; the center pipeline is laid SSW for about 57 miles to the Rostam Oil Field. The latter pipeline passes 0.5 mile E of **Stiffe Bank** (26°25'N., 53°08'E.). The W pipeline is laid SW for 50 miles to the Bahram Oil Field, 7 miles SSE of Shah Allum Shoal.

Aspect.—Two sets of range lights, in alignment bearing 001.5° and 057°, mark the limits of the pipeline landing area.

Lights are reported to be shown from the head and elbow of the pier. Range lights, shown about 0.5 mile W of the oil pier, in alignment bearing 304°, lead to the pier.

Range lights, shown 0.5 mile W of the E extremity of the island, aligned 325.7°, lead to the cargo ship anchorage. A boat harbor, with depths of about 3.7m, is located at the SE end of the island.

Pilotage.—A Mooring Master will board ships S of the terminal buoy, which is located about 2 miles SE of the loading dock. No ship may enter the terminal port area, which is identical with the prohibited anchorage area, unless a Mooring Master is aboard. Tugs are available.

Regulations.—The vessel's ETA should be sent via fax (+98(0)21-871-6345) to Production and Planning and Export Coordination (attention Lavan Marine) 96 hours and 48 hours in advance. The message should include cargo, bunkers required, deballast time, and the size and number of connections for cargo or bunkering.

Vessels should begin calling the terminal 4 hours before arrival on VHF channel 12.

Anchorage.—It is recommended that ships waiting to berth at the oil terminal anchor S of the E end of the island, about 3 miles SE of the terminal jetty, in depths of 27.4 to 36.6m. The holding ground is poor. Deep-draft ships should keep the E end of the island bearing more than 000° to avoid shoal water SW and S of Jazireh-ye Shotur.

The range lights, in line bearing 325.7°, will indicate the position for letting go the first anchor. Anchorage is prohibited within about 0.3 mile of either pipeline and within an area extending 0.5 mile offshore in the vicinity of the landing places of the pipelines and the oil pier.

14.8 Stiffe Bank (26°25'N., 53°08'E.), with a least charted depth of 27m, sand, shells, and coral, lies about 28 miles SW of Jazireh-ye Hendorabi.

A shoal, with a least depth of 10.4m, lies about 16 miles SE of Stiffe Bank.

Shah Allum Shoal (26°25'N., 52°30'E.), a steep-to dangerous, rocky shoal, with a least depth of 2.7m, lies about 34 miles W of Stiffe Bank. The shoal lies near the N end of a bank, over which the general depths are less than 37m. A lighted buoy is moored 1 mile ESE of the shoal. An obstruction, consisting of the wreckage of an old light structure, lies near the NW end of the shoal.

Balal Oil Field (26°18'N., 52°33'E.), a lighted platform, stands about 9 miles SSE of Shah Allum Shoal. A submarine pipeline extends NE from the platform to Jazireh-ye Lavan.

Cable Bank (26°46'N., 52°32'E.) has a least charted depth of 25m. A wreck, with a least depth of 35m, lies about 29 miles SW of the bank.

Caution.—Shah Allum Shoal should be given a wide berth.

Ras-e Nakhilu to Bushehr

14.9 Bandar-e Nakhilu (26°54'N., 53°30'E.), a coastal village located 4 miles N of Ras-e Nakhilu, affords anchorage, sheltered from E winds but open to the shamal, off the shore fronting the village.

Bandar-e Maqam (26°58'N., 53°29'E.), a village, has a conspicuous square fort and a triangular high cliff N of the village.

Anchorage can be taken, in 11m, mud, with the fort bearing 058° and about 0.5 mile off, or close off the edge of the bank in 7.3m with the fort bearing 063°, distant about 1 mile.

Bandar-e Shiu (27°05'N., 53°09'E.), a coastal village, has a large, square mosque with a fort close E.

There is a peaked hill about 0.5 mile ESE of the village; a prominent saddle-shaped hill rises 122m about 3 miles E of the village.

Paps (27°05'N., 53°12'E.) is a conspicuous mountain and landmark, especially when seen from the W. A boat harbor is located at the SE end of the village.

Anchorage can be taken, in about 9.1m, sand, about 0.5 mile S of the boat harbor.

Bustanu (27°06'N., 53°02'E.) is a village at the head of a small bay. A high rock ridge with a tower on its S end abuts the sea E of the village. Landing can be made at the SE end of Bustanu.

14.10 Shahin Kuh (27°07'N., 53°05'E.) is a flat-topped remarkable mountain, with a high S bluff and precipitous sides.

Anchorage, probably the best in the area, can be taken, in a depth of 12.8m, about 0.6 mile off Bustanu. There are depths of 9.1m lying 0.5 mile offshore and 3.7m close offshore.

This anchorage is well-protected against the shamal. A high, conspicuous brown-colored slope appears on the coast close SE of the village of **Amariyeh** (27°08'N., 52°57'E.).

The coast extending NW to Ras-e Nay Band is bold, steep-to, and rocky, with low cliffs. There are no anchorages and scant shelter.

Ras-e Nay Band (27°23'N., 52°35'E.) is faced with a white, rocky cliff. Southeast of the point, the coast rises gradually to the summits of white, precipitous, flat-topped cliffs. Tidal currents around the point and adjacent bay are weak. The point is marked by a light.

Khalij-e Nay Band (Bandar Nay Band) (27°26'N., 52°37'E.) is entered between Ras-e Nay Band and a low point about 5 miles NNE. Depths of 5.5m are general throughout the bay, with lesser depths existing as far as 2 miles offshore.

There is a reef off the N entrance point and another reef about 2 miles within the S entrance point. To enter the bay, pass S of a 5.5m rocky patch lying 1.5 miles SW of the N entrance point. The head of the bay is backed by high, steep hills, with a mountain range running parallel farther inland.

Anchorage in the bay is sheltered from the kaus but open to the shamal, which raises a heavy sea. There is anchorage, in 11m, with Nay Band, a village on the S shore of the bay about 3 miles E of Ras-e Nay Band, bearing between 135° and 180°, distant about 1 mile; poor holding ground is reported.

Anchorage, reported to be partly sheltered from the shamal, can be taken, in 5.5m, good holding ground, with a square house W of **Bid Khun** (Beyzeh Khan) (27°28'N., 52°39'E.) bearing 019° and a tower located 2.5 miles SE of the village

bearing 086°. Landing can be made anywhere in the bay except during N or W winds, which raise a heavy surf.

14.11 The coast for about 40 miles NW of Khaluj-e Nay Band is backed by a range of mountains, the seaward side of which appears to be precipitous and mostly barren.

In several places, long valleys extending inland interrupt the coastal ranges.

Tidal currents, with a rate of 0.5 to 1 knot, generally parallel the coast. There are many villages along this coast.

Jabal Sir-i-Yalfal (Qolleh-e Siri) (27°33'N., 52°37'E.) is a conspicuous summit which appears as a great step, except from W, when it looks like a sharp notch.

Jabal Siri (Siri Ayanat) (27°49'N., 52°13'E.) is a prominent barn-shaped peak when seen from the offing, but is obscured by the coastal range when close inshore.

Asaluyeh (27°29'N., 52°36'E.) is a village marked by a ruined tower and extensive date groves. A reef, with a depth of 9.1m close seaward, extends 0.5 mile offshore from the point fronting the village. This reef should not be approached in depths of less than 13m.

Anchorage off the village is open to the shamal and the holding ground is poor. A vessel has anchored, in 12.8m, with the tower in the village bearing 090°.

14.12 Bandar-e Pars Terminal (27°32'N., 52°32'E.) consists of Bahman Jetty, which can accommodate vessels with a maximum length of 150m and a maximum draft of 9.0m, and an offshore SBM, located in a depth of 42m, which can accommodate vessels up to 250,000 dwt. The SBM is surrounded by a restricted area, with a radius of 1.5 miles, centered on the SBM. The pilot boards about 2 miles W of the SBM. An anchorage area is located NW of the SBM. Anchorage is prohibited SE of the SBM. The anchorage area, SBM, and jetty are approached from the SW.

Taheri (27°40'N., 52°21'E.), a village at the head of a small bay, extends up the side of a hill. A large fort with two towers stands on a hill W of the village. Depths in the bay shoal gradually from 14.6m about 0.5 mile offshore.

Anchorage, partially sheltered from the shamal but exposed to the kaus, can be taken close offshore, in about 11m, good holding ground, with the W entrance point of the bay bearing 284°.

14.13 Bandar Taheri Offshore Terminal (27°39'N., 52°21'E.) consists of an SPM located W of the village. The minimum depth at the berth is 16m; a 2m underkeel clearance is recommended. Vessels up to 40,000 dwt, with a maximum length of 200m, can be accommodated.

Pilotage is compulsory and is available 24 hours; the berthing master boards 1 mile S of the SPM.

Vessels send their ETA 72 hours in advance by telex, through the agent, with confirmation 48 hours, 24 hours, 12 hours, and 6 hours prior to arrival. The ETA message should also be forwarded to the National Iranian Gas Company (NIGC). The ETA message should contain the following information:

1. ETA.
2. Summer dwt.
3. Arrival displacement.
4. Cargo required.
5. Deballasting time.

6. Height of manifold when vessel is fully loaded.
7. Maximum arrival/departure draft.
8. LOA.
9. Loading rate.
10. Distance from bow to center loading connections.
11. Derrick capacity.
12. Master's name.
13. Number of crew.
14. Consignee/charterers.
15. Flag.
16. Destination/last port.
17. Gross tons/nrt.
18. Call sign.

Anchorage is available 1.3 miles S of the SPM, in 35m, although the holding ground is not good, especially in SW winds and swells.

Anchorage is reported to be prohibited within 1 mile of the terminal.

Akhtar (27°42'N., 52°14'E.), a small village almost hidden by date groves, has a large round conspicuous mosque.

Anchorage, exposed to the kaus, can be taken, in 20m, good holding ground, about 0.5 mile SW of the mosque. Reefs lie about 0.5 mile and 0.7 mile offshore; they run parallel to the coast and form a channel in which small craft can anchor.

Anchorage, reported to be indifferent during a shamal, can be taken, in 18m, off **Tombak** (Ayanat) (27°44'N., 52°11'E.).

Kangan (27°50'N., 52°04'E.), an important town located behind a sandy beach, has a tower at its N end. There is a harbor, protected by stone breakwaters, with a pier, 150m long, for the use of local craft.

Anchorage can be taken, in 9m, about 0.5 to 0.7 mile off Kangan. The anchorage is partially sheltered from the shamal, but some swell rolls in and it is exposed to the kaus.

14.14 From NW of Kangan, a coastal range rises 610 to 915m, which at a distance appears to form part of the main range, but which obscures the latter from view when vessels are close inshore.

The mountains forming it are rugged, precipitous, and very irregular in outline.

A valley extends NW from the coast W of Kangan and separates the mountain ranges from a detached group of mountains between them and the sea.

Kuh-e Darang (28°05'N., 51°36'E.), the summit of this group, rises to 1,240m about 25 miles NW of Kangan.

Depending upon the direction from which it is seen, the mountain appears to have one peak or from three to five hummocks of equal height. When seen from SW, the hummocks are in range and a great bluff appears on the N side of the mountain.

Funnel Hill (27°52'N., 51°36'E.) is situated about 13 miles SSE of the summit of Kuh-e Darang and about 3 miles inland. It is table-topped, about 244m high, and has a small natural pillar that is a good landmark.

Deyyer (27°50'N., 51°56'E.), a village located on a low sandy stretch of coast, has a square fort with two towers, with a white two-story house nearby. A conspicuous, isolated light-gray rock stands about 1 mile W of town. From a distance, the rock appears as a square tower.

Anchorage, good holding ground, can be taken off Deyyer, in a depth of 7m, with the fort bearing 000°, distant 0.5 mile. The anchorage affords much better shelter from the shamal than off Kangan, but it is exposed to the kaus. Large vessels should anchor, in 14 to 18m, mud, farther offshore.

At springs, the tidal currents attain a velocity of 1 to 2 knots at the anchorage. A small point, consisting of low cliffs, projects from the coast about 3 miles W of Deyyer; some sunken rocks, within which is a landing place, lie about 183m off the point.

Anchorage, in about 11m, can be taken about 0.5 mile off the point.

14.15 The coast for about 45 miles W and NW of Deyyer is fringed by swamps and fronted by shoals, which makes an approach hazardous.

Omm ol Karam (Qurma) (27°50'N., 51°33'E.) and **Nakhilu** (27°49'N., 51°28'E.) are low islets lying on an extensive shoal. Nakhilu is recognized by a square, stone tomb in the middle of the islet. A shoal, with a least depth of 3.7m, extends about 18 miles SE from Nakhilu. A drying bank of sand over rock, of which Ras ol Motaf is the extremity, lies on this shoal.

This drying bank has been reported to extend further W and S than charted.

Khowr-e Khan (27°48'N., 51°39'E.), with depths of 3.7 to 12.8m, is a channel between the mainland and the bank on which lies Ras ol Motaf. The principal entrance, with depths of 4.6 to 11m, is N of the end of the bank.

A cairn on the NE end of Nakhilu aligned with the tomb on the same islet leads through the channel, which has no outlet at its NW end, but departure is effected N of Nakhilu in a depth of 1.5m.

14.16 Jabrin (27°52'N., 51°26'E.) is a low, narrow sandy island marked by a light.

Tidal currents set W and E over the bank, whereas SW of it the currents appear to set NW and SE. During the SE setting of the current, a perceptible inflow into the area E of Ras ol Motaf has been observed. At springs, the currents attain a velocity of at least 2 knots.

Anchorage can be taken, in 7 to 9m, with local knowledge, off the E end of the bank on which lies Ras ol Motaf, with Funnel Hill bearing 330° and Jabal Siri bearing 073°. This anchorage affords the only good shelter from the shamal between it and Bushehr; more than 90 miles N, however, it is exposed to the kaus.

Vessels rounding the bank to reach the anchorage should not approach it in less than 20m; at night or in thick weather, vessels should not approach it in less than 27m. Lesser depths show discolored water.

Lights are shown, and fog signals are sounded, from some of the several gas structures situated within **Kangan Gas Field** (27°58'N., 51°15'E.), which extends up to 10 miles offshore between Ras-e Jabrin and Ras-e Khan. Mariners are cautioned to keep well clear of the area.

A well, with a least depth of 0.5m, has been reported to lie about 33 miles SW of Jabrin.

Ras-e Khan (28°00'N., 51°20'E.) is the S end of a very low sandy ridge that nearly covers at HW. The coast N and S of the

ridge is extremely low and should not be approached in less than 26m.

Anchorage, affording indifferent shelter from the shamal to small craft, can be taken, in 3.7 to 4.6m, in a small bay SE of Ras-e Khan.

Khowr-e Ziarat (28°10'N., 51°19'E.) is a small creek lying 9 miles N of Ras-e Khan.

Anchorage, unsheltered, can be taken, in a depth of 7.3m, mud, about 2 miles off the entrance of Khowr-e Ziarat.

Balangestan (28°18'N., 51°15'E.) is a small village. About 2 miles NNW of this village is a conspicuous village situated on the bluff of a high sandy hill. There are two square towers.

A rough breakwater protects a small boat area which is subject to drying. When approaching the village from the NW, two prominent sickle-shaped peaks, with points opposed, are visible.

Anchorage can be taken about 0.5 mile offshore, in a depth of 5.5m, with the sickle-shaped peaks bearing 107°.

14.17 The coast NNW of **Kalat** (28°24'N., 51°09'E.) is low, sandy, and has numerous, small points affording protection from NW winds. Tidal currents are weak off the coast. Inland, running parallel to the coast, are mountain ranges, many with prominent peaks.

Kuh-e Sehtanj (28°29'N., 51°11'E.), rising 6 miles NE of Kalat, consists of two pinnacles close together with a small peak N, and is a good mark.

Kuh-e Khurmuj (28°43'N., 51°28'E.), 21 miles NE of Kuh-e Sehtanj, is 1,960m high and is visible above all parts of the coastal range. From SW, it appears as a long convex ridge, but from WNW, the ridge is end on and the mountain appears as a fine peak.

A light is shown from the coast about 4 miles NNW of Kalat.

Baraki is the collective name of several villages along the Tangestan coast NNW of Kalat. A cultivated plain between the villages extends inland to the coastal ranges.

Good but open anchorage can be taken, in 7.3m, about 0.5 mile off **Karri** (28°25'N., 51°09'E.). Most of the coastal villages have at least one prominent square tower and some have mosques.

Bu ol Kheyr (28°32'N., 51°05'E.), with a prominent round tower at its N end, affords anchorage, in 5.5m, about 0.5 mile offshore.

Rostami (28°35'N., 51°05'E.) is identified by a high, round tower and a mosque S of the village. Low cliffs extend along the coast N of this village.

A dangerous wreck, the position of which is approximate, lies 19 miles WSW of Rostami. Another dangerous wreck, the position of which is approximate, lies 2.5 miles NE of the above wreck.

14.18 Khalij-e Halileh (28°49'N., 51°00'E.), open S, has low sandy shores and general depths of less than 3.7m, mud. A

large creek draining an extensive swamp empties into the NW part of the bay.

From the creek mouth to **Ras-e Halileh** (28°49'N., 50°58'E.), the coast consists of a ridge of sand about 1.5m high. A rocky spit extends almost 0.5 mile SW of low Ras-e Halileh. The village of Halileh is located almost 0.5 mile NNW of the point.

Anchorage, protected against the shamal, can be taken, in 5.5m, about 0.5 mile offshore, with Ras-e Halileh aligned 329° with the tower in the village.

Damagheh-ye Rishahr (28°54'N., 50°49'E.) is a cliffy point at the end of a plateau between coast and marshes. A small bay close E of the point has cliffy shores, on which are the conspicuous ruins of a white house surmounted by a white staff and triangle. The ruins of a large fort stand SE of the house. Telegraph buildings and conspicuous radio towers stand 0.5 mile NNE of the point.

14.19 Emamzadeh (28°54'N., 50°50'E.), which is comprised of a conspicuous 46m high domed mosque surrounded by a village, stands on the highest part of the land, about 2 miles E of Damagheh-ye Rishahr.

There is a prominent house standing 0.5 mile S of the mosque. There are depths of less than 6m as far as 1.5 miles SW of Damagheh-ye Rishahr.

Anchorage can be taken, in 7.3m, with fair holding ground, about 2 miles W of the radio towers.

Caution must be exercised during a shamal to avoid dragging anchor. A prohibited anchorage area, best seen on the chart, lies SW of Damagheh-ye Rishahr.

Between Damagheh-ye Rishahr and Bushehr, about 5 miles N, the coast is fringed by a reef extending as far as 0.5 mile offshore; in many places, drying boulders lie on the outer edge of the reef. A small clump of date palms is about 1 mile NNW of Damagheh-ye Rishahr; about 0.7 mile further N is Ras-e Shokhab, the W extremity of a low sandy projection.

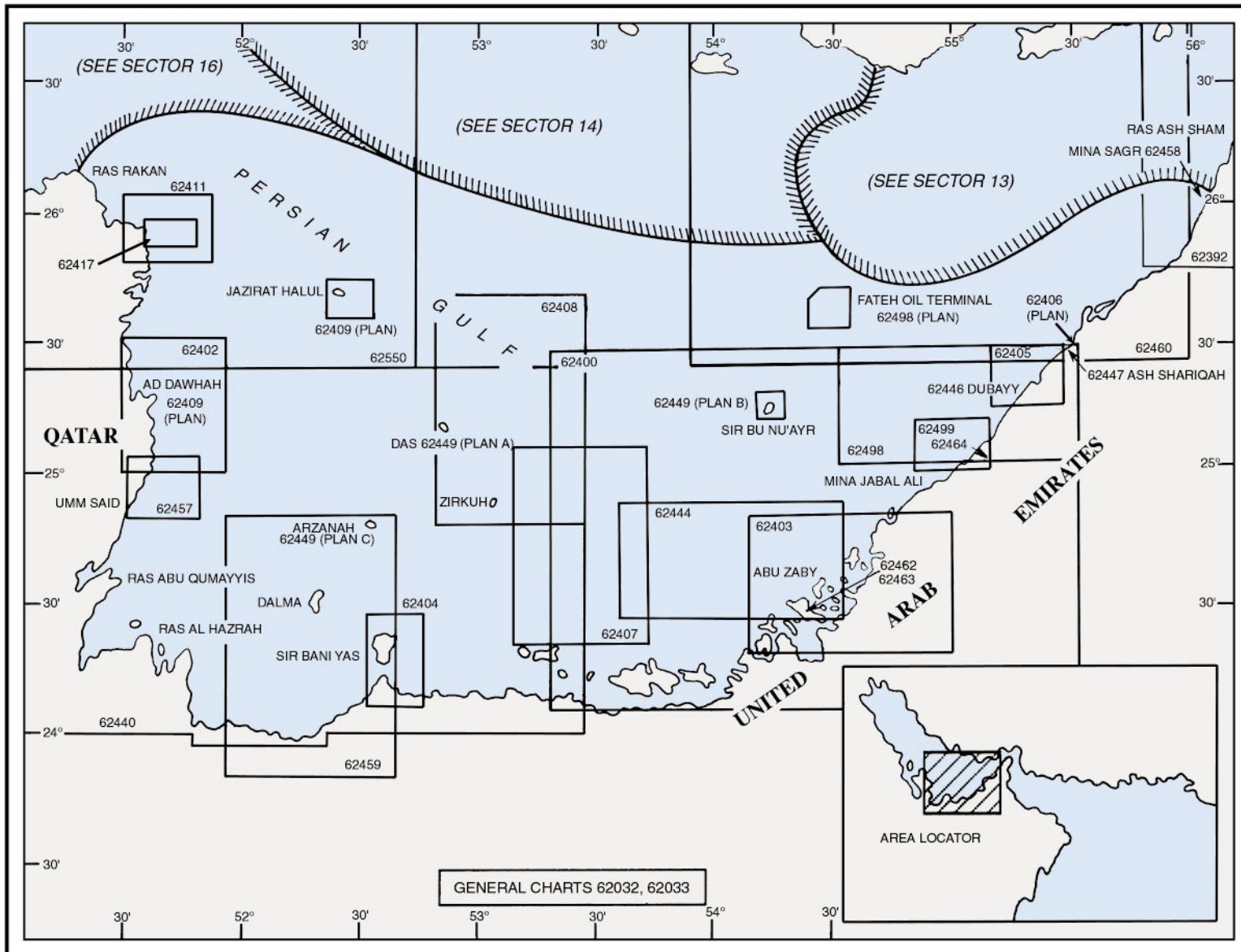
From here on, for 3.5 miles N, the coast is low and sandy; from that point 5m high cliffs continue to the outskirts of Bushehr.

14.20 Moqkeh (28°57'N., 50°49'E.), a small fishing village about midway between Ras-e Shokhab and Bushehr, has a boat harbor formed by a break in the coastal reef.

A building, with high arched windows, and three towers stand at the S end of Moqkeh; two radio masts stand about 2 miles ESE of the building. An airfield lies between Moqkeh and the radio masts. A remarkable building with two towers, encircled by an extensive wall, is located 1.5 miles NNE of Moqkeh.

The roadstead of Bushehr consists of Outer Anchorage and Inner Anchorage. The former, for deep-draft vessels, is in the vicinity of the 10m curve, about 6 miles WSW of Bushehr.

Inner Anchorage encompasses an area about 3 miles NW of the town. Detailed information on Bushehr is given in paragraph 17.3.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 15 — CHART INFORMATION

SECTOR 15

THE PERSIAN GULF—UNITED ARAB EMIRATES AND QATAR—RAS ASH SHAM TO RAS RAKAN

Plan.—This sector describes the coast, islands, and dangers along the S side of the Persian Gulf between Ras ash Sham and Ras Rakan. The sequence of description is SW, W, and NW from Ras ash Sham.

General Remarks

15.1 The approaches to the S coast of the Persian Gulf are generally shallow, with a few offshore reefs and islands. Inside the 40m curve, which comprises roughly the area of Great Pearl Bank, the depths are irregular because of the reefs and shoals which extend offshore for many miles and bar access to the coast, except at a few points.

The coastline is only partially surveyed, and some shoals and reefs are reported to be uncharted. Coral reefs and rocks, however, are generally discernible as dark patches, and sand bars and shoals can be easily identified as yellowish green patches near the shore area. The bottom is usually visible in depths of 6.5 to 9.2m.

In the Persian Gulf, the sea makes up quickly and is characterized by choppy waves, which are often all out of proportion to the wind force; the sea quickly subsides after a gale.

In the Strait of Hormuz, at the entrance of the gulf, the tidal current is often greatly opposed by a strong NW wind, at which time the sea becomes troublesome and breaks heavily. Currents off the coast are variable but are not strong generally.

The prevailing wind is the NW shamal, but in winter it is often interrupted by winds from varying directions. Squalls are common throughout the year. A high degree of refraction or mirage occurs along all of this coast, especially in the early morning. The land features become greatly distorted, villages sometimes appear as clumps of rounded trees, and small uncharted hillocks or dunes assume a considerable height.

The whole of the coastal strip is desert plain, with a few small isolated hills and scattered tablelands, and is backed by alternating regions of drifting sand and patches of rock and salt flats. There are many salt creeks and tidal backwaters, the entrances of which are often changed by the wind, swell, and tidal scour.

The towns are all very similar in appearance. Because of the hard bottom in many places, anchorage off the whole E portion of the Trucial Coast is poor. On the approach of a winter shamal, which in this vicinity blows from WNW or even from W, vessels should leave their anchorage. In winter, vessels should anchor farther offshore than in summer.

Winds—Weather.—The prevailing wind during the summer months is the NW shamal, but between October and March, the shamal is often interrupted by the SE kaus, the NE nashi, or the SW suahili.

From June to September, the shamal blows over the whole area of the Persian Gulf, producing rough seas, stirring up dust

clouds that affect visibility at sea, and reaching a considerable force which lasts for several days at a time.

Winter storms which pass through the gulf region are generally preceded by S winds and seas, which usually veer to NW behind the storm.

Cold fronts occasionally penetrate the area with these storms, accompanied by squalls and seas of variable direction, and are followed by a shamal. Summer winds and seas seldom vary from a NW direction.

The climate of the Arabian Peninsula as a whole is dry and hot. Average annual rainfall is minimal, except in some of the higher areas. Precipitation is erratic; long droughts are common but may be broken by intense downpours which result in flash floods.

Temperatures are moderate in winter but high in summer and are reported extremely high in the interior on summer afternoons. Evening temperatures are low enough to offer relief from oppressive daytime heat.

Relative humidity at coastal locations is high throughout the year; it is greatest in the early morning and lowest in the afternoon, except at some places on the coast, where the afternoon sea breezes bring moist and cooler air over the land area.

Tides—Currents.—The currents in the Persian Gulf have a predominantly counterclockwise circulation throughout the year. In that part of the gulf covered by this sector, there are sometime strong currents in the SE part which set between NE and E, especially in January and in April, May, and June.

Their speed has been observed to be from 0.4 to 0.8 knot in January, and from 0.6 knot to 1.7 knots in April. Through the Strait of Hormuz there is a distinct inward flow from the Gulf of Oman during the Southwest Monsoon and a slight outward flow during the remainder of the year.

In the latter period, some water continues to flow into the Persian Gulf, but these currents trend more to the N side of the gulf. Any notable local peculiarities in tides and currents are described with the related features.

Caution.—Several offshore oilfields are located within the area covered by this sector, some offering offshore petroleum berths and some lying within charted limits or restricted areas; all are best seen on the appropriate chart.

Caution should be exercised when navigating within the vicinity of these oil fields as production platforms, submarine pipelines, and various other hazards, both above and below-water, may be present.

It has been reported that some charted oil production platforms in the Persian Gulf may have been removed.

In many cases, all that remains of the platform are pipes extending from 3.1 to 6.1m above the waterline; these pipes do not show up well on radar and are a hazard to navigation.

An IMO-approved Traffic Separation Scheme exists in the waters covered by this sector and is best seen on the appropriate chart.

United Arab Emirates—Ras ash Sham to Abu Zaby

15.2 Ras ash Sham (26°04'N., 56°05'E.) rises gradually to the summit of a mountain, about 705m high, which has a notch and is a good mark from SW and N. The coast to Abu Zaby is low and sandy.

In clear weather, the mountains of Ruus al Jibal are visible until the vessel has passed Dubayy, about 64 miles SW of Ras ash Sham. The terrain consists of stony desert, with small detached groups of volcanic hills; on the coast are low cliffs.

Between Ras ash Sham and the town of **Ash Sham** (26°02'N., 56°05'E.), the coast is fringed by shoals and backed by a cultivated plain. There is a prominent mountain, 701m high, about 1 mile SE of Ras ash Sham, a notch in the mountain makes it a good mark from SW and N.

Depths are very uneven W of Ash Sham, varying from 18.3 to 36.6m from 0.5 to 3 miles offshore.

Mina Saqr (25°59'N., 56°03'E.)

World Port Index No. 48264

15.3 Mina Saqr is an artificially-constructed harbor with deep water. The port limits include Khawr Khuwayr (Hanna). General cargo, bulk cement, container and ro-ro cargo, and petroleum products are handled in the port.

Saqr Port Authority Home Page

<http://www.saqrport.com>

Winds—Weather.—See paragraph 15.1 for further information.

Tides—Currents.—The tidal rise here is 1.4m.

Depths—Limitations.—Loaded vessels up to 45,000 dwt, with a maximum length of 225m and a maximum draft of 11.5m, can be accommodated.

Eight deep-water berths, No. 1 through No. 7 and No. 9, have lengths of between 150 to 200m and depths alongside of 12.2m. The inner approaches are dredged to a depth of 12.2m. The main basin is dredged to a depth of 12.2m.

Aspect.—The breakwaters protecting the port are reported to be radar conspicuous. There are two prominent silver-grey silos in the vicinity of the harbor. Two conspicuous chimneys rise from the cement factory 1 mile ESE of the harbor area.

A prominent flare stack stands near the coast 2 miles S of the harbor entrance. It is reported to be visible for some distance offshore. Two oil tanks stand close S of the flare stack.

A sector light, leading through the harbor entrance, stands on the S breakwater.

A red warning light, which flashes in the vicinity of the sector light, indicates helicopters are operating from a nearby heliport.

Pilotage.—Pilotage is compulsory and is available 24 hours. The pilot boards about 2 miles N of the head of the W breakwater.

Regulations.—The vessel's ETA should be sent to the vessel's agent or the harbormaster 48 hours in advance, stating



Mina Saqr from S



Mina Saqr from E

the vessel's length, draft, and full details of cargo. Contact Port Control on VHF channel 16 at least 2 hours prior to arrival.

The port can be contacted by e-mail, as follows:

mspamis@eim.ae

Anchorage.—Anchorage is available, in depths of 20 to 30m, over a bottom of fine sand in a charted area centered 2 miles NW of the harbor entrance. Vessels at anchor should maintain a continuous listening watch on VHF channel 16.

Caution.—Pipelines, best seen on the chart, extend N and NW from the shore close SW of the Khawr al Khuwayr.

15.4 Hulaylah Oil Terminal (25°59'N., 55°56'E.), lying about 6 miles W of Mina Saqr, consists of a storage tanker moored to a Single Point Mooring buoy.

A submarine pipeline connects the SPM to Saleh Oil Field to the NW, and to the shore. The depth of water at the buoy is

30.5m. Vessels of 150,000 to 300,000 dwt, with a maximum length of 400m, a maximum beam of 55m, and a maximum draft of 21.5m can be accommodated. An underkeel clearance of 9.2m must be maintained.

Pilotage is provided by a mooring master. The vessel's ETA should be sent 72 hours, 48 hours, and 24 hours in advance. The 72-hour message should contain the following information:

1. Vessel's name.
2. ETA (state whether local time or UT(GMT)).
3. Master's name.
4. Estimated arrival draft fore and aft and arrival displacement.
5. Other information as required by the operators.

Changes in the ETA of more than 1 hour are to be reported. When within range, the terminal should be contacted on VHF channel 16.

Vessels are berthed during daylight hours only; unberthing may be done at any time.

The terminal can be contacted by e-mail, as follows:

rakgasco@eim.ae

An anchorage area, within a circle of radius 0.5 mile, is established 3 miles W of the SPM. The mooring master boards at the anchorage.

Caution.—A marine farm area, best seen on the chart, is located approximately 4 miles S of the terminal.

15.5 Rams (25°53'N., 56°03'E.), a town located 5 miles SSW of Mina Saqr, lies on the SE side of a lagoon, the entrance of which is obstructed by a bar on which the sea breaks. The lagoon is used by dhows.

The coast between Rams and Mina Saqr is fronted by a bank with numerous sandy shoals, whose positions probably change under the effect of the shamal. Vessels should not close the coast in depths of less than 11m. Rams can be identified by a round fort at the SW end of town and a minaret at the NE end of town.

The lagoon gives access to a creek which trends S towards Khawr Ras al Khaymah.

Ras al Khaymah (25°48'N., 55°57'E.), located about 7 miles SSW of Rams, stands on the W side of Khawr Ras al Khaymah.

15.6 Muayrid (Marid) (25°48'N., 55°58'E.) is a town located close NE of Ras al Khaymah. The sandspit on which Ras al Khaymah stands has been breached between the two towns to provide access to Khawr Ras al Khaymah.

In the vicinity of Ras al Khaymah, the coastal plain is about 6 miles wide, but S this width increases rapidly so that when seen from N the town appears to be located where the mountains end.

South of Ras al Khaymah, the N end of the high red sand hills affords a guide to the locality.

Depths—Limitations.—The channel between the training walls was dredged to a depth of 3m. Vessels drawing up to 3.3m, with a maximum length of 46m, have entered the harbor

at HW, but entry should not be attempted without local knowledge.

New Customs Quay, 91m in length, with a depth of 5m alongside, is located at the S end of the entrance channel, on its E side. Fish Quay lies on the W side.

Aspect.—A prominent radio tower stands on the N side of Khawr Ras al Khaymah. A hotel, which is conspicuous, is situated about 2 miles S of the town.

A prominent tower stands about 1 mile SW of the town; another prominent tower stands close ESE of the hotel.

The entrance channel into the inlet lies between two training walls, 183m apart, which extend 0.4 mile NNW from the coast.

Pilotage.—Pilotage is compulsory. Pilots board in the vicinity of the Approach Lighted Buoy. The pilots monitor VHF channel 16.

Anchorage.—Anchorage can be taken near the lighted buoy moored 3 miles WNW of the training walls. Vessels anchor, in a depth of 10m, with the head of the E training wall bearing 120°, distant 2.5 miles, poor holding ground.

Small vessels anchor 2 miles W of the training walls, in a depth of 6.1m, good holding ground, sandy bottom. This anchorage is preferred during a shamal.

Caution is necessary on approaching both anchorages due to detached shoals, which are best seen on the chart.

Jazirat al Hamra (25°43'N., 55°47'E.) lies close off the mainland. The town of Hamra is located on Jazirat al Hamra, which from seaward does not appear as an island. A light is shown from Ras Abu Ahmad on the NW side of the entrance channel.

There is a fort with several towers in the town; close to the fort is a high square tower. Another slender tower rises at the W end of town. Landing on the shores outside the inlet is difficult, except during good weather.

15.7 Khawr Umm al Qaywayn (25°34'N., 55°36'E.) is an inlet comprising an extensive backwater in which are several low islets. Extensive banks, with drying patches, extend seaward from Jazirat as Siniyah and from the peninsula of Umm al Qaywayn.

Between these two banks is a narrow channel leading to Khawr Umm al Qaywayn. It is entered between the W extremity of Jazirat as Siniyah and the peninsula of Umm al Qaywayn.

Jazirat Mallah, separated from Jazirat Siniyah by salt pans covered at HW, extends 5 miles NE. Burj Mallah, the SW of two conspicuous rectangular towers, stands near the SW end of Jazirat Mallah. A dangerous wreck lies 7 miles N of the entrance to Khawr Umm al Qaywayn.

15.8 Umm al Qaywayn (Ahmed Bin Rashid) (Umm al Quwain) (25°34'N., 55°36'E.) (World Port Index No. 48272) is located on the peninsula of Umm al Qaywayn, which is connected with the mainland W of it by a narrow isthmus about 0.1 mile wide.

Tides—Currents.—Cross-channel sets of up to 2 knots may be experienced in the approach channel.

Depths—Limitations.—The port is approached through a channel, which has a minimum depth of 10m, marked by lighted buoys and lighted beacons. The approach channel is

100m wide, increasing to a width of 160m at the N end of Berth No. 4 and connecting to a turning basin, with a diameter of 500m, at the S end of Berth No. 5.

There are two berthing facilities in the port. Details are given in the accompanying table.

Aspect.—A square fort near the center of the town has two round towers and a flagstaff. A conspicuous minaret stands close SW of the fort. Bakhut Tower, conspicuous from N and WNW, stands on the E side of the peninsula. West of the peninsula are three other towers, of which Mashsum Tower is conspicuous.

A conspicuous square water tank stands on a hill 2 miles SSW of Umm al Qaywayn.

Pilotage.—Pilotage is compulsory and should be requested 24 hours in advance. The pilot boards in the anchorage area. The harbormaster’s office monitors VHF channel 16.

The port can be contacted by e-mail, as follows:

abrpaftz@emirates.net.ae

Anchorage.—Anchorage outside the inlet may be obtained, in depths of 11 to 13m, about 0.7 mile NW of Mahsum Tower. In winter, vessels should anchor farther offshore. The holding ground of sand and shell is poor.

Caution.—It was reported (1994) vessels should enter the port only at high tide and slack water. Currents at the intersection of the dredged channel and the turning basin may cause a vessel to be set onto the deep-water wharf.

Landing on the shores outside the inlet is usually difficult except in fine weather. The dangerous wreck of a barge, sometimes visible at LW, lies close offshore about 0.3 mile W of Umm al Qaywayn.

15.9 Al Hamriyah (25°29’N., 55°30’E.) is a village about 7 miles SSW of Umm al Qaywayn. The tower of a new fort, with a flagstaff and a white minaret, are conspicuous.

There is a creek at the S end of the village which connects at HW with Khawr Ajman. The creek was being dredged to a depth of 6.5m. The harbor within was dredged to 5m. An unlighted mooring buoy is located 10 miles offshore NNW of Al Hamriyah.

Caution.—Reclamation work, marked by buoys, is in progress (2003) within 1 mile of the harbor. For a minimum distance of 2 miles from the harbor, arriving vessels should maintain a track of not less than 120°, while departing vessels

should maintain a track of not less than 300°. Vessels will pass NE of the spoil ground produced by the reclamation work.

15.10 Al Hamriyah LPG Terminal (25°28’N., 55°29’E.) (World Port Index No. 48274), entered close SW of the creek, is devoted to liquefied gas products.

Sharjah Ports Home Page
<http://www.sharjahports.gov.ae>

Depths—Limitations.—The harbor is approached via a 3-mile long buoyed channel dredged to a depth of 15m.

Vessels up to 83,000 dwt, with a maximum draft of 12.6m and a length of between 186m and 230m, can be accommodated at the LPG berth. Vessels berth port side-to.

A grain/general cargo berth, 250m long, with a dredged depth of 14m alongside, is located on the NE side of the basin. Vessels up to 120,000 dwt can be accommodated.

Aspect.—A light is shown from each breakwater head. A directional sector light is located near the inner end of the S breakwater. The LPG berth, comprising a berthing platform flanked by berthing and mooring dolphins, is situated on the S side of the basin.

Pilotage.—Pilotage, which is compulsory for vessels over 150 nrt or greater than 50m long, is available 24 hours. Pilots board 3 miles NW of the dredged harbor entrance channel. Vessels are moored in daylight only, but are unmoored and loaded at any hour, weather and other circumstances permitting.

Regulations.—Vessels should send their ETA, including their draft, 72 hours prior to arrival. Confirmation should be sent 48 hours and 24 hours prior to arrival. Changes of 2 hours in ETA should be reported.

Vessels should contact the terminal on VHF channel 16 when within range, and are required to maintain a continuous watch on this channel when at a berth, at anchor, or underway.

The port can be contacted by e-mail, as follows:

shjports@emirates.net.ae

Anchorage.—Anchorages, with a radius of 1 mile, have been established from the center of the harbor entrance, as follows:

1. Berth A (for hazardous cargo)—9 miles WNW.
2. Berth B (for general cargo)—6 miles WNW.

Umm al Qaywayn—Berthing Information			
Berth	Length	Depth	Remarks
Deep Water Wharf			
No. 1	130m	5.5m	Vessels up to 30,000 gross tons, with a maximum length of 210m and a maximum draft of 9.8m, can be accommodated.
No. 2	115m	7.5m	
No. 3	200m	9.5m	
No. 4	400m	10.0m	

Umm al Qaywayn—Berthing Information			
Berth	Length	Depth	Remarks
Town Wharf	800m	4.0m	Vessels up to 1,000 gross tons, with a maximum length of 60m, can be accommodated.

The anchorages show depths of 15.5 to 28.5m, bottom quality not stated.

15.11 Ajman (25°25'N., 55°26'E.) is located on the S side of the entrance to Khawr Ajman. Containers and general cargo are handled here.

Ajman Home Page

<http://www.ajmanport.org>

Depths—Limitations.—The entrance channel has been dredged (1998) to a depth of 8m.

Berth 1 through Berth 5, with a total length of 548m, have been dredged (1998) to an alongside depth of 8m. Nine other berths, with a total length of 1,654m, have a dredged depth of 5m alongside. A ro-ro berth, 150m long, has a depth alongside of 5m.

Vessels up to 20,000 dwt, with a maximum length of 170m (180m at HW) and a maximum draft of 7.6m (8.0m at HW), can normally be accommodated.

Within the bar, the channel forks into several branches, all available to local small craft. Irregular ridges of sand, shell, and dead coral, with depths of less than 10m, lie as far as 2.5 miles offshore in the vicinity of Khawr Ajman.

Aspect.—The entrance to Khawr Ajman lies between two training walls, marked by lights, and is encumbered by a bar over which the depth is variable.

A fort and several minarets are situated in Ajman. Berig al Mai, 0.5 mile SSW of the fort, is a conspicuous watchtower.

Pilotage.—Pilotage is not compulsory but is available with 48 hours advance notice. The pilot boards 3 miles NW of the breakwater.

Regulations.—Vessels should contact the Port Authority/Harbor Control 2 hours before arrival on VHF channel 16.

The port authority controls vessel movement on VHF channel 6.

The port can be contacted by e-mail, as follows:

mail@ajmanport.org

Anchorage.—The holding ground is poor and ships should not anchor in depths of less than 20m, except in calm weather.

Caution.—Shallow water was reported to lie on the inside of the channel bends; a shoal patch of 4m was found in the inner harbor. The sea breaks heavily on the bar with an onshore swell.

Al Hayrah (25°23'N., 55°24'E.), a village about 3 miles SW of the fort at Ajman, has a prominent minaret, barracks, a water tower, and radio masts, all visible from seaward.

Sharjah Offshore Terminal (25°35'N., 55°24'E.)

World Port Index No. 48271

15.12 Sharjah Offshore Terminal consists of an SPM moored in a depth of 21.5m.

Sharjah Ports Home Page

<http://www.sharjahports.gov.ae>

Depths—Limitations.—The maximum draft allowed is 16.0m on departure. The terminal is designed for vessels of about 80,000 dwt; however, the Mooring Master may allow vessels in excess of 80,000 dwt up to 150,000 dwt to moor, provided the vessel has first obtained written permission from the company.

Pilotage.—Pilotage is compulsory for vessels over 150 nrt or greater than 50m long. Vessels to be moored at the loading berth will be boarded by a Mooring Master about 3 miles due N of the loading berth. A Mooring Master will be provided by the company and vessels will not be allowed to approach or depart from the loading berth without the Mooring Master on board.

Regulations.—Vessels are moored in daylight hours only, but are loaded and unmoored at any hour, weather and other circumstances permitting. The vessel's ETA should be sent 72 hours, 48 hours, and 24 hours in advance through Bahrain (A9M). Any changes in ETA of more than 2 hours should be reported.

When within VHF range, contact should be made on VHF channel 16 and a continuous listening watch maintained.

The port can be contacted by e-mail, as follows:

shjports@emirates.net.ae

Anchorage.—The anchorage area for vessels awaiting the loading berth at Sharjah Offshore Terminal is centered 3 miles N of the loading berth.

Anchoring is prohibited inside a radius of 2 miles from the SPM and within a distance of 2 miles on each side of the pipeline.

The exposed position of the SPM requires a ship berthed at it to be kept at immediate readiness for sea.

Ash Shariqah (Sharjah) (Mina Khalid) (25°22'N., 55°23'E.)

World Port Index No. 48270

15.13 Ash Shariqah consists of Khawr ash Shariqah, entered about 2 miles NE of the main harbor, and Mina Khalid, the



Ash Shariqah (Sharjah) (Mina Khalid) from SW

main deep-water facility. Khawr ash Shariqah is used by smaller vessels only.

Sharjah Ports Home Page
<http://www.sharjahports.gov.ae>

Mina Khalid (Sharjah Container Terminal)
<http://www.gulftainer.com>

Winds—Weather.—See paragraph 15.1 for further information.

Tides—Currents.—The tidal rise is reported to be 1.2m. A strong set, which flows SW on the flood and NE with the ebb, will normally be experienced at the harbor entrance.

Depths—Limitations.—The approach channel to Mina Khalid was dredged to a depth of 11.5m, while the harbor is dredged to depths of 8.5 to 10.5m.

The entrance channel to Khawr Ash Shariqah is dredged to a depth of 5.5m. Several small wharves are available, with alongside depths of 2.7 to 4m. General cargo vessels, with a maximum length of 80m, can be accommodated. All container or ro-ro cargo is handled at the facilities in Mina Khalid.

Aspect.—Breakwaters enclose the entrance channels of both Khawr Ash Shariqah and Mina Khalid. A group of conspicuous chimneys associated with a power plant stands near the shore at the S end of Mina Khalid.

Several prominent radio towers are located throughout the area. The city of Ash Shariqah contains several minarets, towers, and a fort, but they are overshadowed by tall modern buildings.

Pilotage.—Pilotage is compulsory for all vessels over 150 nrt or greater than 50m long. Pilotage is available 24 hours and is obtained from a red and white vessel at the boarding ground located near the fairway buoy, about 2 miles NW of the W breakwater. Vessels arriving between 2400 and 0600 should radio their request for pilotage before 2200.

Regulations.—Vessels should radio their ETA at least 72 hours in advance, confirming 48 hours and 24 hours prior to arrival. Entering vessels are requested to remain seaward of the entrance buoy if awaiting the pilot, anchoring if necessary. Sharjah Port Control should be contacted on VHF channel 16 when within range.

The port can be contacted by e-mail, as follows:

shjports@emirates.net.ae

Ash Shariqah (Sharjah) (Mina Khalid)—Berthing Facilities			
Berth	Length	Max. draft	Remarks
No. 1	575m	11.5m	Container, general, and bulk cargo.
No. 2		10.5m	Container, general, and bulk cargo.
No. 3		10.5m	Container, general, and bulk cargo.

Ash Shariqah (Sharjah) (Mina Khalid)—Berthing Facilities			
Berth	Length	Max. draft	Remarks
No. 4	725m	8.5m	General cargo.
No. 5		8.5m	General cargo.
No. 6		9.5m	General cargo and ro-ro vessels.
No. 7		9.5m	General cargo and ro-ro vessels.
No. 8	220m	9.5m	Ro-ro vessels.
No. 9	375m	8.5m	General and refrigerated cargo.
No. 10		8.5m	General and refrigerated cargo.
No. 11	575m	8.5m	General and refrigerated cargo.
No. 12		9.5m	General, dry bulk, and liquid bulk cargo.
No. 13		—	Dredged to a depth of 9.2m (2004).
No. 14	400m	—	Located at the head of the basin. Dredged to a depth of 9.2m (2004).
No. 15		—	
No. 16	1,000m	—	Located on the S side of Lee Breakwater. Dredged to a depth of 9.2m (2004). FAL Oil Terminal, with a T-head, is located between Berth No. 17 and Berth No.18.
No. 17		—	
No. 18		—	
No. 19		—	
No. 20		—	
No. 21	200m	—	
Oil Terminal	244m	9.5m	T-head pier with breasting dolphins located on the inside of the main breakwater. Can accommodate tankers up to 60,000 dwt, with a maximum length of 230m.

Anchorage.—Anchorage is available seaward of the entrance buoy and clear of the channel. The holding ground is bad, being hard sand, shells, and dead coral. In the winter, vessels are advised to anchor, in depths of at least 12m, and not less than 10m in summer. A limited number of vessels may anchor in the harbor with permission of the port operator.

Directions.—The approach channel to Mina Khalid is well-marked. The local authorities should be contacted before attempting to enter Khawr Ash Shariqah.

Al Khan (25°20'N., 55°21'E.) is a village located on the N side of the entrance to Khawr al Khan. The village is an easily-distinguished landmark, as the surrounding area is very low and swampy. There are several towers and a minaret in the village. The entrance to the inlet leads over a bar and into a basin, about 1.8m deep, which is used by fishing craft.

Dubayy (Dubai) (Mina Rashid) (25°16'N., 55°18'E.)

World Port Index No. 48275

15.14 Dubayy is one of the busiest ports in the United Arab Emirates, and is considered to be the commercial capitol of that nation. The harbor is divided into three sections.

Khawr Dubayy, a narrow river, extends 3 miles E, from a point just N of the N breakwater protecting the main deep-water harbor, to a bridge.

Above the bridge, the channel spreads into several swampy lagoons. Mina Rashid, comprising the main cargo terminals, is the N of the enclosed basins; Dubai Drydock Harbor is the S of the two. Both are best seen on the appropriate chart.

Winds—Weather.—See paragraph 15.1 for further information. The shamal, blowing from WNW and NW, may raise a rough sea at the anchorage.

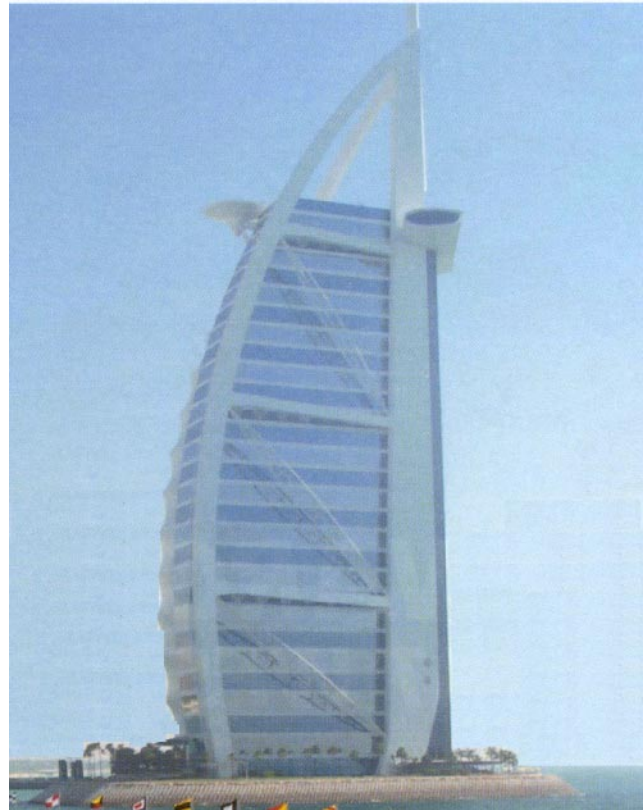
Tides—Currents.—The tidal rise at springs is 1.2 to 1.8m, while the neap rise is 0.9 to 1.2m. Currents here are generally weak and tend to follow the channel, but cross-channel currents of up to 2 knots have been reported (2004).

Depths—Limitations.—Mina Rashid is formed by two large basins, separated by a broad mole which is quayed on both sides, and is protected by two breakwaters. The least charted depth on the range line through the entrance is 13m.

Dubayy (Dubai) (Mina Rashid)—Berth Information			
Berth	Length	Depth	Remarks
Quay 1			
No. 1	177m	9.3m	General and bulk cargo.

Dubayy (Dubai) (Mina Rashid)—Berth Information			
Berth	Length	Depth	Remarks
No. 2	193m	9.3m	General and bulk cargo.
No. 3	183m	9.3m	General and bulk cargo.
No. 4	183m	9.3m	General and bulk cargo.
No. 5		9.3m	General and bulk cargo.
Quay 2			
No. 6	213m	9.3m	General and bulk cargo.
No. 7	213m	9.3m	General and bulk cargo.
No. 8	213m	9.3m	General and bulk cargo.
No. 9	213m	10.6m	General and bulk cargo.
No. 10	213m	10.6m	General and bulk cargo.
Quay 3			
No. 11	172m	9.3m	General and bulk cargo.
No. 12	172m	9.3m	General and bulk cargo.
No. 13	172m	9.3m	General and bulk cargo.
No. 14	172m	9.3m	General and bulk cargo.
No. 15	172m	9.3m	General and bulk cargo.
No. 16	215m	11.4m	Ro-ro facility.
Quay 4			
No. 17	180m	11.4m	General and bulk cargo.
No. 18	180m	11.4m	General and bulk cargo.
No. 19	180m	11.4m	General and bulk cargo.
No. 20	180m	11.4m	General and bulk cargo.
No. 21	180m	11.4m	General and bulk cargo.
No. 22	180m	11.4m	General and bulk cargo.
No. 23	180m	11.4m	General and bulk cargo.
No. 24	180m	11.4m	General and bulk cargo.
No. 25	180m	11.4m	General and bulk cargo.
Quay 5			
No. 26	180m	11.4m	General and bulk cargo.
No. 27	180m	11.4m	General and bulk cargo.
No. 28	180m	11.4m	General and bulk cargo.
No. 29	180m	11.4m	General and bulk cargo.
No. 30	180m	11.4m	General and bulk cargo.
No. 31	244m	11.4m	Container terminal.
No. 32	244m	11.5m	Container terminal.
No. 33	310m	12.8m	Container terminal.
No. 34	310m	12.8m	Container terminal.
No. 35	310m	12.8m	Container terminal. Ro-ro facility

There are depths from 10 to 13m in the harbor, but a bank, with depths of 6 to 10m, extends SW from the NE end of the outer basin; a wreck, with a depth of 2.7m, lies in the E corner of the outer basin.



Burg al Arab Hotel

Vessels with drafts up to 12.8m can berth at the Container Terminal. Vessels with drafts up to 11.5m can berth at the general cargo berths. Vessels over 260m in length may berth at the harbormaster’s discretion. The normal required underkeel clearance is 0.5m.

The Petroleum Jetty, situated near the root of the main breakwater, can accommodate vessels up to 260m long, with a maximum draft of 11.3m. Vessels with a draft of 11.6m can use the jetty at HW with the permission of the harbormaster.

Dubayy Drydock Harbor was dredged to a depth of 11.5m. A directional sector light leads through the entrance to this harbor.

Several shoal patches are charted in the approaches to Khawr Dubayy and are best seen on the appropriate chart.

The fairway has a least depth of 4.9m over a tunnel located about 0.1 mile SE of the channel entrance; the channel is dredged to a depth of 5.5m to a bridge with a moveable center span.

Local authorities should be contacted for details on bridge regulations and the channel above the bridge. Caution should be exercised when transiting this channel, as it is subject to silting. The buoyage within the fairway is moved as necessary

to mark the shifts within it. Several cable areas extend across the channel and are best seen on the chart.

Aspect.—The city of Dubayy proper lies on the S side of the Khawr Dubayy, while its suburbs extend to the NE and SW along the coast on either side of the khawr. Reports indicate that many of the older landmarks in the city have been obscured by new buildings.

A conspicuous tower stands near the coast about 0.5 mile ENE of the entrance to Khawr Dubayy. Two radio towers stand, 0.9 mile and 1.2 miles, respectively, ESE of the entrance to Khawr Dubayy; two water towers stand 0.8 mile SSE and 1.2 miles E, respectively, of the same point.

Several lighted minarets are located within 0.5 mile of Khawr Dubayy. A conspicuous flour mill stands 1 mile SSW of the entrance to Khawr Dubayy.

The Burg al Arab Hotel, 321m high, resembles the sails of a dhow and is very conspicuous.

Pilotage.—Pilotage for Mina Rashid and Dubayy Drydock Harbor is compulsory and is available 24 hours. Pilots will board about 2.8 miles WNW of Min Rishad West Breakwater. It has also been reported (1994) that pilots board by air about 5 miles from the breakwaters.

Pilotage for Khawr Dubayy is available from 0600 until 2359 although pilotage outside these hours can be arranged through the harbormaster. The pilot boards about 2.8 miles WNW of Mina Rashid West Breakwater.

Regulations.—Vessels using Mina Rashid or Dubayy Drydock Harbor should send their ETA 72 hours and 24 hours in advance to their agent and include the following information:

1. Length overall.
2. Draft.
3. Whether bunkering is required.

Vessels should contact the signal station on VHF channel 16 and request berthing instructions.

Vessels using Khawr Dubayy should send their ETA 2 hours in advance and are requested to maintain a listening watch on VHF channel 16 and 68 from 2 hours before the ETA until they have berthed.

Vessels approaching the port and failing to establish VHF contact should anchor about 2 miles off the port entrance.

Vessels bound to or from Khawr Dubayy pass close to Dubayy Approach Lighted Buoy and Khawr Dubayy Fairway Buoy on a heading of 098°/278°. This involves crossing the fairway to Mina Rashid. Vessels must not obstruct this fairway and must maintain a listening watch for information from Dubai Port Control on VHF channels 16 and 18.

Anchorage.—Anchorage may be obtained at least 6 miles N of Dubayy Approach Lighted Buoy and W of the charted pipeline; vessels should remain well clear of the charted gas pipeline.

Limited anchorage space is available, within the breakwaters of Mina Rashid, with the approval of Dubai Port Control.

Directions.—Lights are shown from the various breakwaters. A set of range lights, in alignment bearing 182°, marks the channel to Mina Rashid. It has been reported (2004) that morning haze may cause difficulty in sighting the rear range structure.

Caution.—It has been reported (1996) that shoal water lies as close as 23m to the alignment of the 182° range.

Numerous vessels generally lie at anchor SW of the harbor approach buoy.

Offshore oil installations should not be approached within a distance of 1 mile.

Major reclamation work, known as Dubai Maritime City, is in progress (2006) in the area between Mina Rashid and Dubai Drydock Harbor. New breakwaters have been constructed NW and E of Dubai Drydock Harbor. A restricted area has been established around the project. Vessels are warned to keep well clear of this area.

Major construction, known as Palm Island Three, is in progress (2006) N of the harbor entrance and NE of Dubayy Approach Lighted Buoy. This area is surrounded by an exclusion zone marked by lighted buoys.

Major reclamation, known as the World Project, is in progress (2006) centered in an area about 5.5 miles SSW of Dubai Drydock Harbor main breakwater head. An exclusion zone, with a radius of 3 miles, is centered on position 23°13.5'N, 55°10.0'E.

15.15 Umm as Suqaym (25°10'N., 55°13'E.), a village about 8 miles SW of Dubayy, has two prominent minarets. There is a yacht and fishing harbor protected by breakwaters, with a tower and flagstaff standing near the root of the E breakwater. Two large hotels at the yacht harbor are conspicuous from seaward; one hotel has the appearance of a yacht's sail.

A wreck, marked by a lighted buoy close NW of it, lies 10.5 miles offshore NW of Umm as Suqaym.

Jabal Ali (25°02'N., 55°07'E.), a 67m high, flat-topped hill, is topped by three radio masts marked by obstruction lights.

Three large, dish-shaped aerials are located on the W side of the hill. Eight 40m high smokestacks of a power station rise 2 miles N of the hill.

Cooling water intakes, connected to the power station by a submarine pipeline, extend up to 0.3 mile offshore.

A cluster of three buildings, located 4 miles SW of the hill, is the control center for a firing range.

Mina Jabal Ali (25°01'N., 55°03'E.)

World Port Index No. 48276

15.16 Mina Jabal Ali (Mina Jebel Ali) is a large artificial harbor and industrial harbor located about 21 miles SW of Dubayy.

Dubai Ports Authority Home Page

<http://www.dpa.co.ae>

Winds—Weather.—See paragraph 15.1 for further information. During the morning and evening hours, light SE winds prevail, but the wind usually veers to the NW and freshens to force 4 to 5 by noon. Early morning fog is likely from November to March.

Tides—Currents.—The tidal rise here is 1.1m. Tidal currents, in combination with wind-driven currents, may cause



Mina Jabal Ali

cross-channel sets up to 1.5 knots, although a rate of 3 knots has been reported (1998).

It has been reported (2003) that strong cross-channel sets, caused by the extensive reclamation projects NE and SW of the dredged channel, may be experienced.

Depths—Limitations.—The approach channel was dredged to a depth of 17m (2005) as far as the tanker berth, located just inside the harbor entrance.

The harbor is divided into two basins. The outer basin, comprising Berth 1 through Berth 17, has been dredged to 14m; the inner basin, comprising Berth 18 through Berth 66, has been dredged to 11.5m, although it has been reported (2001) the depth at Berth 66 is only 10.5m and there is a dredged depth of 16m at Berth 16 and Berth 17.

Tanker/LPG Berth No. 1, with a dredged depth of 14m (2000), lies close inside the entrance on the NE side of the harbor; vessels berth starboard side-to. The maximum permitted draft is 14.0m at HW.

Tanker Berth No. 3, Tanker Berth No. 5, and Tanker Berth No. 7 have a dredged depth of 14m alongside (2000); vessels berth starboard side-to. Vessels with a maximum length of 230m and a maximum draft of 14.0m can be accommodated.

Berths	Maximum draft	Remarks
31-50, 52-53, and 57-66	10.75m	General cargo and ro-ro

The Star Energy Resources Tanker Berth, located at Berth 8 and Berth 9, can simultaneously accommodate two vessels with a maximum length of 255m and a maximum draft of 13.25m.

The Chemical Tanker Berth, located at Berth 51, can accommodate a vessel with a maximum draft of 10.75m. .

West Wharf and East Wharf, located on each side of the entrance between the tanker berths and the Outer Basin, have been dredged to a depth of 5.5m and can accommodate vessels with a maximum draft of 5.5m. The wharfs are used by bitumen tankers, bunkering vessels, and small craft.

Dry bulk, ro-ro, container, and general cargo vessels are handled at various berths throughout the harbor; information on these berths is given in the accompanying table.

The maximum draft allowed in the harbor is 13m plus the height of the tide.

Aspect.—Jabal Ali and the power station close-by it, which have already been described in paragraph 15.15, are conspicuous.

A conspicuous building fronted by a marina stands about 0.2 mile W of the port. The harbor control tower, about 50m high, lies on the SW side of the port, with two silos close NE of it. All three structures are conspicuous.

It has been reported (2003) that charted landmarks may be difficult to distinguish.

Pilotage.—Pilotage is compulsory for all vessels of 150 nrt or over with the exception of warships, pleasure craft, MENAS tenders, local craft and tugs, dredges, and barges. Pilotage is available 24 hours, except for LNG carriers and vessels over 300m long, when it is available only during daylight hours. The pilot boarding ground is located about 2 miles SE of Jebel Ali Fairway Lighted Buoy, although it has been reported that pilots also board near the breakwater (1998).

Vessels with a draft of greater than 13.25m must pick up the pilot in the charted pilot boarding area and may not approach closer than the pilot boarding area until the pilot has boarded and a passage plan agreed.

Regulations.—Vessels should send their ETA 48 hours and 24 hours in advance; a corrected ETA should be sent if changes of more than 1 hour occur.

Vessels requiring a pilot should contact Jabal Ali Port Control on VHF channel 69 at least 2 hours prior to arriving at the pilot boarding place.

Before arrival, vessels should inform the Port Control of the following information:

1. Vessel's name.
2. Port of registry.
3. Master's name.
4. GRT.
5. Length.
6. Draft.
7. Cargo to discharge, load, or in transit.
8. Pilot boarding arrangements.

Berths	Maximum draft	Remarks
1, 1A, 3, and 4B	13.25m	Bulk carriers
2 and 6	13.25m	Petroleum vessels
4A and 5	13.25m	General cargo
10-15	13.25m	Containers
16 and 17	16.0m	Containers
18-21	16.0m	Under reconstruction
22-24	10.75m	Containers
25-30	10.75m	Under reconstruction



Mina Jabal Ali—Entrance approach from N



Mina Jabal Ali—Tanks and silos at the entrance to the Outer Basin



Mina Jabal Ali—Gas Refinery (located E of harbor entrance)

9. Number of crew (state number of deck crew available for maneuvering).

10. Health information.

11. Last port of call.

Vessels should confirm their ETA when within VHF range, and again at least 2 hours prior to arrival.

Vessels calling at this port are required to be fitted with a fully-operational radar; a VHF set equipped with VHF channels 11, 14, 16, 67, and 69; sufficient propulsion and deck ma-



Mina Jabal Ali—Harbor Control Tower

chinery; adequate moorings to safely secure the vessel; efficient signaling equipment; fully operational tachometer, rudder, and helm indicators; an efficient mooring stations communications system; and an efficient anchor windlass and ground tackle.

If the above requirements cannot be complied with, the harbor master should be advised of the vessel's situation through Jabal Ali Port Control prior to arrival. Within the limits of the port, inbound or outbound vessels shall have right of way over all other shipping.

Vessels may not pass in the dredged channel.

Anchorage.—Anchorage is available in a charted area centered about 3 miles SW of Jabal Ali Fairway Lighted Buoy, in depths of 15.9 to 23.5m, poor holding ground.

Anchorage is prohibited within the vicinity of an untrenched natural gas pipeline charted N of the port.

Caution.—Many small fishing vessels operate in the vicinity of Jabal Ali Fairway Lighted Buoy.

Spoil ground areas, best seen on the chart, should be avoided.

It has been reported (2002) that uncharted tanks, cranes, and buildings may obscure charted landmarks and navigational aids.

Extensive land reclamation operations are in progress (2005) NE and SW of the approach channel. Artificial reefs and islands, known as Palm Island One and Palm Island Two, are under construction 7.5 miles NE and 2.5 miles SW, respectively, of the approach channel; both construction areas are surrounded by exclusion zones best seen on the chart. Construction traffic crosses the approach channel in the vicinity of Lighted Buoy 9 and Lighted Buoy 10.

An exclusion zone has been established (2006) for the Jabal Ali Megamax Project. The zone, located between the NE side of the approach channel and the SW side of the charted pipe-

line safety corridor, extends about 2.7 miles NW of East Breakwater.

15.17 Dawhat al Jabajib (24°59'N., 55°02'E.) is a shallow coastal indentation with a foreshore containing some isolated rocks which show up at LW against a featureless background.

The coast in the area is very low and intersected by many creeks and mangrove swamps.

From **Khawr Ghanadah** (24°50'N., 54°45'E.), a foul and shallow inlet, to Abu Zaby (Abu Dhabi), about 30 miles SW, there is a succession of inlets, mostly connecting with each other and separated from the sea by narrow strips of sand.

An extensive reef extends as far as 6 miles offshore along this stretch of coast to Abu Zaby. Depths of 9.1 to 11m exist close seaward of the reef, but soundings are very uneven.

The wrecks of two barges, with a depth of 12m and marked by a lighted buoy, lie 12 miles NNW of Ras Gantut.

Caution.—A powerful radio transmitter has been established about 1 mile SW of Ras Hasyan; it transmits daily in the 1470 to 1490 kHz band.

Fire damage could occur in shipboard electronics equipment as a result of radiofrequency propagation up to a distance of about 4.5 miles from the station. It is advisable to keep at least 6 miles from the station.

Abu Zaby (Abu Dhabi) (Mina Zayed)
(24°30'N., 54°20'E.)

World Port Index No. 48278

15.18 Abu Zaby, located on Abu Zaby Island, lies about 45 miles SW of Mina Jabal Ali. Besides serving as a port, the city also functions as the capital of the United Arab Emirates.

<p>Port Zayed Home Page</p> <p>http://www.portzayed.gov.ae</p>

Winds—Weather.—See paragraph 15.1 for further information. The port is open to the shamal, blowing from the N and NW.

Tides—Currents.—Tides here have a maximum spring range of 2m, while the neap range is 0.1m. Tidal currents in the area tend to follow the coast, with spring rates of less than about 1 knot.

Strong tidal currents have been reported within Mina Zayid and the approach channel; rates of up to 4.5 knots occur within the dredged fairway, with the current setting cross-channel.

Depths—Limitations.—The harbor approach channel, extending about 5 miles NW of the island, is dredged to a depth of 15m (2001). Just within the breakwaters, a secondary fairway, dredged to a depth of 11m, joins the main channel and continues to the SE, leading to an offshore supply base within Khawr al Bighal. The main fairway turns sharply S at the junction of the two channels and leads to Mina Zayid.

Mina Zayid has been dredged throughout to a depth of 15m (2001), except for a spur at its NW end, which has been dredged to a depth of 6m (2001).

There are 21 berths available, handling container, cement, grain, and bulk cargo. Tankers are accommodated at the SE end of the harbor, while ro-ro vessels med-moor to the breakbulk berths to work cargo. Vessels with a draft greater than 11m must take the tide into account when berthing.

It has been reported (2003) that an additional container terminal, with a length of 650m and a depth of 17m alongside, which would accommodate two container vessels, will be constructed in the port.

Berth limitations are shown in the table below:

Berths	Depth	Maximum draft	Remarks
1-4	13-15m	12.5m	Container berths
5	13m	12.5m	Ro-ro berth
6-9	13m	12.5m	General cargo berth
10-13	6m	5.5m	General cargo berth
14-19	13m	12.5m	General cargo berth
20-21	15m	12.5m	Tanker berth
22-25	15m	12.5m	—

Dhow Harbor is approached through a buoyed channel leading N of a detached breakwater, the N end of which is located about 2 miles SW of Mina Zayid harbor entrance. Both the channel and basin are dredged to a depth of 6m.

Sea Wing Access Channel, marked by lighted buoys, branches off the main channel, is dredged to a depth of 4.9m, and leads to two offshore oil field supply bases.

A power cable, with a vertical clearance of 60m, crosses the entrance to Sea Wing Access Channel and Khawr al Bighal close N of its junction with Sea Wing Access Channel.

Khawr al Batin (24°28'N., 54°18'E.), entered between breakwaters located about 6 miles SW of the entrance to Mina Zayed, eventually leads, via a channel with a reported (2004) depth of 5.5m, to Mossafah New Port (Mussafah New Port) (24°23'N., 54°30'E.) in the Mossafah Industrial Area (Mussafah Industrial Area). It has been reported (2004) that the facility, which has a 340m long main quay and two 40m long side quays, is now operational.

Aspect.—**Khawr al Bighal** (24°30'N., 54°27'E.), the natural channel around which the port of Abu Zaby is formed, is typical of the salt creeks found along this coast.

Above the harbor, Khawr al Bighal separates into several arms, between which are some very low lying islands, along with extensive sand and coral flats. The land within Khawr al Bighal is subject to inundation during spring tides or NW winds. The island of Abu Zaby is fronted by an extensive detached breakwater.

A conspicuous multi-story building stands on **Ras al Batin** (24°27'N., 54°19'E.), the S extremity of the island. Other conspicuous objects, positioned relative to the building mentioned above, are:

1. A prominent lattice radio mast, showing obstruction lights, with an elevation of 94m, about 1 mile NE.

2. A cylindrical water tower, standing prominently on top of a sandy hillock, about 2 miles ENE.

3. A conspicuous tapered lattice radio mast, painted in red and white stripes and showing obstruction lights, with an elevation of 130m, about 2 miles ENE.

4. A conspicuous silver onion-shaped water tank, with an elevation of 30m, about 4 miles NE.

5. At the power station, a prominent line of numerous silver-colored metal chimneys, about 5 miles NE.

6. A conspicuous control tower standing at the S end of the harbor about 0.5 mile NE of the power station.

It was reported (1997) that many of the above landmarks have become obscured by numerous high-rise apartment and hotel buildings.

Pilotage.—Pilotage is compulsory and is available 24 hours. The pilot boards between Lighted Buoy No. Z15/Lighted Buoy No. Z16 and Lighted Buoy No. Z17/Lighted Buoy No. Z18. The pilot will board near Fairway Lighted Buoy on request only.

Regulations.—Vessels should send an ETA at Fairway Lighted Buoy to Port Control 72 hours, 48 hours, and 24 hours in advance through Bahrain (A9M). They should confirm the ETA 6 hours in advance by VHF. Vessels should then establish contact with Port Control on VHF channel 16, 2 hours before arrival. When approaching the port, vessels should contact the pilot vessel on VHF channel 67.

The port can be contacted by e-mail, as follows:

minazayd@emirates.net

Vessels transiting the waters of the port are required to contact Abu Dhabi Port Control on VHF channel 16 or 67 when passing certain reporting points, as follows:

1. Inbound vessels
 - a. Before arrival
 - b. When passing position 24°40.8'N, 54°15.0'E
 - c. When passing Lighted Buoy No. Z23 and Lighted Buoy No. Z24 to enter Mina Zayed Channel
 - d. When leaving Mina Zayed Channel and entering Khawr al Bighal
2. Outbound vessels
 - a. Before entering Khawr al Bighal
 - b. Before entering Mina Zayed Channel
 - c. When leaving Khawr al Bighal and entering Mina Zayed Channel
 - d. When leaving Khawr al Bighal and entering Mina Zayed Channel

Anchorage.—Anchorage may be obtained, in a depth of about 18m, within the designated anchorage shown on the chart between Abu Dhabi Lighted Buoy (24°40.1'N., 54°14.8'E.) and the entrance to the dredged channel. The buoy is equipped with a racon. The anchorage is exposed, but the holding ground is fairly good.

Caution is necessary when anchoring in the area as the quality of the holding ground is not known.

Directions.—From a position about 5 miles E of **Sir Bu Nu'yar** (25°15'N., 54°12'E.), steer to pass E of Abu Dhabi Lighted Buoy; then steer S toward **Fairway Lighted Buoy** (24°39'N., 54°14'E.) and follow the buoyed channel.

Caution.—Keep in mind the strong tidal currents within the dredged channel, particularly when negotiating the turn into Mina Zayid.

Submarine pipelines and cables are charted just SW of the channel to Dhow Harbor, and across the S end of the 11m deep secondary channel leading SE from the entrance to Mina Zayid to Umm an Nar.

15.19 Umm an Nar (24°27'N., 54°29'E.) (World Port Index No. 48279) is situated at the SE end of Abu Zaby Island and consists of two petroleum berths, with mooring and breasting dolphins, connected to the shore by a causeway; the berths are located in the North Basin..

A channel, entered through Khawr al Bighal and marked by range lights and lighted buoys, leads to the facility; this channel is 160m wide and dredged to a depth of 11m. Range lights, in line bearing 164°, lead into the North Basin of the port.

Vessels up to 30,000 dwt, with a maximum length of 170m, a maximum draft of 9.2m, and a maximum beam of 26.5m, can be accommodated at Berth No. 1; a maximum length of 158m can be accommodated at Berth No. 2. As the berths are approached through Khawr al Bighal, see the Abu Zaby port description in paragraph 15.18 for regulations and approach information.

Pilotage, provided from Abu Zaby, is available only during daylight hours.

Vessels contact Umm an Nar Port Control, on VHF channel 9, as follows:

1. Two hours prior to arrival at Fairway Lighted Buoy.
2. Upon arrival at Fairway Lighted Buoy to confirm the ETA at the breakwater.
3. To report any changes to the ETA.

Vessels should maintain a continuous listening watch on VHF channels 9 and 67.

On arrival at the pilot station, the following information should be passed to the terminal operators:

1. Vessel's ETA at berth.
2. Arrival draft.
3. Estimated departure draft.
4. Quantity and type of cargo.
5. Vessel's maximum load or discharge rate.
6. Quantity of dirty ballast and the discharge rate.
7. Quantity of clean ballast to be pumped over the side and time required.
8. Size of the vessel's manifold.
9. Availability of reducers aboard the vessel.
10. Vessel's requirements.
11. Master's name.

Great Pearl Bank—Off-lying Oil Fields

15.20 Great Pearl Bank (25°18'N., 54°53'E.), the N limit of which is in depths of 35 to 40m, fills the great bight in the S part of the Persian Gulf. The E limit of this extensive bank is NW of Ash Shariqah; its N boundary trends in a general W direction to Jazirat Halul, passing about 20 miles N of the island Sir Bu Nu'ayr. From Jazirat Halul, it trends NW to a position about 35 miles NNE of Ras Rakan. Most of the known pearl banks are situated S and SW of this line.

Depths on Great Pearl Bank, while irregular, average 18 to 27m, but there are depths of 37 to 46m in places; many shallow knolls, with depths of 5.5 to 16.5m, lie on the bank.

Depths change suddenly by as much as about 4 to 6m in places. Extensive reefs, with depths of 0.9 to 5.5m, are found within 45 miles of the coast, some having channels or open water inside them.

The reefs are stony or of broken coral and they show up well, except on cloudy days or when the sun is ahead. There are heavy overfalls in places, especially about 35 miles NW of Sir Bu Nu'ayr. Many islands, some close to the coast and others far offshore, lie on the banks. Some are high, many are barren, and most have a low projecting sandy point at their SE end.

With the exception of Jazirat Dalma, few have permanent inhabitants, though they are frequented by pearl boats in summer and by fishermen from the coast in winter.

Pilots may be obtained by prior arrangement from Mina Saqr, Dubayy, or Abu Zaby.

Caution.—Extreme care must be taken when a vessel is on Great Pearl Bank, for the tidal currents are strong and uncertain, and parts of the bank have not been completely surveyed. Once within the 30m depth contour, particular caution is necessary, and navigation after dark is not advisable, except along the recognized shipping routes, which are marked by lights and buoys.

Elsewhere, the safety of a vessel will largely depend on a vigilant lookout being maintained from aloft, as soundings provide little or no warning of the proximity of a reef or island.

15.21 Sir Bu Nu'ayr (Sir Abu Nu'ayr) (25°15'N., 54°12'E.), an uninhabited island lying about 44 miles N of Abu Zaby, consists mainly of small volcanic hills, except that its SE extremity is a very low, sandy point. The summit is a table-topped peak. Reefs encircle the island as far as 0.5 mile offshore. Boat landings can be made, on the SE side of the island during the day, with the summit bearing 285°.

A fishing harbor, consisting of a basin dredged to a depth of 3.5m and two breakwaters, has been constructed at the SE end of the island. A light is shown from a post on each breakwater head.

Fath Oil Terminal—Berthing Limitations				
SPM	Vessel size	Maximum vessel		Remarks
		Length	Draft	
No. 1	70,000-300,000 dwt	365.8m	30.5m	Vessels up to 350,000 dwt may be accepted from May to October at the discretion of the terminal.
No. 2	50,000-300,000 dwt	365.8m	30.5m	

Anchorage can be taken anywhere around the island but preferably inshore of the SE spit.

Fath Oil Terminal (Fateh Oil Terminal) (25°35'N., 54°25'E.)

World Port Index No. 48265

15.22 Fath Oil Terminal, an offshore loading terminal and oil field, extends between 13 and 24 miles N of Sir Bu Nu'ayr.

Winds—Weather.—The prevailing winds are from the NW.

Tides—Currents.—The range of tides is 1.5m at springs and 0.9m at neaps. Flood currents set SW and ebb currents set NE. The velocity of the tidal current is 0.5 to 1.5 knots.

Depths—Limitations.—SPM No. 1 is located about 3 miles ESE of the center of the production area, in a depth of 44.2m. SPM No. 2 is located about 2 miles SW of the center of the production area, in a depth of 45.7m.

Vessels 50,000 to 300,000 dwt, with a maximum length of 365m and a maximum draft of 30.5m, can be accommodated. Vessels up to 350,000 dwt may be accepted from May until October with approval of the terminal operators.

Aspect.—Within the oil field, there are numerous well heads and associated structures, many of which show lights and sound fog signals, together with flares, unlighted obstructions, submarine pipelines, and oil storage tanks.

A central pumping platform, lighted and equipped with a fog horn and VHF radio, contains offices for the Mooring Master. A submerged oil pipeline from the oil field is landed close NE of Dubayy, where services and facilities are available for Fath.

In the N part of the oil field is a production platform with a flare, a moored storage tanker, and three submerged oil storage tanks surmounted by a yellow cylindrical tower. Two single point buoy moorings provide mooring berths for tankers loading crude oil.

Pilotage.—Pilotage is compulsory within the area of the Marine Terminal, indicated by a dashed line on the chart. Pilots are mooring masters, who usually board ships in the anchorage area or as arranged after radio contact with the terminal. Tugs and launches may assist in berthing.

Regulations.—The terminal operates 24 hours a day, 7 days a week. Ships berth both day and night. The ship's ETA should be sent not later than 72 hours before arrival at Fath Terminal via Bahrain Radio (A9M). When the ship is within 60 miles of the terminal, communications should be established by VHF channel 16.

The ETA message should include the following information:

1. Vessel's name.
2. Quantity of cargo required.
3. Maximum loading rate.
4. Deballasting time.
5. Size of hose connections.

The vessel's name and ETA should be repeated via Bahrain Radio 24 hours and 12 hours prior to arrival at Fath.

The facility can be contacted by e-mail, as follows:

port-captain.fateh@conocophillips.com

Anchorage.—Tankers awaiting a berth at the loading buoys can anchor in the designated area charted about 5 miles E of the central pumping platform. There are depths of 40 to 46m at the anchorage, which is fully exposed to the weather. Tankers should not anchor within the limits of the Fath al Janubi al Gharbi Oil Field, best seen on the chart. Ships other than those using the terminal are advised not to navigate within the oil field limits.

15.23 Az Zukum Oil Field (Zaqqum Oil Field)(24°51'N., 53°39'E.), the limits of which are shown on the chart, encompasses an extensive shoal area known as Ruqq az Zukum (Ruqq az Zaqqum). The shoal area lies on a pearl bank on which there is a least depth of 4.2m. The bank is not marked by discoloration and soundings give little guide on approaching it.

Numerous well heads, oil field structures, uncharted obstructions, and other hazards to navigation exist within and around the shoal, and are best seen on the chart. A Restricted Area whose limits are best seen on the chart encompasses the area. Only authorized vessels are permitted entry.

Mubarraz Oil Terminal (24°26'N., 53°31'E.)

World Port Index No. 48263

15.24 Mubarraz Oil Terminal is approached by making **Mubarraz Approach Lighted Buoy** (24°57'N., 53°18.7'E.) and then steering to pass close E of **Mubarraz Entry Lighted Buoy** (24°52.5'N., 53°18.7'E.).

Mubarraz Oil Field, containing a number of oil wellhead structures, some lighted, is located between 17 miles SE and 27 miles SSW of Ruqq az Zukum.

Tides—Currents.—The tidal range is about 1.8m. The flood tidal current sets SE; the ebb tidal current sets NW. The maximum velocity is about 2 knots.

Depths—Limitations.—A channel, with a least depth of 14.3m and marked by lighted buoys, leads W and S of Ruqq az Zukum, through the oil field, to an offshore oil loading terminal consisting of a single point mooring buoy, moored in a depth of 15.5m, about 9 miles ESE of **Halat al Mubarraz** (24°28'N., 53°22'E.). Vessels up to 235,000 dwt, with a maximum draft of 13.5m, can be accommodated.

A submarine pipeline is laid from the oil field to Halat al Mubarraz, where storage tanks are located. The tanks are reported to be good radar targets at a distance of 11 miles.

Pilotage.—Pilotage, by the Mooring Master, is reported to be well-advised, particularly on the first visit. Pilots board, as follows:

1. Near Lighted Buoy No. 5.
2. For tankers waiting in the anchorage area—2.5 miles off Lighted Buoy No. 7.

Regulations.—Vessels should send their ETA 7 days, 72 hours, 48 hours, and 24 hours in advance. A confirmation of the ETA should be made, on VHF channel 16, a few hours before arrival at Mubarraz Approach Lighted Buoy; thereafter, a continuous listening watch should be maintained until the Mooring Master boards.

Speed should be reduced to a maximum of 8 knots within 1 mile of Lighted Buoy No. 10.

Vessels will be refused berthing if they arrive with insufficient clean ballast aboard as to allow for safe maneuvering. The terminal has no facilities for the reception of dirty ballast.

The national flag of the UAE is required to be displayed while the ship is at the terminal.

Anchorage.—Tankers waiting to berth should anchor within a circular anchorage area, 1 mile in diameter, centered about 2 miles ENE of the terminal. There is a least depth of 15.5m at the anchorage. The bottom is coral with a covering of sand, poor holding ground. At least 6 shots of chain should be played out. Dry cargo vessels will anchor only as directed by Port Control via VHF radio.

The area within 1.5 miles of the Central Facilities Platform is prohibited to navigation and anchorage. No ships can anchor within 1.5 miles of the submarine pipelines.

Coast of United Arab Emirates—Abu Zaby to Jabal az Zannah

15.25 An IMO-adopted Traffic Separation Scheme traversing several oil fields has been established in the waters between **Jazirat az Zarqa** (24°53'N., 53°04'E.) and **Jazirat Das**.

The approach channels for several oil berths terminate within the immediate proximity of the TSS, which also passes between **Zirkuh Island** and the **Petroleum Loading Terminal**. Vessels should navigate with particular caution while within the scheme, or near either terminus.

The coast W of **Abu Zaby** is low, stony desert with few, if any, distinctive features. It is entirely barren and desolate.

There are no villages, houses, or permanent residents. Reefs, on which are many low islands, lie as far as 30 miles off this coast. Numerous channels lead through the reefs and around the uninhabited islands. Local fishermen frequent the channels, which vary in their depths and require local knowledge.

The **Umn Ad Dalkh Oil Field**, best seen on the chart, is marked by lighted buoys. The field is located close SW of the **Abu Zaby** dredged entrance channel.

Bazm is the collective name given to the islands lying on **Fasht al Bazm** (24°17'N., 53°23'E.); the principal reef of **Jabal Ghurayn** (24°09'N., 53°08'E.) is a conspicuous, conical hill which appears white against a dark background of low hills.

The coast W from **Jabal Ghurayn** consists of low ranges of volcanic hills as far as **Jabal az Zannah** (24°10'N., 53°36'E.), a conspicuous peak.

15.26 Ras al Qila (24°09'N., 52°59'E.) is a conspicuous promontory on a low sandy shore fronted by coral reefs extending well offshore and backed by large areas of sand flats which partly cover at HW.

Sir Bani Yas (24°20'N., 52°36'E.) is an island rising to volcanic hills, about 148m, high in its central part.

Qarn Zaiqiq (24°19'N., 52°36'E.), the most conspicuous peak of **Sir Bani Yas**, is conical and lighter in color than the lower peaks.

Mount Stewart (24°19'N., 52°36'E.) is a black peak rising 0.2 mile WSW of **Qarn Zaiqiq**. **Sydney Hill**, about 1 mile N of **Mount Stewart**, is very conspicuous when seen from W.

Jabal Buwayridah (24°18'N., 52°38'E.) is the high E extremity of the island. The terrain sloping to a low, sandy plain from hills on the E and W sides of the island terminates at **Ras**

Khudeiriyah (24°16'N., 52°36'E.), the S extremity of the island.

Khawr Dasah (24°16'N., 52°37'E.), a small bay, provides excellent shelter for small craft. A beacon stands near the E entrance point of the bay.

Caution.—Shallower depths than charted have been reported SW of **Sir Bani Yas**. An unburied pipeline, which reduces charted depths by 2m, extends S from **Ras Khudeiriyah**.

There are many rocks, reefs, and shoals lying in the approaches to **Sir Bani Yas**. Only those dangers in the vicinity of the approach channels leading to the anchorages off **Sir Bani Yas** and **Jabal az Zannah** will be described.

15.27 Ghashshah (**Jazirat Ghasha**) (24°25'N., 52°39'E.) is a low flat rocky islet lying on extensive partly-drying rocky shoals.

Ayayat Ghasha, a partly-drying coral reef, lies about 1 mile SSE of **Ghashshah**. The wreck of a stranded tug on the reef 0.4 mile N of **Ghashshah** is conspicuous.

Najwat Ghasha (24°25'N., 52°36'E.), with a least depth of 7.3m, is a shoal usually marked by overfalls. The SW side of this shoal is marked by a lighted buoy.

Ghasha Lighted Buoy (24°26'N., 52°35'E.) is moored close SW of a 14.6m foul patch. It marks the pilot station area and the entrance of the channel leading to the anchorages.

The Ridge (24°24'N., 52°38'E.), a steep-to rocky spit with a least depth of 5.2m, is usually marked by overfalls. A lighted buoy marks the SW end of the ridge. An additional buoy marks the SW end of a 6.7m shoal lying 0.5 mile NW of **The Ridge**.

Bu San'ia (24°24'N., 52°36'E.), a shoal with depths of less than 4.3m, lies 2 miles N of **Sir Bani Yas**. The channel between the island and shoal is 0.5 mile wide, with a least depth of 7m.

Jazirat Yabr (24°19'N., 52°43'E.) is a low, sandy islet lying on a reef which extends 1.5 miles N from the islet. Rocky shoals extend W toward the channel.

Price Shoal (24°17'N., 52°42'E.) has a depth of 1.2m. Two patches, with depths of 1.8 and 3.6m, lie 0.5 mile and 0.2 mile NW, respectively, of the 1.2m patch. The W extremity is marked by a light with racon.

15.28 Halat al Allak (24°14'N., 52°41'E.), a very low sandy islet, is marked 0.5 mile SE by a lighted white tower with red bands. Lighted buoys mark the E, W, N, and NW approaches to the islet.

Long Reef (24°14'N., 52°37'E.), on which there are numerous coral heads, and an extensive shoal with depths of less than 1.8m, lie between the S end of **Sir Bani Yas** and the N end of **Jabal az Zannah**.

Anchorage.—Anchorage can be taken, in 14.6m, good holding ground of clay, about 0.4 mile off the reef fringing the SE side of **Sir Bani Yas**, with **Jabal Buwayridah** bearing 008° and **Ras al Buwaytir** bearing 255°.

Anchorage can also be taken, in 16.5m, mud and sand, with **Qarn al Khabta** in range 339° with **Ras al Buwaitir**, and with **Ras al Khudeiriyah** bearing 259°.

Vessels should contact the local authorities before utilizing these anchorages.

15.29 Zirkuh (**Jazirat Zarakkuh**) (**Jazirat az Zarqa**) (24°53'N., 53°04'E.), a barren island with a prominent peak,

lies about 40 miles NE of Sir Bani Yas. A light and a radio tower stand 0.3 mile N and 0.2 mile NE, respectively, of the island's 160m high summit. Two flares lie about 0.3 mile SSE of the summit.

The service harbor for Zirkuh Petroleum Port (see paragraph 15.30) is located on the E side of the island. It consists of a causeway extending about 0.5 mile SE of the E extremity of the island. At the head of the causeway is a 110m long quay, with alongside depths of 2 to 3m.

A beacon is shown from a seawater intake projecting from the shore about 0.3 mile N of the root of the causeway. The island's S end is fringed by reefs, while a sandspit also extends from it.

Two small craft piers also extend from the island's S side, but are reported to be unusable. A restricted area lies W of the island and may best be seen on the chart.

Regulations.—The ETA should be sent 48 hours prior to arrival and should include the following information:

1. Vessel's name.
2. ETA.
3. Type of vessel.
4. Length.
5. Beam.
6. Maximum arrival draft.
7. Cargo loaded.
8. Contractor or charterer.
9. Master's name.
10. Last port of call and ETD.

Any changes to the ETA of over 6 hours should be reported immediately. A confirmation of the ETA should also be sent a few hours prior to arrival on VHF channel 15 or 64.

Vessels should maintain a continuous listening watch on VHF channels 15, 16, and 64.

Anchorage.—A charted anchorage for small craft lies SE of the island, sheltered from the shamal, but is affected by any swell rolling in around the island. Zirku Marine should be consulted before using this anchorage.

Caution.—Local authorities should be consulted for the latest information on depths and approach routes before planning a voyage here, as less water has been reported in the vicinity of the jetty.

Zirkuh Petroleum Port (Az Zarqa Petroleum Port) (25°01'N., 53°00'E.)

15.30 Zirkuh Petroleum Port, the limits of which are best seen on the chart, consists of two Single Point Moorings, contained within a restricted area, located about 7 miles NNW of Zirkuh Island.

Abu Dhabi National Oil Company Home Page

<http://www.adnoc.com>

Winds—Weather.—See paragraph 15.1 for further information. Prevailing winds are from the NW. Strong winds from this direction can blow for up to 3 days, raising waves of up to 4.5m.

Tides—Currents.—The maximum tidal range at the port is reported to be about 1.5m. The tidal currents at the SPMs are

semidiurnal, but are considerably influenced by strong winds, especially the shamal. Roughly, the flood sets SW and the ebb NE, but the turn of the tide is very slow, during which time the current direction is variable. Current rates regularly reach 1 knot.

Depths—Limitations.—Each SPM accommodates vessels from 30,000 to 350,000 dwt, with a maximum draft of 21m.

Mooring operations are conducted in winds up to 25 knots, or seas up to 1.5m.

Aspect.—Except for the small craft jetties on the S side of Zirkuh, all of the objects mentioned on the island may be of use when navigating in the vicinity. Additionally, a lighted platform, located about 4 miles WNW of the southernmost SPM and centered within a Restricted Area, may provide a good navigational mark.

Pilotage.—Pilotage is compulsory for all ships navigating within the port limits. The pilot boards SE of the terminal, in position 25°00.0'N, 53°02.4'E. Pilots will also board vessels anchored in the anchorage area. The pilots monitor VHF channel 15.

Vessels should not board pilots in the Traffic Separation Scheme. Vessels from N will be advised if pilots will board in a different location.

Regulations.—Vessels sailing to Zirkuh Petroleum Port should send their ETA 96 hours in advance. The ETA should be confirmed 48 hours and 24 hours in advance.

Vessels should contact the terminal 3 hours prior to arrival.

Tankers with a draft of greater than 16m are berthed during daylight hours only.

Navigation/movement is permitted within the port limits only if prior permission has been approved by the Port Authority.

All vessels at anchor shall keep a listening watch on VHF channel 16 and on other channels as requested by the terminal.

A restricted area, with a radius of 1 mile, exists around each SPM and around the platform from which a light is shown.

Anchorage.—Tankers East Anchorage, for tankers waiting to berth at the terminal, is situated 5 miles NE of Zirkuh as shown on the chart.

Tankers North Anchorage, also charted, for tankers delayed from sailing after loading, is situated 3.5 miles E of the terminal.

Directions.—Vessels may approach the port limits as safe navigation permits, and from any direction provided Zirku Marine is informed of the vessel's intended route.

Navigation within the vicinity of the port, and within the port limits is hampered by numerous hazards that are both above and below-water, but most particularly by the Traffic Separation Scheme which separates the SPMs from Zirkuh Island.

Special regulations are in force for vessels navigating within the port limits, and the segment of the Traffic Separation Scheme falling within the port limits, which are given below.

It should be noted that vessels are allowed to approach the terminal facilities from either Traffic Lane, but extreme caution should be exercised by all vessels doing so.

A channel for loaded tankers leaving the terminal with a maximum draft of 21m leads N for about 12 miles. It is marked by Lighted Buoy No. 1 to Lighted Buoy No. 6. The maximum speed allowed in this channel is 8 knots.

From approximate position 25°14'N, 52°59'E, this channel may be used by arriving vessels as the channel passes E of Jazirat Das, and W of several shoal patches.

Caution.—If using Tankers North Anchorage, care should be taken to avoid the charted wreck, with a swept depth of 23m, lying on the W limits of the anchorage area, 2.5 miles E of the terminal.

Less water than the charted depth has been reported 1.6 miles SW of the lighted platform.

Anchorage is prohibited outside of the charted anchorage areas without the permission of the Port Authority or within 0.5 mile of any submarine pipeline. The sea bed in the terminal area is mostly rock, covered by loose sand, with some coral patches. The holding ground is poor.

15.31 Qarnayn (Jazirat Qarnayn) (24°56'N., 52°51'E.) has a low S part, but the N part of the island has a mast, several tanks, and a light.

Landing can be made at a sandy beach on the W side of the S extremity near the airfield.

Jazirat Arzanah (24°48'N., 52°33'E.), high at its N end, but a low plain S, is fringed by a reef except at the S end, where landing can be made.

Jazirat Arzanah lies completely within a restricted area, the limits of which define the limits of Port Arzanah and are shown on the chart.

The oil terminal was decommissioned in 1998 and is no longer in use.

Arzanah Oil Field lies between 3.5 and 7.5 miles SSW of the S extremity of the island. Ships should navigate with caution in this area.

Creagh Shoal (24°42'N., 52°44'E.), with a least depth of 7.3m, is marked by a lighted buoy at the N end of an atoll-like formation of irregular depths. The whole area is at least 4 miles square.

An obstruction, marked by a lighted buoy, rising 2.4m above sea level, exists 1.5 miles SE of the shoal. An obstruction, with an unsurveyed clearance depth of 7m, lies near the N end of Creagh Shoal, 12.5 miles ESE of Jazirat Arzanah.

Port of Jabal az Zannah/Ruways (Jabal Dhanna/Ruways) (24°12'N., 52°42'E.)

World Port Index No. 48282

15.32 The Port of Jabal az Zannah/Ruways, standing at the S extremity of the Persian Gulf in a bight SE of Sir Bani Yas, handles bulk crude and refined petroleum. The approach channel to the port, leading SE of Sir Bani Yas, passes numerous dangers, both above and below-water, which are best seen on the chart.

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Winds—Weather.—See paragraph 15.1 for further information. The shamal may blow for 3 days, raising a sea up to

4.5m at the outer anchorage, and up to 2m at the Jabal az Zannah berths.

Rainfall is usually associated with thunderstorms which occur from November to May. Rainfall is rare during the remaining months, while in some years there is none at all.

Fog can occur during any month, but is most frequent in winter. Normally it clears by 1000, drifting seaward towards Sir Bani Yas. A heavy dew may be experienced throughout the year.

Tides—Currents.—The spring rise at the docks is reported to be 2m, while the average neap rise is reported to be 1m. Meteorological conditions may reduce the height of tide by up to 0.3m.

Tidal currents in the channel NE of Sir Bani Yas have been reported to reach 1.7 knots. Currents at the berths seldom exceed 0.4 knot.

Depths—Limitations.—The seaward approach route shows a least charted depth of 15.2m on the trackline, about 20 miles NNE of Sir Bani Yas. The inner deep-water route shows a least charted depth of 14m. The maximum draft should not exceed 14m plus the height of tide minus the underkeel clearance.

There are three SBM tanker loading berths, as shown on the chart, lying about 3 miles offshore NE of Jabal az Zannah. Lights equipped with a fog horn are shown from each SBM. Vessels of 100,000 to 450,000 dwt, with lengths from 250m to 377m, can be accommodated. Available depths at the berths range from 15.5m to 16.7m. SPM 2 and SPM 4 can accommodate a maximum draft of 14.3m, while SPM 3 can accommodate a maximum draft of 13.0m.

The Liquid Products Jetty is located at the end of a 3,000m long trestle jetty. There are three berths on the outer face of the jetty head. Berthing limitations are given in the accompanying table.

The Coastal Tanker Jetty extends WNW from a position about midway along the Liquid Products Jetty. It provides four tanker berths, with alongside depths of 8.7 to 9.4m. Vessels from 2,600 to 9,100 dwt, with a length of between 70 and 118m, can be accommodated.

LNG Jetty, located about 0.3 mile SE of Liquid Products Jetty, offers an alongside depth of 15m to vessels loading LNG; vessels up to 125,000 cu.m., with a maximum loaded draft of 14.3m, can be accommodated.

The Bulk Cargo Terminal (FERTIL) lies about 0.9 mile SE of LNG Jetty. Bulk and break bulk fertilizer is handled on the E side of the pier. The berthing area is 512m long and can accommodate vessels 7,500 to 30,000 dwt, with a maximum length of 180m and a maximum draft of 11m. Three mooring dolphins at the N end of the pier are used by vessels loading anhydrous ammonia. The approach to the berth and the turning basin E of it were both dredged to a depth of 12m.

Liquid Products Jetty—Berth Limitations		
Berth B	Minimum length	118m
	Maximum length	280m
	Minimum size	9,100 dwt
	Maximum size	104,000 dwt
	Depth alongside	18.5m

Berth C	Minimum length	180m
	Maximum length	295m
	Minimum size	26,000 dwt
	Maximum size	130,000 dwt
	Depth alongside	16.8m
Berth E	Minimum length	180m
	Maximum length	360m
	Minimum beam	22.4m
	Maximum beam	57.5m
	Minimum draft	9.5m
	Maximum draft	17.0m *
	Minimum size	20,000 dwt
	Maximum size	333,000 dwt **
	Depth alongside	19.6m
* Partially loaded.		
** Partially loaded to 221,000 dwt.		

The Sulfur Jetty, constructed E of the Bulk Cargo Terminal, has 350m of berthing space extending to the SE. Vessels up to 25,000 dwt, with a maximum length of 220m, a maximum draft of 11m, and a maximum beam of 22m, can be accommodated.

The Borouge Polyethelene Terminal (Borouge Jetty), previously known as the Construction Wharf and situated about 2 miles SE of the Bulk Cargo Terminal, consists of a quay, 276m long, with a dredged depth of 9.5m alongside. A ro-ro ramp is located at the W end of the quay. The approach channel, which is 120m wide, and a turning basin, which has a diameter of 300m, are dredged to 8.3m. Vessels up to 12,000 dwt, with a maximum length of 150m, a maximum beam of 23m, and a maximum draft of 8.3m, can be accommodated.

Cargo and ro-ro vessels, with a draft over 4.2m, anchor out to discharge cargo.

The Port of Jabal az Zannah/Ruways requests that vessels maintain the following underkeel clearances while within the port limits:

1. For vessels up to 100,000 dwt—0.9m.
2. For vessels between 100,000 dwt and 250,000 dwt—1.2m.
3. For vessels between 250,000 dwt and 350,000 dwt—1.5m.
4. For vessels of over 350,000 dwt—1.8m.

Keeping in mind the clearances listed above, vessels may experience delays in sailing due to tidal or meteorological reduction in the water level of the port as follows:

1. For a draft of 13.4m—no delays.
2. For a draft of 13.7m—the vessel will rarely have to wait for a tide.
3. For a draft of 14m—the vessel will usually have to wait for a tide.
4. For a draft of 14.3m—the vessel will always have to wait for a tide.
5. For a draft of 14.6m—the vessel will occasionally be delayed several days.

6. For a draft of 14.9m—the vessel can expect longer delays, and will need to ascertain predicted tidal ranges.

Aspect.—Jabal az Zannah is located about 6 miles S of Sir Bani Yas. The peak rises to a height of 115m and is surrounded by smaller peaks interspersed with deep ravines. Radio masts stand close SSW of the summit, while oil tanks stand about 0.5 mile E of the same peak.

Pilotage.—Pilotage by mooring/loading master is compulsory for all vessels and is available 24 hours. The pilot boards in the Outer Anchorage Area, 1 mile W of Ghasha Lighted Buoy.

Regulations.—Vessels intending to call at the port shall inform the Port Officer, via Port Control, of their ETA 72 hours prior to arrival stating:

1. Date and time of arrival of the vessel.
2. Nature and quantity of the cargo to be loaded or discharged.
3. Estimated deepest draft on arrival.

Vessels shall confirm or amend such information 48 hours and 24 hours before arrival.

Vessels should confirm their final ETA to Port Control on VHF 2.5 hours prior to arrival at the anchorage.

Vessels should maintain a continuous listening watch on VHF channel 9 when berthed.

Several restricted areas exist within the area of the port and are best seen on the chart. No vessel may enter these areas, or pass within 0.2 mile of any vessel loading or discharging petroleum products without permission. Vessels shall not immobilize their main engines while at a cargo berth, but may do so for repairs with the permission of Port Control while at an assigned anchorage berth.

Pollution regulations are in force for the port; local authorities should be consulted for details. Vessels should fly the United Arab Emirates flag from sunrise to sunset.

Anchorage.—Vessels should not anchor within 2 miles of Ghasha Lighted Buoy.

Vessels working explosives moor in a charted anchorage area located about 4 miles NNE of the Liquid Products Jetty. The anchorage area shows charted depths of 10.3 to 16.8m.

General anchorage off the port facilities is available at 20 berths spread throughout the port area, and are best seen on the chart. The anchorage berths are lettered A through T and are assigned by Port Control. The holding ground is reported as good, composed of clay and silt. Anchorage Berth A through Anchorage Berth K are holding anchorages. Anchorage Berth N through Anchorage Berth T are for Ar Ruways cargo and refinery traffic.

Directions.—The deep-draft approach to the port passes N and W of Creagh Shoal Lighted Buoy, W of Dalma Lighted Buoy, and N of Sir Bani Yas; it may best be seen on the chart. Vessels of moderate draft may leave the recommended track after clearing Creagh Shoal, steering a course directly for the Outer Anchorage Area. This route has a least depth of 12.8m, but should be used with the greatest caution.

The recommended tracks shown on the charts E of Dalma Lighted Buoy are intended for local traffic of light draft, and should not be used by ocean-going vessels approaching the port.

A Deep Water Route for vessels departing the port lies E of Sir Bani Yas and may best be seen on the chart.

Jazirat Das (25°09'N., 52°52'E.)

World Port Index No. 48277

15.33 Jazirat Das, located about 26 miles N of Sir Bani Yas, is an island base for offshore drilling operations, plus the export of crude and related products, from several surrounding offshore oil fields.

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Winds—Weather.—See paragraph 15.1 for further information. The prevailing winds are from the NW.

Tides—Currents.—The tides at Jazirat Das are diurnal, with a spring rise of 1.5m.

Depths—Limitations.—Five loading berths are available, as follows:

1. Berth No. 2—A dolphin berth located about 0.5 mile NE of the S end of Jazirat Das.
 2. Berth No. 3—A Single Point Mooring (SPM) buoy located about 1.2 miles E of Berth No. 2.
 3. Berth No. 4—An LPG/LNG/sulfur facility located about 0.6 mile NNW of Berth No. 2. The berth has two platforms, close together, seaward of a T-headed jetty. The N platform handles pelleted sulfur. The S platform handles LNG/LPG vessels.
 4. Berth No. 5—A sulfur-loading berth located between Berth No. 2 and Berth No. 4, consisting of a platform joined by a trestle jetty to the shore, with mooring dolphins on either side.
 5. Berth No. 6—A Single Point Mooring (SPM) buoy located about 1.7 miles SE of Berth No. 3.
- Berthing limitations are given in the accompanying table.

A small craft harbor, situated on the SE end of the island, provides berths for coastal tankers and cargo lighters. There is a least depth of 3.8m in the approaches, while alongside depths range from 2.7 to 4.7m. Vessels up to 58m long can be accommodated.

Aspect.—Jazirat Das is low in its reef-fringed S part, but rises to an elevation of 39m at its NW end. A spit, with depths of less than 7m, extends 2.5 miles S of the island's S end.

In addition to the piers off the island's E side, a small jetty, from which a flare is shown, is located at the island's NE end. Other flares are located on the island's N end, while a group of six flares in a semicircle, centered on a platform, stand about 0.5 mile N of the island.

A group of three radio masts stands on the island's NE end, while another radio mast stands on the SE end. A prominent aluminum-painted building stands at the island's S end.

Pilotage.—Pilotage is compulsory for tankers, gas carriers, and general cargo vessels. The pilot boards about 2 miles E of Berth No. 3.

Regulations.—Vessels proceeding to Jazirat Das should radio their ETA via Bahrain (A9M) 72 hours in advance, with confirmation sent 48 hours, 24 hours, and 12 hours in advance. Confirmation should also be sent 4 hours in advance to Das Marine on VHF channel 12.

Part 1 of the ETA message should contain the following information:

Part 1—ETA message	
Designator	Information required
A	Vessel's name
B	ETA at Das Island
C	Port of registry
D	Nationality
E	NRT
F	GRT
G	Summer dwt
H	Master's name

Part 2 of the ETA message should contain the following information:

Part 2—ETA message	
Designator	Information required
A	Voyage number
B	Cargo
C	Last port
D	Next port
E	Destination
F	Last port in UAE and date
G	Confirm acceptance to signing a boycott declaration

Vessels anchored to await berthing instructions should radio Das Marine of the time and vessel's location when anchored; the vessel's position should be given as a range and bearing from Berth No. 3.

Jazirat Das—Berthing Limitations				
Berth	Vessel size	Vessel length	Maximum draft	
			Berthing	Sailing
No. 2	16,000-265,000 dwt (See Note 1)	167.9-350.5m	17.07m	19.51m

Jazirat Das—Berthing Limitations				
Berth	Vessel size	Vessel length	Maximum draft	
			Berthing	Sailing
No. 3	500,000 dwt	Minimum length of 244m	22.0m	24.0m
No. 4	100,000 dwt	LNG: 180-300m LPG: 140-260m Pentane: 135-300m	14.0m (See Note 2)	
No. 5	8,500 dwt	Maximum length of 130m	10.0m	
No. 6	No information available at this time (2005).			
Note 1. —168,000 dwt partially loaded.				
Note 2. —Minimum draft allowed is 2.7m.				

A listening watch should be maintained on VHF channel 12 or 16 while at anchor. When departing the anchorage, vessels should inform Das Marine on VHF of the following information:

1. Intended time of weighing anchor.
2. Reason for departure.
3. Time anchor is clear.

Navigation off the E side of Jazirat Das without permission is prohibited.

Deep draft vessels intending to use the buoyed channel must inform Das Marine of their intentions.

Vessels must pass seaward of Berth No. 3 when transiting the area. While at the loading berth, vessels must have fire wires rigged fore and aft, keeping a pilot ladder rigged and out on the vessel's offshore side. The local authorities should be contacted for information on additional regulations.

Vessels over 25 years of age are not allowed to berth at the terminal.

Signals.—Three red balls by day, or three red flashing lights at night, shown from a signal mast located on the E breakwater of the small craft harbor, indicates the port is closed and no unauthorized vessels may enter.

Anchorage.—The holding ground off this island is reported to be poor. Main Anchorage, located about 5 miles SE of the signal mast, has charted depths of 13.7 to 24m. This is the usual anchorage for vessels awaiting a berth, or cargo vessels waiting for a change in the weather.

Freighter Anchorage, centered about 0.5 mile SE of the signal mast, has charted depths of 5.8 to 15.2m.

Small Craft Anchorage, N of Freighter Anchorage, shows charted depths of 6.2 to 12.6m but a dangerous wreck occupies its SW corner.

Anchorage for deep-draft vessels can be obtained with the permission of "Das Marine" about 1 to 1.5 miles NW of a buoy at the position 25°11.3'N, 52°55'E.

Vessels other than those calling at Jazirat Das are prohibited from anchoring within the port limits, the extent of which is shown on the charts.

Directions.—The whole of the S bight of the Persian Gulf is littered with oil fields, shoals, and other hazards to navigation. Vessels should avoid entering the charted limits of any oil field as numerous obstructions, both above and below water, may exist in addition to what is shown on the chart.

Submarine pipelines may reduce the charted depth of water enough to pose a danger to a deeply laden vessel; therefore, vessels should maintain an adequate underkeel clearance.

Two approach routes are available to vessels wishing to trade at Jazirat Das. The N route, with a least depth of 23.8m is primarily intended for loaded tankers departing the port, but is available to arriving vessels if their draft is such that they cannot use the S route safely, provided Das Marine is informed in advance.

The Das Approach Channel is a buoyed channel best seen on the chart.

The S approach route, with a depth of at least 20m, is the recommended route for vessels loading at Jazirat Das.

Observing the Traffic Separation Scheme off Zirkuh, and keeping a good eye out for traffic, proceed as safe navigation permits to the pilot boarding ground.

Pass W of the Zirkuh Petroleum Port limits, keeping in mind the 14.3m shoal about 3 miles NE of Jazirat Qarnayn, the foul ground extending up to 4.5 miles S of Jazirat Das, and the wreck about 4 miles S of the same island.

Vessels are urged to contact the local authorities for the latest information on depths, dangers, and approach routes before planning a voyage here.

Caution.—A pipeline crossover point has been constructed in approximate position 25°08.5'N, 52°59.3'E. Depths in this area may be up to 3.2m less than charted.

15.34 Sasan Oil Field (Salman Oil Field) (25°32'N., 53°09'E.) is the larger of the two adjacent oil fields which lie between 20 and 30 miles NE of Jazirat Das. Numerous well heads and associated structures, many of them showing lights and sounding fog signals, together with unlighted obstructions and submarine pipelines, exist in the oil fields.

Sasan Oil Field is the S end of a 91-mile long pipeline to Jazireh-ye Lavan. The S part of this pipeline is covered by a fixed red sector of a light on the N oil rig between the bearings of 170° and 180°, and 350° and 360°.

Ships should navigate with caution when in the vicinity of the oil fields and are advised to keep clear of the area.

Abu Al Bukhush Oil Field is a restricted area and no vessel should enter the area without authority.

Umm Ash Shayf Oil Field (25°13'N., 53°14'E.) is centered approximately 15 miles ENE of Das Island. The circular limits are best seen on the chart. The pipelines, platforms, and other

dangers associated with the field are enclosed in a Restricted Area.

Nasr Oil Field (25°19'N., 53°28'E.), under development and best seen on the chart, lies NE of Umm Ash Shayf Oil Field.

15.35 Abu Al Bukhush Oil Terminal (25°29'N., 53°08'E.) (World Port Index No. 48273), in the N part of the Abu Al Bukhush Oil Field, is a lighted SBM.

Tankers up to 280,000 dwt, with a maximum draft of 22.5m, secure to the SBM to load. Berthing and unberthing is undertaken only between sunrise and 1500 to 1600, depending on the season.

Pilotage is compulsory and is available during daylight hours only. Vessels should send their ETA 72 hours, 48 hours, and 24 hours in advance through Bahrain. Contact terminal on VHF channel 15 or 16 when within VHF range. The mooring master boards at the anchorage.

Anchorage for tankers awaiting a berth is available at the W limit of the oil field, about 3 miles WSW of the storage tanker.

The bottom of sand and coral is reported to be poor holding ground and vessels are advised to leave the anchorage should winds exceed 35 knots.

Ships are requested not to anchor within the area indicated on the chart by dashed lines, nor within 2 miles of the pipeline.

15.36 Al Bunduq Oil Field (25°06'N., 52°37'E.), centered about 14 miles WSW of Jazirat Das, consists of numerous oil wellheads and associated structures, usually lighted, together with unlighted obstructions and submarine pipelines.

Ships should navigate with caution when in the vicinity of the oil field, the limits of which are shown on the charts, and are advised not to navigate within it. A submarine pipeline is laid from Al Bunduq Oil Field to Jazirat Das.

Anchorage is reported to be prohibited within 2 miles of the pipeline.

Karkara Oil Field (25°08'N., 52°28'E.) is centered around a platform located on an 8.8m shoal depth. A moored storage vessel, which is connected to the terminal by a submarine pipeline, is situated about 0.8 mile ENE of the platform. Vessels are requested to keep well clear of the installation and not enter the area bounded the following position with permission of the facility manager:

- a. 25°07.5'N, 52°27.0'E.
- b. 25°09.0'N, 52°27.0'E.
- c. 25°09.0'N, 52°29.0'E.
- d. 25°07.5'N, 52°29.0'E.

Jazirat Dayyinah (24°57'N., 52°24'E.) is a flat, sandy island, the highest part being a detached, black rock at its N end, which is reef-fringed. Detached rocks, rocky patches, and shoals, best seen on the charts, lie in the vicinity of the island and on an extensive shoal E and N.

Anchorage can be taken, in 10m, about 1 mile SSE of the S end of Jazirat Dayyinah, with good shelter from the shamal.

Satah Oil Field (24°55'N., 52°33'E.) is centered 8.5 miles ESE of Jazirat Dayyinah. Its limits are shown on the chart. Several structures and freestanding wells within the field exhibit lights. A submarine pipeline is laid between the central platform ST-I in Satah Oil Field and the W side of Jazirat Qarnayn.

15.37 Jazirat Sharaiwah (25°02'N., 52°14'E.) is a 12m high islet marked by several hummocks; shallow water encircles the islet. A rock displaying a light lies 1 mile NW of the island.

Anchorage can be taken during a shamal, in 9 to 11m, sand, about 0.5 mile off the S side of the islet.

Jazirat Dalma (24°30'N., 52°19'E.) is formed N by a series of low hills which appears as tableland from offshore. The S part of Jazirat Dalma is low, sandy, and tapers to a spit of reclaimed land.

A small village is situated on the SW side of the island. A desalination plant and a jetty are situated on the SE side of the main part of the island. Another jetty is situated on the SW side.

Landing is easy on either side of the spit of reclaimed land at the S end of the main part of the island, but elsewhere the shores are fringed by a reef.

An offshore mooring comprising three buoys, each showing a light, is situated 0.8 mile E of the S end of the main part of the island.

An oil pipeline connects the terminal to the island.

Hair Dalma 3 (HD3) (24°31'N., 52°26'E.), an oil platform, marked by a light, stands 5.5 miles E of Jazirat Dalma. Mariners should keep well clear of the vicinity.

Coast of United Arab Emirates—Jabal az Zannah to Ras abu Qumayyis

15.38 From Jabal az Zannah, the coastal hills continue SW for about 22 miles to Jabal Wutayd, about 3 miles inland; then to **Ras as Sila** (24°03'N., 51°47'E.), about 28 miles W. The shore consists of the Sabkha Matti, a low, swampy and desolate salt marsh area. Most of this coast has not been adequately surveyed.

North of Ras as Sila, for about 13 miles, the coast consists of a succession of small rocky points; the land rises gradually to a level tableland in a series of small terraces. Low white cliffs continue NW about 3 miles to Ras Mushayrib; between this point and Ras al Hazrah, 11 miles NW, are two inlets, Dawhat Tallab and Dawhat al Khuwaysat, with hilly shores.

Az Zabbut (24°08'N., 52°26'E.), marked by a stone cairn on its summit, is a small boot-shaped island lying close off a small point.

The coast between the point and Jabal az Zannah is low, sandy, and covered by grassy hummocks. A group of hills, 50m high, are prominent, as is a mosque tower 5 miles SW of the highest hill. The area between Jabal az Zannah and Az Zabbut is filled with a shallow bank extending 10 miles offshore. Several drying reefs and rocky patches lie on the bank.

Jabal Barakah (24°00'N., 52°20'E.) attains a height of 64m. On the seaward side, it rises steeply from 6.1m high cliffs.

Webb Rock (24°05'N., 52°15'E.), with a depth of less than 1.8m, should be given a wide berth. A unlighted platform charted S of the rock was reported missing in 1991.

Ras Sarab (24°16'N., 51°47'E.), 13 miles N of Ras as Sila, consists of a conspicuous table-topped hill about 18m high.

The reef-fringed coast N to **Ras Mushayrib** (24°18'N., 51°45'E.), a very low, rocky, shelving point, is formed of low, whitish cliffs.

Yasat Ali (24°14'N., 52°01'E.), the largest of four small islands, is separated from the second largest island, Yasat Safli, by a boat channel 183m wide and less than 5m deep. Landing can be made on the E side of the islands.

The smallest of the four small islands lies on shoals bordering the N side of South Yasat Channel, which is 1 mile wide, with depths of 5.8 to 12.8m along the N side.

Caution.—The coastal bight between Jabal Barakah and Ras as Sila is imperfectly surveyed and foul. It is reported that abandoned oil well structures and pipes are located S of Webb Rock. Local knowledge is required to navigate in this area.

15.39 Umm al Hatab (24°13'N., 51°52'E.), 8 miles W of Yasat Ali, is a small island lying on a reef, with several above-water rocks off its N end. A large drying reef lies 3.5 miles NNE of Umm al Hatab.

Naitah (24°18'N., 51°48'E.), an islet, lies at the SE and SW ends of separate reefs. A strait about 0.5 mile wide and 6.1m deep is the only navigable passage leading N between the mainland and the extensive reefs extending NW from Yasat Ali. Naitah lies at the N edge of the strait. A 4.9m patch in the channel is passed on either side.

Ras al Hazra (24°23'N., 51°36'E.) is very low, rocky, and shelving. The point is fronted by rocky shoals and islets, which are best seen on the charts.

Extensive shoal areas lie N and E of Ras al Hazra. Small craft with local knowledge can transit the various passages between the dangers.

Al Qaffay (24°35'N., 51°43'E.) is the largest of three islands lying on shoals with several rocks and islets. The entire area between Al Qaffay and the mainland S contains innumerable dangers, which are unmarked and do not show up well.

15.40 Dawhat as Sumayrah (24°18'N., 51°33'E.) is a shallow bay fringed by drying sand banks. A rocky peninsula forming the E side of the bay extends S from Ras al Hazra.

The W side of the bay trending to **Ras Sumayrah** (24°19'N., 51°26'E.) consists of a low, sandy plain. An isolated high hill rising 2.5 miles SSW of Ras Sumayrah is prominent from N.

Khawr Duwayhin (24°20'N., 51°20'E.) is a shoal bay extending W from **Ras Juwayfariyah** (24°20'N., 51°24'E.) and N for 10.5 miles to Ras Umm Mayub, a low point. A series of shoals, some of which have depths of less than 1.8m, lie across the bay entrance.

Jabal Tullah (24°24'N., 51°19'E.) comprises six high hillocks close together, with a detached hillock 0.5 mile SSW of the group. The coast between Jabal Tullah and Ras Umm Mayub is fronted by drying banks and backed by a low sandy plain rising to high hills about 1 mile inland.

Three Buttes are high, prominent hillocks rising 1 mile NW of Ras Umm Mayub; Jabal Mayub, a high hill, rises 2 miles W.

Bandar Matuq (24°33'N., 51°28'E.) is a bay between Jazirat Hadhba and Ras Seyad.

Anchorage, sheltered from the shamal, can be taken in the bay, in about 14m, sand and shell.

Coast of Qatar—Ras abu Qumayyis to Ras abu al Mushut

15.41 Ras abu Qumayyis (24°34'N., 51°30'E.), low and rocky, is the E extremity of the coastal projection forming the SE side of Khawr al Udayd, an inlet.

The SE shore of the inlet consists of Jabal al Udayd, a conspicuous table-topped hill, 95m high, which is the highest peak in a range of hills backing the coast forming the inlet.

Fasht Umm Jannah (24°34'N., 51°33'E.), an extensive partly-drying reef, is separated from Ras abu Qumayyis by a deep, constricted channel.

Khawr al Udayd (24°36'N., 51°20'E.), 0.5 to 1 mile wide, extends 5 miles SW from **Ras al Udayd** (24°38'N., 51°24'E.), the rocky N entrance point, before it opens into a shallow lagoon. A drying bar of sand and coral, over which there is a depth of 0.9m, lies across the inlet entrance. Although there is deeper water in the channel leading into the lagoon, it is only used by fishermen in winter.

Anchorage, sheltered from the shamal, can be taken off the entrance to the inlet about 0.5 mile offshore, in depths of 7 to 9m, sand and shell, with Jabal al Udayd bearing 200°, distant 4.5 miles.

Care should be taken to avoid the shoals fronting the inlet and also to avoid closing the shore due to the sandhills W of the anchorage appearing farther off than they are.

15.42 Niqyan Qatar (24°53'N., 51°32'E.) is an irregular range of white sandhills, up to 46m high, which borders the coast for 18 miles NNE of the entrance to Khawr al Udayd.

Naqa abu Anfus (24°55'N., 51°33'E.) is the highest hill of the range. About 3 miles farther NE, at Umm Said, the coast recedes forming Dawhat Umm Said; it then continues NE about 5 miles to **Ras al Ilaq** (25°01'N., 51°38'E.), marked by a high framework tower with a black, triangular topmark. There are numerous beacons, a gas liquids plant with three tall columns, a fertilizer plant, and a flour mill on the shore.

Fasht al Arif (24°57'N., 51°40'E.), which dries in patches and shows up well under most conditions, extends about 7 miles SE from the coast in the vicinity of Ras al Ilaq.

A bank, with a depth of 6.2m at its S end, extends 1.5 miles SSW from the S end of Fasht al Arif; sunken rocks lie up to 1 mile E of the same end.

To the SW of Fasht al Arif, the buoyed channel passes between a bank, with a depth of 7.3m, and an obstruction, with a depth of 8.8m. The E, S, and SW sides of Fasht al Arif are marked by pole beacons.

Jazirat al Ashat (24°45'N., 51°37'E.) are a group of three flat islets and two detached rocks. The islets are bordered by cliffs. The area around the islet is foul, with shoals of less than 1.8m lying for several miles in all directions. A light is shown from the islet.

Fasht al Udayd (24°50'N., 51°47'E.), an extensive partly-drying reef, is bound S and W by a sand-covered coral reef, much of which dries, but is clearly visible at all times. The channel between Fasht al Arif and Fasht al Udayd is about 4 miles wide but is reduced to a width of 2.5 miles between the 10m curves.

Halat Dalma (24°47'N., 52°00'E.) is an extensive shoal on which lies a large drying coral reef covered with patches of sand. The channel from Fasht al Udayd divides, with one part leading S of Halat Dalma and the other leading around the W and N edges of the reef. The channels are deep but intricate and require local knowledge.

Umm Said (Mesaieed) (Musay'id)
(24°54'N., 51°34'E.)

World Port Index No. 48287

15.43 Umm Said consists of several complexes devoted to a variety of cargoes.

Winds—Weather.—See paragraph 15.1 for further information.

Tides—Currents.—The mean tidal range here is 1.3m, but may vary as much as 0.6m, depending on the meteorological conditions. Tides here have a large diurnal component, resulting in only one high and low tide per day at certain times of the year. The time of HW at the port usually occurs about 1 hour after HW off the N end of Outer Channel.

In the approach to Outer Channel, tidal currents set parallel to the shore, and do not exceed a speed of 1 knot. In the S portion of the approach channel, the tidal currents generally set SSW on the flood and NNE on the ebb, and attain a rate of

more than 2 knots, at times. Cross-channel sets can be expected.

Depths—Limitations.—The port is approached from the N through charted recommended tracks.

Mesaieed West Channel, formerly known as Outer Channel, is a narrow channel about 6 miles long, with its N end about 17 miles NNE of Ras al Ilaq, running in a N-S direction through the coastal bank. The fairway has a least depth of 11m, but lesser depths exist close by the recommended track in several places. The lighted buoys marking the channel S of Ras al Ilaq are now designated W-01 through W-12.

A second approach channel has been dredged into Umm Said. It has been designated as Mesaieed East Channel. This channel, which splits from Mesaieed West Channel in the vicinity of Lighted Buoy E-01, is marked by lighted buoys designated E-01 through E-18. It rejoins Mesaieed West channel SE of SE Arif Lighted Buoy. It has been reported (2002) the channel is dredged to 13.5m and can accommodate vessels up to 320,000 dwt, with a maximum beam of 60m.

Main Channel, formerly known as Inner Channel, comprises the channel SE of Fasht al Arif and the channel leading N and W to the anchorage off the oil terminal berths at Musay'id. The channel has a least reported depth of 11m and is best seen on the chart.

See the Regulations topic for required underkeel clearances and maximum permitted drafts.

Umm Said Berthing Facilities				
Berth	Length	Designed depth	Charted depth	Remarks
No. 1	350m	15.0m	14.8m	Bulk iron ore discharge. Vessels up to 100,000 dwt, with a maximum beam of 40m and a maximum length of 270m, can be accommodated. See Note. 1.
No. 2	190m	15.0m	15.0m	Bulk iron ore discharge. Steel loading. Maximum vessel length of 170m, although this may be exceeded if adjacent berth is empty. Mooring and unmooring done during daylight hours only. See Note. 1.
No. 3	250m	15.0m	14.8m	Bulk iron ore discharge. Steel loading. Maximum vessel length of 240m, although this may be exceeded if adjacent berth is empty. Mooring and unmooring done during daylight hours only. See Note. 1.
No. 4	298m	13.0m	12.4m	General and bulk cargo. Vessels up to 50,000 dwt, with a maximum beam of 35m and a maximum length of 238m, can be accommodated. See Note 1.
No. 6	263m	13.0m	12.7m	Petroleum. Vessels up to 60,000 dwt, with a maximum beam of 40m, a maximum draft of 12m, and a maximum length of 270m, can be accommodated. See Note 1.
Notes:				
1. Accessed via North Dredged Channel.				
2. Accessed via South Dredged Channel.				

Umm Said Berthing Facilities				
Berth	Length	Designed depth	Chartered depth	Remarks
No. 9	200m	9.7m	8.8m	Bulk liquids and general cargo. Vessels up to 180m long can be accommodated. See Note 1.
No. 10	200m	10.0m	8.5m	Bulk liquids and general cargo. Vessels up to 180m long can be accommodated. See Note 1.
No. 16	250m	13.0m	13.0m	Petrochemicals. Vessels up to 50,000 dwt, with a maximum beam of 32.2m and a maximum length of 230m, can be accommodated. Located close NE of Berth No. 18. See Note 2.
No. 18	255m	13.0m	13.0m	Polyethylene chips. Vessels up to 235m long can be accommodated. See Note 2.
No. 19	255m	13.0m	12.8m	Liquid ethylene. Vessels up to 180m long can be accommodated. Mooring and unmooring permitted during daylight hours only. See Note 2.
No. 20	213m	12.0m	11.8m	Amonia and bulk urea. Vessels up to 45,000 dwt, with a maximum beam of 30m and a maximum length of 193m, can be accommodated. See Note 2.
No. 21	213m	12.0m	12.0m	Bagged urea. Vessels up to 45,000 dwt, with a maximum beam of 30m and a maximum length of 193m, can be accommodated. See Note 2.
No. 22	213m	12.5m	12.5m	Urea. Vessels up to 40,000 dwt, with a maximum beam of 26m and a maximum length of 213m, can be accommodated. Maximum vessel size of 40,000 dwt. See Note 2.
NGL Jetty	29m	12.8m	12.8m	LNG facility consisting of a T-head berth with breasting dolphins. Vessels up to 20,000 dwt, with a maximum beam of 25m and lengths of between 168 and 290m, can be accommodated. Mooring and unmooring permitted during daylight hours only.
Notes:				
1. Accessed via North Dredged Channel.				
2. Accessed via South Dredged Channel.				

To the S and W of Fasht al Arif, the port has general depths of 9.8 to 20.1m, but several shoal patches or obstructions, best seen on the chart, lie close to the recommended track.

The port consists of three separate groupings of facilities, two of which are reached by dredged channels.

The petroleum berth, positioned at the S end of the port complex, is contained within a Restricted Area, best seen on the chart. North Berth, a Single Point Mooring (SPM) buoy, will accept vessels up to 320,000 dwt, with a maximum beam of 60m, and a length between 225m and 340m. The depth at this berth is 19.6m. An area to be avoided lies within a radius of 0.3 mile around the SPM.

South Berth is no longer in use (2003). The submarine oil pipeline, as well as the mooring buoy and its associated lighted buoys, will eventually be removed.

QP Multiproduct Berth consists of two berths, with a total berthing length of 360m, situated about 1.1 miles SW of the NGL Jetty. The minimum depth alongside these berths is 12m.

The following new facilities have been reported (2003) in existence within Umm Said:

1. Crushed stone import facility—In Dawhat Umm Said, close NE of the chartered ship repair yard. The facility includes a 470m long wharf approached by a channel dredged to a depth of 13m.

2. Crude oil and naphtha exporting berth—Situated about 0.8 mile SW of the NGL Jetty. The berth has a dredged depth of 14m alongside.

Information on pier facilities in Umm Said is given in the accompanying table.

Aspect.—The town of Umm Said, standing about 6 miles N of the NGL Jetty, may be identified by a conspicuous mosque,

and a radio mast standing close SW. A conspicuous group of oil tanks, with a refinery N of them, stand about 2 miles S of town.

Two flares, two radio masts, and three tall columns are visible in the vicinity of the oil berths. The flour mill standing about 1 mile NE of the NGL Jetty has a conspicuous tower, while 1.5 miles further NE lies the steel mill chimney.

Pilotage.—Pilotage is compulsory for all general cargo, tanker, chemical, and ammonia vessels when berthing, unberthing, or shifting berth.

Channel pilotage is compulsory for the following vessels:

1. Tankers—Length greater than 200m, beam greater than 40m, or draft greater than 8m.

2. Dry cargo vessels—Length greater than 200m, beam greater than 40m, or draft greater than 9m.

Pilotage for all vessels is provided by the Musay'id Port Operations Department.

The pilot boards, as follows:

1. Channel pilot—About 1 mile NE of Umm Said Approach Lighted Buoy.

2. Channel pilot exempted vessels—In the vicinity of Inner Fairway Lighted Bouy

Regulations.—Vessels should send their ETA at Mishut Lighted Buoy (25°16.0'N., 51°46.8'E.) by cable, telex, or e-mail 72 hours in advance, with confirmations sent 48 hours, 24 hours, and 12 hours prior to arrival, stating the following information:

1. Arrival and departure drafts.
2. Quantity of cargo.
3. Maximum loading rate required.
4. Deballasting time.
5. Whether vessel is able to load and discharge ballast at the same time.
6. Any crew changes and/or medical treatment required.

A Vessel Traffic Control Service (VTCS) operates in the approaches to the port. All vessels must obtain clearance from the VTCS before entering the channel. All vessels must keep a listening watch, even when alongside, on VHF channel 11.

All vessels bound for Umm Said are required to call Musay'id Traffic Control 6 hours before arrival at Mishut Lighted Buoy. Vessels are also required to report their status when within 5 miles of Mishut Lighted Buoy. In addition, a vessel should contact the VTCS when transiting inbound or outbound on passing the following:

1. Mishut Lighted Buoy.
2. Hul Lighted Buoy (Mesaieed West Channel).
3. Approach Lighted Buoy (Mesaieed East Channel).
4. Lighted Buoy E-04 (Mesaieed East Channel).
5. Lighted Buoy E-15 (Mesaieed East Channel).
6. SE Arif Lighted Buoy.
7. No. 1 Inner Lighted Buoy.
8. Turning Lighted Buoy.
9. Fairway Lighted Buoy (inbound only).

The following underkeel clearances must be maintained by vessels using the Umm Said channels:

1. Vessels up to 100,000 dwt—0.9m.
2. Vessels between 100,000 to 150,000 dwt—1.2m.
3. Vessels over 150,000 dwt and all LPG carriers—1.5m.

Bearing in mind the underkeel clearances given above, a vessel may expect a sailing delay due to draft restrictions, as follows:

1. Vessels drawing 10.4m or less may sail at any time.
2. Vessels drawing 10.7m will rarely have to consider the effects of tides.
3. Vessels drawing 11m will usually have to use a tide.
4. Vessels drawing 11.3m will always have to use a tide.
5. Vessels drawing 11.6m will occasionally be delayed several days.

6. Vessels drawing 11.9 to 12.2m can expect longer delays. The best months for vessels of this draft to trade here is June and July.

7. Vessels drawing 12.5m and over are not worth scheduling here, as on the few days the predicted height of tide indicates they could sail, meteorological conditions may well lower the height of the tides.

The safe sailing draft is calculated as 10.97m plus the height of tide in the channel minus the underkeel clearance for the vessel. Vessels utilizing berths other than the berths contained within the restricted area are allowed a maximum permitted draft of 10m at any state of tide, and a maximum permitted draft of 11.9m at high tide.

A vessel with a maximum length of 259m can be accommodated. Vessels should be ready to move under their own power while at berth. No repairs should be undertaken that would impair the vessel's ability to get underway or its fire-fighting ability.

The port can be contacted by e-mail, as follows:

mportops@qp.com.qa

Anchorage.—The charted Large Tanker Anchorage and Freighter Anchorage, N of Large Tanker Anchorage, are no longer in use (2003). They have been replaced by individual anchorage areas on both sides of the existing fairway. In addition, seven emergency anchorage areas have been established adjacent to Mesaieed East Channel and Main Channel. For details of these anchorages, the local port authorities should be consulted; these anchorages accommodate the following types of vessels:

1. A1 to A6—Non-hydrocarbon vessels, good shelter from the shamal and protected from the nashi.
2. B1 to B3—Non-hydrocarbon vessels, good shelter from the shamal and protected from the nashi..
3. C1 to C3—Small tankers.
4. M3 to M7—Emergency use only.
5. P1 to P3—Mooring buoys for barges and tugs waiting for alongside berths, good shelter.
6. S1 and S2—Chemical tankers and general cargo vessels.
7. T1 to T6—Large tankers and bulk carriers, good holding ground.

Small vessels can find shelter clear of the fairway, dredged channels, restricted area, and shoals.

Caution.—Caution is advised when transiting the channel to the port, especially with a minimum underkeel clearance.

Under favorable conditions, shoals with depths of less than 11m can generally be distinguished by the lighter color of the

water over them, but this color difference should not be relied upon, as some shoals appear as darker patches, while some give no indication of their presence at all.

All ships are requested to anchor in the appropriate designated anchorage area and to avoid obstructing the fairway and approach to North Berth. Ships should not approach within 1 mile of this berth, or of the pipeline connecting it to the shore, unless a pilot is aboard.

15.44 Umm al Hul (25°05'N., 51°37'E.), a village, in ruins and deserted, stands on the W side of a drying landlocked inlet. A high frame tower with a black diamond topmark marks the village. Jabal al Wakrah is a high, level-topped rocky hill about 4 miles N of Umm al Hul.

The coast in this entire area is low, sandy, and backed by stony desert.

A prohibited anchorage area enclosing a submarine gas pipeline is located N of Umm al Hul. Both are best seen on the appropriate chart.

Al Wakrah (25°10'N., 51°37'E.), a large, but mostly deserted town in ruins, has a minaret and fort, with a square tower and flagstaff, that are conspicuous. There is a small stone wharf fronting the tower and a drying, but sheltered, boat harbor off the N end of town. Wakrah Lighted Buoy is moored 4.5 miles E of Jabal al Wakrah.

The entire coast N and S of Al Wakrah is fronted by a continuous shoal, best seen on the charts, which extends at least 2 to 3 miles offshore.

Off-lying shoal banks, including Ruqq Quraynayn, on which lie many detached patches of lesser depths, are shown on the charts as extending parallel to the coast. A large power station stands about 2 miles N of Al Wakrah.

Ruqq Quraynayn (25°05'N., 51°50'E.), a shoal extending about 20 miles N from the vicinity of Fasht al Udayd, is marked NE by a light that is shown from a rubble beacon standing 19 miles E of Jabal al Wakrah. Numerous above and below-water rocks lie within a 0.5 mile radius of the beacon.

Except for the W side of this large shoal, the limits are not well-known and it should be given a wide berth. Some of the area to the S and W of the shoal is unsurveyed. Ships passing N and E of the shoal should keep in depths greater than 11m. Tidal currents in the area of the shoals set NNE to SSW.

Coast of Qatar—Ras abu al Mushut to Ras Rakan

15.45 The coast extending from Ras abu al Mushut to **Al Jazirah al Aliyah** (25°24'N., 51°34'E.), a barren, sandy islet separated from the coast by a shallow boat channel, forms a large bay. The commercial port and capital of the State of Qatar is situated at the head of the bay.

Ras abu al Mushut (25°16'N., 51°37'E.) is a low rocky point which is not easily identified from offshore. Inland from the point the land rises gradually. The trees and buildings in the village of Markhiyah, on high ground about 3 miles NW of Ad Dawhah, are conspicuous from offshore. Several lighted radio masts on the W side of the bay are conspicuous.

Al Jazirah as Safiliyah (25°21'N., 51°35'E.) is a low, sandy islet. Between a sand spit extending off the SW end of the islet and the coast W, the bay is very shallow. Lighted beacons mark

a channel between the SW extremity of the sand spit about 2 miles SW of the islet and the shoreline about 0.4 mile farther W. Rocks and reefs lie 1.5 miles SE of the islet.

A bank, with depths of less than 5.5m, extends for 10 miles offshore between Al Aliyah and Ras abu al Mushut. Detached shoal patches are charted as far as 28 miles offshore in the approaches to Ad Dawhah.

Ras abu Abbud (25°17'N., 51°34'E.), a low point, is fronted by shallow reefs and rubble fishtraps. The intervening coast between the point and Ras abu al Mushut is fronted by shoals extending E and N for several miles. Ad Dawhah Beacon stands on the edge of the shoals, about 3 miles N of Ras abu al Mushut.

The approach channel to Ad Dawhah Anchorage is dredged across the shoals and leads close N of the beacon.

Ras an Nisah (25°17'N., 51°33'E.) is a low, rocky projection with numerous buildings nearby.

Ad Dawhah (Doha) (25°17'N., 51°32'E.)

World Port Index No. 48290

15.46 Ad Dawhah, the principal commercial port in Qatar, lies between the parallels of 25°27'N, and 25°21'N, and W of the meridian of 51°40'E, as far as the HW line on the shore.

Winds—Weather.—See paragraph 15.1 for further information.

Tides—Currents.—The spring rise is 1.5m while the neap rise is 1.2m. Tidal currents off the approach channel usually set NNE and SSW with a maximum velocity of 1.5 knots, although rates of up to 3 knots have been reported (1998).

Currents in the vicinity of Ad Dawhah Beacon often set in a direction opposite to that offshore. A strong tidal stream may be experienced on entering the entrance channel. It has been reported that the set is governed by the wind direction at the time.

Depths—Limitations.—As previously stated, shoals and shoal patches encumber the entrance to the port. Shoal patches, with a least charted depth of 3.2m, lie up to 6 miles NE of Ras Abu al Mushut, while a 4.5m patch obstructs the channel about 5 miles ENE of the same point. Once within the fronting shoals, the harbor basin shows general depths of 6.1 to 12.2m, but shoals extend up to 0.8 mile off the port's shores.

Ad Dawhah Entrance Channel, 107m wide, and with a least depth of 10m in 1999, leads from seaward across the fronting shoals mentioned above.

A dredged channel, with a depth of 8.5m, leads N of the Container Terminal to the Flour Mill Terminal, which has an alongside depth of 12m.

The main berths are located along a T-headed jetty extending NE from Ras an Nisah. A causeway extending NE from the N end of the T-head connects to the container terminal. Berth information is given in the accompanying table.

Shell Company Jetty, with an alongside depth of 5.5m, extends from the shore about 0.3 mile SW of Ras abu Abbud.

Several other small craft piers extend from the shore, with alongside depths of 4m and less.

A small naval harbor is charted about 0.5 mile NE of Ras abu Abbud.



Ad Dawhah—Sheraton Hotel

Vessels, with a maximum draft of 8.3m at HW, a maximum length of 183m (190m with special permission), and a maximum beam of 27.4m, could be accommodated. However, it has been reported (1995) that a vessel with a maximum draft of 8.5m was allowed into the harbor.

An underkeel clearance of 1m should be allowed for when maneuvering in the channel.

The port is undergoing extensive development. A new container terminal, with two berths, is in operation.

Aspect.—The S and W sides of the bay containing Ad Dawhah consist of low undulating desert rising to elevations of 12 to 15m a few miles inland. There is a considerable area of reclaimed land, on the W side of the bay, NW of the port.

The Sheraton Hotel, a prominent pyramid-shaped building stands about 2 miles NW of the port area. A building, of similar construction but smaller than the former, stands close N.

A power station, with several conspicuous chimneys, stands close W of Ras abu Abbud, while a conspicuous hotel stands 0.6 mile SW of the same point.

Several water towers are visible within the port area; those which are conspicuous stand about 2 miles SW and 3.5 miles W of Ras abu Abbud.

The Ruler’s Palace, a large flat square building, stands 2.5 miles W of the point; a large minaret, lit at night, stands close SE of the structure.

A conspicuous radio mast stands on the NE corner of a fort located 1 mile NW of the palace. A conspicuous lattice radio mast surmounted by two spheres, 25m in height, stands near the coast 1.5 miles SE of Ras abu Abbud.

Pilotage.—Pilotage is compulsory for all vessels, except for naval vessels, with drafts of over 4m. Pilots should be ordered through Port Control 2 hours prior to arrival at the pilot boarding position. The pilot boards near Ad Dawhah Light Float.

Regulations.—An arrival notice should be sent to the Port Authority at least 24 hours prior to arrival at the pilot boarding position. The exact time of arrival should be confirmed at least 2 hours prior to arrival, or when within VHF range, on VHF channel 14 or 16.

Ad Dahwah (Doha)—Berth Information				
Berth	Length	Depth	Maximum draft	Remarks
No. 1	181m	8.8m	8.5m	General cargo
No. 2	181m	8.8m	8.5m	General cargo
No. 3	181m	8.8m	8.5m	General cargo
No. 4	181m	8.8m	8.5m	General cargo
No. 5	200m	8.8m	8.5m	General cargo
No. 6	215m	7.3m	7.0m	General cargo

Ad Dahwah (Doha)—Berth Information				
Berth	Length	Depth	Maximum draft	Remarks
No. 7	190m	7.3m	7.0m	General cargo
No. 8	190m	7.3m	7.0m	General cargo
No. 9	190m	7.3m	7.0m	General cargo
No. 10	300m	12.0m	9.5m	Container terminal
No. 11	300m	12.0m	9.5m	Container terminal
No. 12	207m	8.5m	—	Flour Mill Terminal

The Qatari flag shall be flown from the foremast at all times. Quarantine signals should be displayed until the vessel has been cleared.

Anchorage.—Anchorage Area B, off the harbor, is available for vessels with a draft of less than 8m, in depths of 13 to 15m, about 6 miles E of Ras abu Mushut. Vessels with a draft greater than 8m can anchor in charted Anchorage Area A, in depths of 14 to 25m. Inside the harbor, anchorage sheltered from NE winds may be taken about 2 miles N of Ras abu Abbud, in depths of 6 to 7m, over a bottom of mud and sand, good holding ground.

Directions.—Keeping to depths of not less than 11m, steer as safe navigation permits for a position about 10 miles E of Ras Abu al Mushut; then steer to pass close S of **Ad Dahwah Light Float** (25°17'N., 54°42'E.).

After embarking the pilot, continue on a W course until the outer lighted beacon marking the dredged channel bears NW; then steer for the channel entrance.

Caution.—Dredging operations have begun (2005) in the vicinity of and S of the Entrance Channel in support of the construction of the new international airport. Access channels only to be used by dredges involved in the project are marked by lighted buoys. Mariners are requested to proceed with caution in these areas.

Jazirat Halul (25°41'N., 52°25'E.)

World Port Index No. 48295

15.47 Jazirat Halul is hilly and barren. The island is reef-fringed for at least 0.5 mile and shoals extend 0.5 mile farther NE and NW. Depths in the vicinity of Jazirat Halul give little warning of its proximity. Tide rips appear around the island, especially off its S side. Irregular soundings, wells, and detached shoals lie as far as 30 miles offshore N through E to S.

The presence of oil drilling rigs and their associated structures, flares, obstructions, and submarine pipelines within oil field areas, is cause for caution in and within the vicinity of oil fields as shown on the charts. Jazirat Halul is a good radar target under normal conditions at 13 miles distant.

Winds—Weather.—See paragraph 15.1 for further information.

Tides—Currents.—The flood current sets SSW while the ebb current sets NNE; rates of up to 2 knots can occur.

Tide rips occur off the island, particularly off its S side.

Depths—Limitations.—There are two offshore oil-loading berths. They consist of SBM1 and SBM2, both single buoy moorings, lying 2 miles and 3 miles off the SE coast of the island. In general, SBM1 will accept vessels of 540,000 dwt, with a maximum length of 420m and a maximum draft of 22m, although under certain circumstances a draft of 25m can be accommodated. SBM2 will take vessels of the same tonnage, with a maximum length of 420m and a maximum draft of 29m.

There are no facilities for dry cargo vessels; oil terminal supplies are brought in by Shell Company supply vessels to a boat harbor on the SE side of the island. The harbor has a 61m pier, with a depth of 3.4m alongside, protected by rubble breakwaters, from which lights are shown.

Aspect.—The island rises to a hilly elevation of 67m, from which a light is shown. A group of oil tanks stands S of the light; a second group stands on the high ground N.

Southeast of the light there are administrative and accommodation buildings and a mosque. Near the SW end of the island there is a small meteorological station.

Pilotage.—Pilotage is compulsory for vessels proceeding to the loading berths and may be obtained in the vicinity of Lighted Buoy H1, about 1.4 miles NE of SBM1.

If, due to adverse weather conditions or other circumstances the normal boarding ground cannot be adhered to, the pilot launch will arrange, via VHF, to meet the vessel at an appropriate place.

The pilot can be contacted by e-mail, as follows:

halulpilot@qp.com.qa

Regulations.—Vessels are required to radio their ETA at Jazirat Halul, plus select information, at least 72 hours in advance, confirming 24 hours prior to arrival. The ETA should also be confirmed 6 hours in advance on VHF channel 16 through Halul Radio. The vessel's ETA message should include the following information:

1. Quantity of cargo desired, in metric tons.
2. Loading rate.
3. Deballasting time.
4. Whether the vessel is able to load and deballast concurrently.

Vessels should contact Halul Control when within range on VHF channel 9 for anchoring and pilotage instructions.

Anchorage.—Anchorage can be taken 2.5 miles E of Jazirat Halul in a circular area 1.5 miles wide, with depths of 21 to 25m, sand.

Anchorage is prohibited in the area encompassed by the red sector of Halul Summit Light.

Directions.—Loaded tankers departing Jazirat Halul should steer about 058° from the vicinity of SBM 2, passing S of Lighted Buoy H1 and N of Lighted Buoy H2, and then pass NW of the lighted buoy marking Halul East Shoal, a 12.8m patch lying about 12 miles ENE of Jazirat Halul. Mariners should be careful not to misidentify Halul East Shoal with that of an obstruction (possibly a wreck), marked by a lighted buoy, which lies 2 miles SE of the shoal.

Caution.—Due to the existence of submarine pipelines off Jazirat Halul, the navigation of laden tankers within 3 miles S of the island, or within the vicinity of such pipelines, is prohibited.

Four oil fields lie SE and S of Jazirat Halul. They consist of Maydan Mahzam (Maydan Mahazam), 8.5 miles ESE; Bu al Hanin (Bul Hanine), 23 miles SE; Idd ash Sharqi, 11 miles SSW; and South Dome, 20 miles SSW.

The limits of the oil fields are shown on the charts; restricted areas surround the first three fields. Within each oil field there are numerous oil wells and associated structures, lights, flares, and obstructions. Submarine pipelines are laid within each oil field and connect with Jazirat Halul.

A submarine gas pipeline is laid WSW from Idd ash Sharqi oil field to the coast of Qatar. An abandoned oil rig, located about 4 miles S of the oil field, is sunk and marked by a wreck buoy moored 0.3 mile S of the wreck.

15.48 Rostan Oil Field and Rakhsh Oil Field.—Numerous oil drilling rigs, flares, and other obstructions lie within an area known as Rostam Oil Field, about 30 miles NE of Jazirat Halul. Lights and fog signals are shown from platforms in the oil field, which is connected NNE to Jazireh-ye Lavan by a submarine oil pipeline.

Rakhsh Oil Field, 15 miles ENE of Rostam Oil Field, and connected to it by a submarine oil pipeline, is marked by oil drilling rigs and flares. Mariners should not navigate within the charted oil fields and should proceed with caution in their vicinity.

A pipe, which rises from a well head to an elevation of 1.2m, is situated about 15 miles NW of Rakhsh Oil Field.

15.49 The coast for about 10 miles N of Ad Dawhah is mostly stony desert with a few low hills, but farther N the coast becomes sandy and flat.

Dawhat al Wusayl (25°30'N., 51°29'E.), a cove marked by a prominent ruined fort, affords sheltered anchorage to local craft in its shallow waters. A ruined tower 3 miles W of the fort is conspicuous. A submarine cable lands 3 miles N of the cove.

Ras al Matbakh (25°40'N., 51°34'E.) is a point close N of the entrance to Khawr Shaqiq, which has a depth of 1.8m and

is frequented by local craft. A village marked by several towers is located on rising ground at the W end of the inlet.

15.50 Ras Laffan (25°55'N., 51°35'E.) (World Port Index No. 48297) is very low, sandy, and marked 2.5 miles W by a conspicuous cairn. The port was built for LNG export shipping.

Ras Laffan Home Page
<http://www.raslaffan.com.qa>

Depths—Limitations.—An L-shaped wharf, for the use of LNG tankers, extends NE from the point. The wharf is protected by two breakwaters; the main breakwater, to the N, is 6,000m long, while the lee breakwater, to the S, is about 5,000m long.

The approach to the wharf is through a 5,500m-long entrance channel, which is 280m wide and has been dredged to a depth of 15m. Prohibited entry areas, best seen on the chart, lie on each side of the harbor entrance at the head of each breakwater.

Berth information is given in the accompanying table.

Aspect.—The control tower, 36m high, stands at the N end of the Dry Cargo Berths.

Pilotage.—Pilotage is compulsory. Pilots can be contacted by e-mail, as follows:

rlcpilots@qp.com.qa

The pilot boarding position is situated 1 mile ENE of Fairway Lighted Buoy.

Regulations.—The vessel's ETA messages should be provided 7 days, 72 hours, and 48 hours prior to arrival. Changes to the ETA of 4 hours or more should be reported during the final 24 hours before arrival. Vessels should contact Ras Laffan Port Control on VHF channel 12 or 16 when within 6 hours of arrival.

All movements within the port are controlled by Ras Laffan Port Control using VHF channel 12. All vessels must contact Ras Laffan Port Control on VHF channel 12 prior to entering, leaving, or maneuvering within the port area.

The dredged channel is subject to one-way navigation. All movements within the dredged channel and the deep-water basin are prohibited during the entry/departure of vessels bound to/from any berth in the deep-water basin. Ras Laffan Port Control will promulgate the movements of such vessels, on VHF channel 12, about 30 minutes prior to the intended time of the vessel entering/departing the dredged channel.

Ras Laffan—Berth Information					
Berth	Wharf length	Vessel length		Maximum vessel size	Maximum vessel draft
		Minimum	Maximum		
LNG No. 1	—	170m	298m	105,000 dwt	12.5m
LNG No. 2	—	170m	298m	105,000 dwt	12.5m

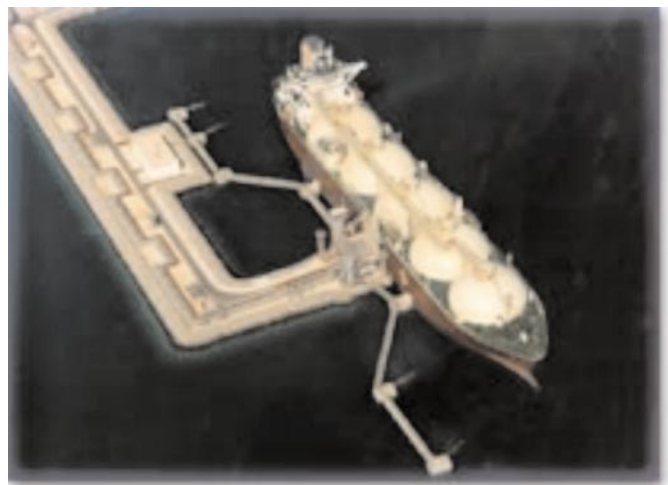
Ras Laffan—Berth Information					
Berth	Wharf length	Vessel length		Maximum vessel size	Maximum vessel draft
		Minimum	Maximum		
Liquid Berth 2A/2B	—	160m	345m	152,000 dwt	12.5m
Dry Cargo No. 1	300m	—		60,000 dwt	12.5m
Dry Cargo No. 2	300m	—		60,000 dwt	12.5m
Ro-ro Berth	150m	—	185m	21,500 dwt	8.0m
Tug Berths	270m	—	—	—	5.3m
Supply Vessel Berths	—	—	—	—	4.5-6.5m



Ras Laffan—Control Tower



Ras Laffan—Aerial view from E



Ras Laffan—LNG No. 1



Ras Laffan—Liquid Products Jetty

Caution.—The coastal bank, with depths of less than 5.5m, and on which lie numerous drying patches, extends from 2 to 15 miles offshore between Ad Dawhah and Ras Laffan. Detached shoal patches are charted E of the coastal bank.

Vessels with a draft of more than 3.6m should not proceed inside the 10m curve.

Two lighted platforms, both surrounded by restricted areas best seen on the chart, stand about 40 miles NNE of Ras Laffan. The NW platform is connected to Ras Laffan by a submarine gas pipeline.

The following facilities are completed/under construction (2005) in Ras Laffan:

1. Construction has been completed on Liquid Berth 1A and Liquid Berth 1B, located close SW of Liquid Berth 2A/2B.
2. The charted 13.5m dredged area has been extended to 100m SW of Liquid Berth 1A.
3. Liquid Berth 3A and Liquid Berth 3B, located close NW of Liquid Berth 2A/2B, are under construction and nearing completion.
4. LNG No. 3 is under construction on the main breakwater E of LNG No. 4. When LNG No. 3 is completed, construction will begin on LNG No. 4, which will be located on the main breakwater E of LNG No. 3.

15.51 Al Shaheen Oil Field and Terminal (25°35'N., 52°00'E.), located about 4 miles NE of the previously-described NW platform, is composed of a lighted platform and an SPM, to which a floating storage tanker (FSO) is permanently moored.

Winds—Weather.—Winds are predominantly from the NW.

Tides—Currents.—The prevailing current is SE at speeds usually no greater than 2 knots.

Depths—Limitations.—Vessels up to 500,000 dwt can be accommodated.

Pilotage.—Pilotage is compulsory within the safety zone surrounding the SPM. The pilot boards in the anchorage area.

Regulations.—Vessels should send their ETA 7 days, 5 days, 72 hours, 48 hours, and 24 hours prior to arrival; any changes to the ETA of more than 3 hours should also be reported. Contact should be made with the FSO, call sign “Al Shaheen Terminal,” on VHF channel 69 when within range.

The terminal operator can be contacted by e-mail, as follows:

shaheen@moq.com.qa

The FSO can be contacted by e-mail, as follows:

master.nevis@vsl.redband.no

Anchorage.—A charted circular anchorage area is located about 5.5 miles ESE of the SPM.

Caution.—Vessels are advised not to transit through Al Shaheen North Field (Bravo) when enroute to the anchorage area. Other oil fields and gas fields lie in the vicinity of Al Shaheen Oil Field and Terminal and are best seen on the chart.

15.52 Al Rayyan Oil Field and Terminal (26°39'N., 51°33'E.), about 22 miles WNW of Al Shaheen Oil Field and Terminal, consists of a production platform and floating storage tanker. Vessels up to 320,000 dwt, with a maximum length of 310m and a maximum draft of 21m, can be accommodated.

Vessels send their ETA 72 hours, 48 hours, and 24 hours in advance. Pilotage is available but not compulsory; pilots board at the designated tanker anchorage, about 1.5 miles NE of the production platform.

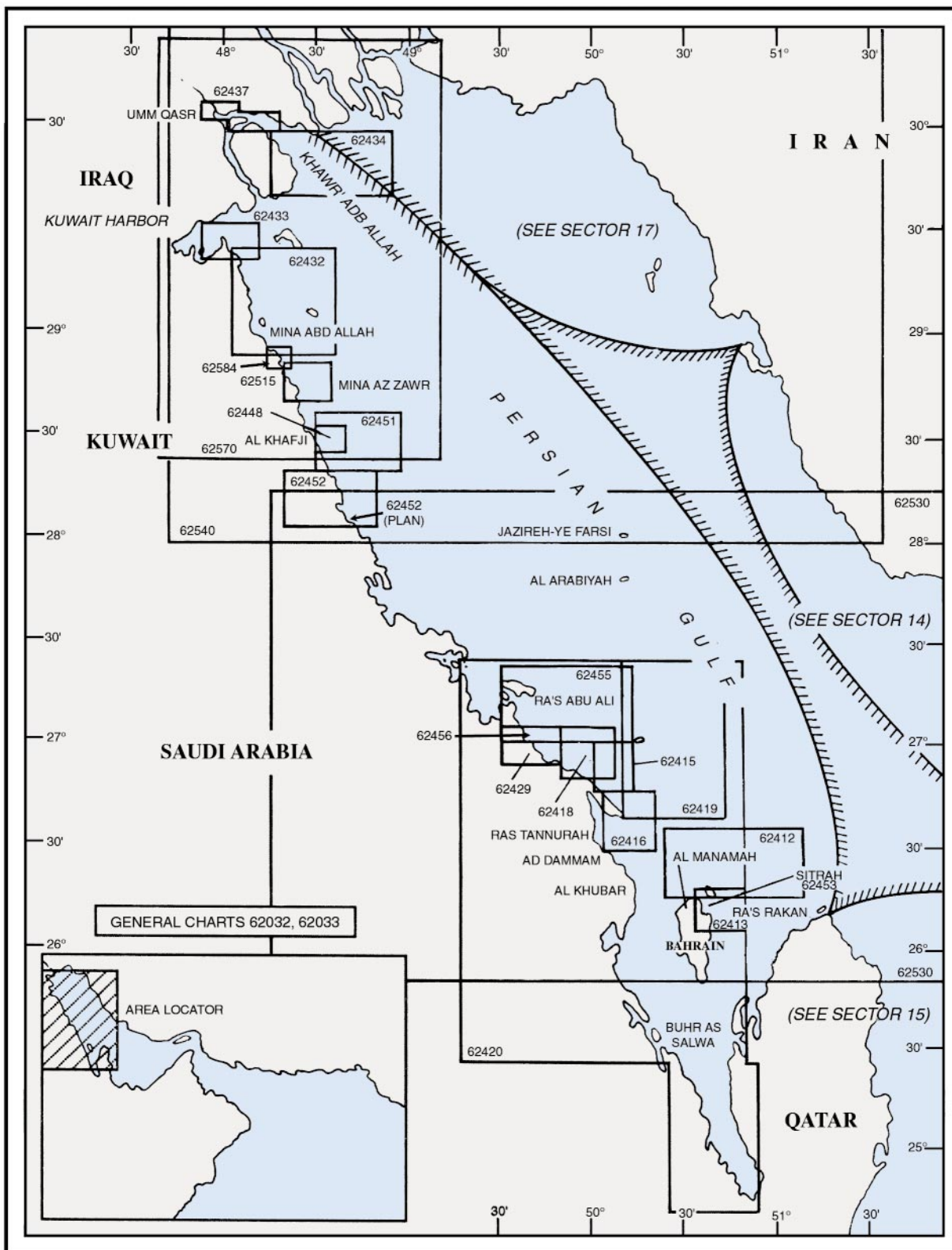
Vessels should contact the terminal on VHF channel 72 when within range. Once contact has been established, the terminal will request the vessel to maintain a listening watch on VHF channel 72.

An area extending 1 mile from the production platform and the storage tanker is closed to fishing vessels and commercial shipping.

Between Ras Laffan and Ras Rakan, about 24 miles NW, there are no off-lying dangers, except off the latter point. Sheltered anchorage can be taken by local craft in a small bay at position 25°57'N, 51°25'E.

Ras Umm Hasah (26°06'N., 51°21'E.) is a high rocky hill-oak. Al Mafjar, a village, is visible before Ras Rakan on a NE approach.

Caution.—Anchorage is not recommended within the area extending up to 50 miles offshore between Ras Laffan and Ras Rakan due to the existence of numerous well heads, gas fields, platforms, buoys, wrecks, and pipelines within the area.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 16 — CHART INFORMATION

SECTOR 16

THE PERSIAN GULF—QATAR, BAHRAIN, SAUDI ARABIA, KUWAIT, AND IRAQ—RAS RAKAN TO KHAWR ABD ALLAH

Plan.—This sector describes the SW side of the Persian Gulf. The sequence of description is NNW from Ras Rakan.

General Remarks

16.1 An IMO-adopted Traffic Separation Scheme (TSS) lies within the waters covered by this sector and may best be seen on the chart.

Several offshore oil fields, some lying within charted limits or restricted areas, are present in the waters covered by this sector. Unauthorized vessels should avoid entering these restricted areas.

Vessels should navigate with extreme caution within or near such oil fields, as numerous hazards to navigation, charted and uncharted, lie both above and below-water here.

The coast between Ras Rakan and Khawr Abd Allah, about 260 miles NNW, is a low, sandy desert with a few small hills and very little vegetation. The S section of this coast is indented by a large bay, the approaches to which are encumbered with shoals, reefs, and the large island of Al Bahrayn. Because of these obstructions, the shallow waters of this indentation of the coast are avoided by all vessels except small native craft and shallow-draft barges. However, large vessels can reach the oil loading facilities at Ras Tannurah, Ad Dammam, and Sitrah through narrow deep-water channels.

The coast NW of Ras Tannurah to Al Kuwayt is indented by numerous small shallow bays enclosed by low sandy spits.

The approaches are encumbered by many reefs, some of which are unsurveyed. Channels lead into the oil loading terminals at Ras al Mishab, Al Fuhayhil, and several smaller terminals.

The coast N of Al Kuwayt is indented by Kuwait Harbor, the best anchorage in the W part of the Persian Gulf. The large marshy Jazirat Bubiyan, NE of Kuwait Harbor, is fronted by an extensive shoal.

With the exception of the oil terminals and a few towns, this section of the coast is not visited except by local craft.

Winds—Weather.—The prevailing wind along this section of the coast is from NW. On relatively calm mornings the wind may follow the contours of the coast, resulting in an increase of W winds along the S part of the coast.

For more detailed descriptions of the winds and weather along this coast, see the various parts of this sector pertaining to a specific place.

Tides—Currents.—The general current circulation along this coast is SE at less than 1 knot for most places. The currents are not uniform in nature or pattern; therefore, the particular area in question should be referred to for local conditions.

Caution.—It has been reported that some charted oil production platforms in the Persian Gulf may have been removed. In many cases, all that remains of the platforms are pipes extending from 3.1 to 6.1m above the surface; these pipes do not show up well on radar and are a hazard to navigation.

Mine Danger Areas (MDA), best seen on the chart, are located in the area covered by this sector. Mariners are warned that a greater mine threat exists within an MDA and no swept routes have been established in these areas. Caution is also necessary as drifting mines may be encountered anywhere.

Qatar—West Coast

16.2 Ras Rakan (26°11'N., 51°13'E.), the NW extremity of a low sandy islet which lies about 2 miles off the N end of Qatar, is marked by a light. Drying reefs lie between the islet and mainland. The coast SW of Ras Rakan forms the E side of Dawhat Salwa, an extensive bay, is entered between **Ras as Sauwad** (25°36'N., 50°48'E.) and **Ras Sayyah** (25°37'N., 50°16'E.). The coast of Saudi Arabia N of Ras Sayyah is described beginning in paragraph 16.10.

Al Rayyan (26°39'N., 51°33'E.) is an oil terminal located approximately 35 miles off the N coast of Qatar. The terminal consists of a storage tanker moored to an SPM buoy. The depth at the terminal is 27m. Vessels up to 270,000 dwt can be accommodated.

The pilot is also the loading master after the vessel is moored. The ETA messages should be sent 72 hours, 48 hours, and 24 hours in advance of arrival to the terminal operator. When within range contact should be made on VHF channel 16. The pilot normally boards 3 miles SE of the terminal. In rough weather the pilot may board by helicopter.

The anchorage is 3 miles SE of the terminal and offers a depth of 25m.

The island of Al Bahrayn lies in the entrance of Dawhat Salwa and is described beginning in paragraph 16.4. Reefs extend from the E side of Al Bahrayn to within 5 miles of the W coast of Qatar. To the S of the island and reefs, the bay has not been completely surveyed, but it is reported to be encumbered with reefs and shoals.

16.3 Ras Ushayriq (Ras Shayrij) (25°59'N., 51°00'E.) lies about 17 miles SW of Ras Rakan. The intervening coast is low and so light in color that it is difficult to distinguish, especially in the prevailing haze.

Partly-drying reefs fringe this coast and a shoal bank extends about 20 miles NW to the approach channels to Sitrah Anchorage and Al Manamah.

The coast affords difficult landing and is sparsely populated. Much of the foreshore of the coast is flooded at HW springs. Ras Ushayriq is low and rocky, with a conspicuous minaret and water tower. A pier extends 91m offshore.

Reefs and shoals extending E from Al Bahrayn join a shoal bank, with depths of 3.7 to 5.5m, extending W from the point. Zubarah Fort, about 3 miles E of Ras Ushayriq, is a conspicuous building with four towers.

Anchorage can be taken, in a depth of 5.8m, about 7 miles NW of the point.

Ras Dukhan (25°31'N., 50°47'E.) is the W point of a shallow inlet. There are several islands and islets lying within 14 miles of the point. Beacons mark the N end of the islets.

From Ras Dukhan, the coast trends S about 46 miles to the head of Dawhat as Salwa.

The coast SW of Ras Rakan forms the E side of Dawhat Salwa, an extensive bay. The island of Al Bahrayn lies in the entrance of the bay. Reefs extend from the E side of Al Bahrayn to within 5 miles of the W coast of Qatar. To the S of the island and reefs, the bay has not been completely surveyed, but it is reported to be encumbered with reefs and shoals.

The E side of Dawhat as Salwa consists of sandy shores rising to sand hills. The W side of the inlet is indented by several small bays separated by headlands consisting of sand dunes.

Anchorage off **Ras Uwayqil** (25°09'N., 50°34'E.) can be taken, in a depth of 6.1m. Landing in the vicinity is good.

Bahrain—East Coast

16.4 Al Bahrayn (26°05'N., 50°33'E.) is the principal island in an archipelago of islands, including Al Muharraq and Sitrah, which together form the independent Sovereign Arab State of Bahrain. Al Bahrayn, about 35 miles W of Ras Rakan, has low coasts and is uncultivated except for a belt of fertile land that is along the N end.

From a position about 4 miles S of the N coast, a rocky tableland extends S for several miles and stretches across the island from side to side in a series of small cliffs. Al Bahrayn is reported to give good radar returns up to 25 miles distant.

Jabal ad Dukhan (26°02'N., 50°33'E.) is a small, compact group of dark hills rising midway between the E and W coasts.

The hills are usually the first objects seen when approaching the island. Oil tanks and water tanks on the hills and at Al Awali, 3 miles N, are prominent.

Winds—Weather.—The shamal reaches gale force at intervals but raises little or no ground swell at most of the moorings in Al Bahrayn; however, a short choppy sea makes up and is bothersome for small vessels.

Tides—Currents.—From Ras Rakan, the tidal currents set S along the coast. The currents are felt everywhere on Great Pearl Bank, especially near the reefs and islands.

The edge of the bank extends WNW from a position about 35 miles NE of Ras Rakan. There are overfalls in places on the bank.

Off Al Bahrayn, and among the off-lying reefs, the tidal currents are very irregular and are much affected by the wind, but usually follow the trend of the reefs. At springs, the currents attain a velocity of 1 to 3 knots.

Jazirat al Muharraq (26°16'N., 50°38'E.), low and sandy, has conspicuous groves of date palms and several villages along its coasts. Reefs, extending up to 3.5 miles offshore in places, fringe the island on all sides.

The reef extending S from the island terminates in **Qassar Diwan** (26°11'N., 50°40'E.), a rock about 0.3m high. There is a ship repair yard (Arab Shipbuilding and Repair Yard) and drydock on the S end of the reef, NE of Qassar Diwan.

A causeway extends about 4 miles SSE of Jazirat al Muharraq. It is fronted by a coastal bank with depths of less than 5m.

A lighted buoy, with a racon, marks the limit of the shoal area extending SSE of Jazirat al Muharraq.

Qassar Khusayfah (26°18'N., 50°37'E.) is a low islet lying on the reef N of Jazirat al Muharraq.

16.5 Qalali (26°16'N., 52°39'E.), a village on the NE extremity of Jazirat al Muharraq, has several prominent towers associated with the airport SW of the village. Samahij, Al Dayr and Rayya are three villages on the N coast of the island.

Al Muharraq (26°15'N., 50°37'E.), a large town at the SW end of Jazirat al Muharraq, is connected to Al Manamah, on Al Bahrayn, by a stone causeway and a fixed bridge carrying a road. The bridge, with a vertical clearance of 4.6m, spans the deepest part of a boat channel.

The ruins of Abu Mahir, a fort with one large and three small towers, stands on a low spit at the S end of town.

The Quarantine Station and a minaret stand close N of the fort.

Al Hadd (26°14'N., 50°39'E.), a town located at the SE extremity of the island, is prominent when approaching from the E. A water tower in the town is conspicuous.

Sitrah (26°09'N., 50°37'E.), an island, lies close off the NE coast of Al Bahrayn. There are a few settlements among the date palms on the N side of the island. Two piers, one a T-head pier with a depth of 12m alongside, extend from the causeway which originates off the SE side of Sitrah.

About 0.5 mile SW of the S extremity of Sitrah, and on the E side of Al Bahrayn, is a concrete pier extending 0.4 mile SE, in a depth of 3.7m.

An oil refinery, oil tanks, and a high chimney are conspicuous about 1 mile inland from the root of the pier.

Sitrah Causeway, extending about 3 miles ENE from the E side of Sitrah, terminates at Sitrah No. 2 Oil Loading Wharf. The causeway carries a road and oil pipelines. A conspicuous water tower, marked by red lights, stands 1.5 miles NW of the root of the causeway. South of the oil tank farm there are a few scattered villages, but mostly the coast is barren and uninhabited.

The channel separating Sitrah from Al Bahrayn is very shallow and is spanned by a road bridge, which also carries oil pipelines from the Al Bahrayn refinery to the oil loading piers.

Sitrah (Sitra) (26°10'N., 50°40'E.)

World Port Index No. 48320

Mina Salman (Sulman) (26°12'N., 50°38'E.)

World Port Index No. 48325

16.6 Sitrah Oil Terminal and Mina Salman, a dry cargo port, constitute the main berthing facility for the State of Bahrain.

Mina Salman Home Page

<http://www.bahrainports.gov.bh>



GIC Terminal



BAPCO Oil Terminal—No. 1 Island Wharf (left) and No. 2 Wharf (BAPCO Wharf) (right)

Winds—Weather

Usually pleasant weather is experienced from November to March, while hot and humid conditions occur from April to October. The prevailing winds here are from the NW.

Strong wind gusts may occur with no prior warning.

Tides—Currents

Mean HWS rise 2.4m at Mina Salman, while it rises 2.1m at Sitrah. Mean LWN rise 1m at Mina Salman and 0.8m at Sitrah. Off Al Bahrayn, tidal currents are affected by the wind, but generally follow the trend of the reefs, attaining rates as great as 3 knots.

East of Jazirat al Muharraq, the tidal currents generally set N and S. Caution is advised near **Fasht al Dibal** (26°16'N., 50°57'E.), as the W tidal current sets S in the vicinity of the reef. Transiting vessels should keep well to the N.

Currents in the entrance to Khawr al Qulayah are strong, sometimes reaching 4 knots. Due to recent port development, currents may be greater than expected.

Depths—Limitations

Two fairways are available to vessels approaching Sitrah and Mina Salman. Vessels drawing less than 9.1m use an alternate fairway, while more deeply-laden vessels use Deepwater Fairway. Vessels drawing up to 12.2m may use Deepwater Fairway at any time, while those drawing up to 13.4m will be governed by the state of the tide.

Hayr Shutaya (26°35'N., 50°48'E.), an extensive shoal with a least depth of 7.9m, obstructs the seaward approaches to the entrance channels. Shoal patches, with a least charted depth of 9.6m, lie up to 2.5 miles S of the shoal. An extensive artificial reef has been constructed NW of Hayr Shutaya, as best seen on



Mina Salman—Deep Water Jetty



Sitrah—ALBA Jetty

the chart. On the E side of the approach channel, the 10m curve encloses most of the dangers, but several shoal patches, with depths between 5.5 and 9.8m, lie up to 7.5 miles N through W of Fasht al Dibal.

Foul ground E of Jazirat al Muharraq extends to within 0.3 mile of the track, about 6 miles E of the island.

Several wrecks and a submarine cable encumber the channel and are best seen on the chart.



Mina Salman—Container Terminal

Several shoal patches lie NE of Sitrah Anchorage, but are contained within the 10m curve. A natural basin, containing Sitrah and the shipyard N of it, lies at the end of the approach fairway. At the W end of this basin lies the entrance to Khawr al Qulayah and the dredged channel to Mina Salman.

BAPCO Oil Terminal, at the end of a causeway extending from Sitrah Island, comprised of two separate facilities, provides six berths to vessels loading bulk petroleum products or LPG. No. 2 Wharf (BAPCO Wharf), a T-headed structure at the seaward end of Sitrah Causeway, has four berths. No. 1 Island Wharf, a detached structure lying close ENE of No. 2

Wharf, has two berths. Berth 7, the coastal tanker berth, lies about 0.3 mile SW of No. 2 Wharf. Only vessels using these facilities are allowed to transit the indicated area best seen on the chart.

ALBA Jetty, located about 0.3 mile SE of No. 2 Wharf, lies at the end of a causeway extending from the causeway supporting No. 2 Wharf and has two berths. The terminal will provide two shore springs.

Berthing information for Sitrah Oil Terminal and ALBA Jetty is given in the accompanying table.

Sitrah—Berthing Facilities					
Berth	Depth alongside	Maximum vessel			Remarks
		Size	Length	Sailing draft	
BAPCO Oil Terminal—No. 1 Island Wharf					
Berth No. 5	14.0m	110,000 dwt	274m	12.8m	Outer face.
Berth No. 6	13.3m	110,000 dwt	274m	12.8m	Inner face.
BAPCO Oil Terminal—No. 2 Wharf (BAPCO Wharf)					
Berth No. 1	12.8m	80,000 dwt	250m	12.3m	Outer face. Underkeel clearance of 0.7m is required.
Berth No. 2	12.9m	80,000 dwt	250m	12.3m	Outer face. Underkeel clearance of 0.7m is required.

Sitrah—Berthing Facilities					
Berth	Depth alongside	Maximum vessel			Remarks
		Size	Length	Sailing draft	
Berth No. 3	11.9m	34,000 dwt	171m	10.3m	Inner face. A maximum sailing draft of 10.9m can be accommodated under suitable conditions. Underkeel clearance of 0.7m is required.
Berth No. 4	11.9m	25,000 dwt	160m	10.3m	Inner face. Underkeel clearance of 0.7m is required.
BAPCO Oil Terminal—Coastal Tanker Berth					
Berth No. 7	5.5m	—	73m	4.88m	Vessels over 73m long but less than 79.2m long, with a maximum draft of 4.2m, can be accommodated with special permission.
ALBA Jetty					
Outer Berth	11.3m	60,000 dwt	189m	10.7m	Bulk metal products. See Note 1.
Inner Berth	9.1m	25,000 dwt	165m	8.6m	Bulk metal products. Maximum beam of 21m. See Note 1 and Note 2.
<p>Note 1.—Vessels are berthed on a flood tide during daylight hours only; unberthing is done day or night on the flood tide.</p> <p>Note 2.—Vessels may experience heavy surging.</p>					

Across from BAPCO Oil Terminal, the drydock at ASRY can accommodate vessels up to 500,000 dwt, with a maximum draft of 10m. Four wet berths can handle vessels with a maximum draft of 8.1m. There are two floating drydocks; the larger drydock can accommodate vessels up to 120,000 dwt, with a maximum length of 240m, a maximum beam of 41m, and a maximum draft of 9.4m.

The GIIC Terminal, located NE of the ASRY Shipyard, offers a 300m long pier for vessels loading and discharging bulk solid commodities. The approaches to the facility were dredged to a depth of 13.7m; the W side of the jetty (loading) has depths of 13.2 to 13.4m, while the E side of the jetty (discharging) has been dredged to 13.7m. Bulk carriers, up to 100,000 dwt, with a maximum length of 290m, berth on the E side of the jetty. Bulk carriers up to 60,000 dwt, with a maximum length of 240m, berth on the W side of the jetty.

The maximum permissible maneuvering draft at the jetty at all states of the tide is 12.8m. Berthing and unberthing is conducted 24 hours, subject to weather and tidal conditions.

Khawr al Qulayah (26°13'N., 50°38'E.) is an extensive inlet circled by and containing reefs and other dangers best seen on the chart. A channel, with a least depth of 9.5m, leads through Khawr al Qulayah to a basin, with the same depth, off Mina Salman, although caution is necessary, as depths of less than 5m have been reported (2000) on the S side of the channel in the vicinity of Buoy No. 12. A secondary channel, with a least depth of 9.7m, leads S of the main channel, but rejoins it at the basin.

At Mina Salman, the Deep Water Jetty, which is 30m wide and 800m long, extends SE into Khawr al Qulayah and pro-

vides ten berths, each 150m in length. Berths 1, 3, 5, 7, and 9 are on the N side of the jetty, while Berths 2, 4, 6, 8, and 10 are on the S side of the jetty. Alongside depths are best seen on the chart.

Container Terminal Quay extends NE from the root of the Deep Water Jetty. Berths 11, 12, and 13, with a total length of 900m, handle grain and general cargo. Berths 15 and 16, with a total length of 600m, handle container cargo. All berths have been dredged to a depth of 10.9m.

A large area of reclaimed land forms the N port of Sitrah. Wharves, with depths of 8.5 to 8.8m, alongside lie at the N edge of this land. The wharves are approached via a channel dredged to a depth of 9m.

A small craft basin lies SW of the root of the Deep Water Jetty.

Khalifa Bin Salman (26°15'N., 50°45'E.), also known as Al Hidd, is a new port facility under development close E of the ASRY Shipyard and the GIIC Terminal and extending S to Sitrah Lighted Buoy. The facility will consist of two container berths, each 300m long; one multipurpose/ro-ro berth, with a length of 300m; and three general cargo berths, each 300m long. The alongside depths at the berths are expected to be from 7m to 11m.

Aspect

In clear weather, the first marks to be sighted are the white houses on Jazirat al Muharraq; several towers on **Jabal ad Dukhan** (26°02'N., 50°33'E.) are conspicuous from NE. Radio masts and a flagstaff on **Ras al Jufayr** (26°12'N., 50°36'E.) are

prominent. All marks and aids are adversely affected by the dust and haze that curtails visibility in the entire area and navigational aids may be obscured. It has been reported (2003) that visual and radar navigation do not provide acceptable accuracy until in the vicinity of Approach Lighted Buoy No. 14.



Sitrah Lighted Buoy

Pilotage

Pilotage is compulsory for vessels over 250 grt intending to transit the entrance channel to Khawr al Qulayah.

Vessels between 250 and 1,500 grt may be given permission to proceed without a pilot according to the circumstances prevailing at the time.

Bahrain Pilots provides pilotage for all vessels bound for Khawr al Qulayah, as well as the GIIC Terminal, the ALBA Jetty, and the BAPCO Terminal.

ASRY Pilots provides pilotage for vessels bound for the ASRY Drydock.

Both pilotage authorities coordinate their activities through Bahrain Port Control.

Vessels should send their ETA and maximum draft to the pilot 24 hours and 12 hours prior to arrival.

Pilots board about 0.1 mile E of Sitrah Lighted Buoy, except for the BAPCO Terminal; pilots for this facility board at the anchorage.

Regulations

GIIC Terminal.—Vessels should send their ETA at least 72 hours in advance, through Bahrain Coast Radio Station (A9M), including the following information:

1. Last three ports of call.
2. Arrival drafts, fore and aft, and berthing displacement.
3. State of readiness to berth/unload.

When within VHF range, vessels should establish contact on VHF channel 68 with Bahrain Port Control and the BAPCO Terminal to obtain the latest movement schedule from Bahrain Pilots.

BAPCO Terminal (Bahrain Petroleum Company BSC Terminal).—Vessels should send their ETA, draft, and bunker fuel requirements 48 hours in advance through Bahrain Coast Radio Station (A9M). When within VHF range and when at anchor, vessels should maintain a continuous listening watch on VHF channels 16 and 74. The BAPCO terminal can be contacted by e-mail, as follows:

info@bapco.net

The facility is closed when winds from the NNW exceed 35 knots. When winds are from E through S, the following berthing restrictions are in effect:

Berth No. 1	Bow N	Berthing allowed when winds are less than 15-20 knots
	Bow S	Vessels up to 30,000 dwt may berth
Berth No. 2	Bow N	Berthing allowed when winds are less than 15-20 knots
	Bow S	Berthing not allowed
Berth No. 3	Bow N	Berthing allowed when winds are less than 15-20 knots
	Bow S	Berthing allowed when winds are less than 30 knots
Berth No. 4	Bow N	Berthing allowed when winds are less than 15-20 knots
	Bow S	Berthing allowed for coastal tankers when winds are less than 15-20 knots
Berth No. 5	Bow N	Berthing allowed when winds are less than 15-20 knots
	Bow S	Berthing allowed when winds are less than 35 knots
Berth No. 6	Bow N	Berthing allowed when winds are less than 10-15 knots
	Bow S	Berthing allowed when winds are less than 35 knots
Berth No. 7	Bow N	Berthing allowed when winds are less than 10-15 knots
	Bow S	Berthing not allowed

Berthing restrictions for LPG vessels are given in the following table:

Winds from N	Bow N	Berthing allowed when winds are less than 25 knots
	Bow S	Berthing allowed when winds are less than 10-15 knots

Winds from E through S	Bow N	Berthing allowed when winds are less than 10-15 knots
	Bow S	Berthing allowed when winds are less than 10-15 knots

ASRY Drydock.—Vessels should send their ETA at least 72 hours in advance, through Bahrain Coast Radio Station (A9M), including the following information:

1. Last three ports of call.
2. Arrival drafts, fore and aft, and berthing displacement.
3. State of readiness to berth/unload.
4. Whether vessel is gas free and ready to berth.
5. Whether vessel requires tank cleaning.

When within VHF range, vessels should establish contact on VHF channel 16 with the ASRY Drydock.

ALBA Jetty (Aluminum Bahrain).—Vessels should send their ETA at least 72 hours in advance, through Bahrain Coast Radio Station (A9M), including the following information:

1. Last three ports of call.
2. Arrival drafts, fore and aft, and berthing displacement.
3. State of readiness to berth/unload.
4. Bunker requirements.

When within VHF range, vessels should establish contact with Bahrain Port Control and the BAPCO Terminal on VHF channel 68 to obtain the latest movement schedule from Bahrain Pilots. When alongside, vessels communicate with the wharf staff on VHF channel 8.

Vessel Traffic Management System.—A Vessel Traffic Management System is in operation in the approaches to the port, including the Deepwater Fairway and the Northeast Approach Channel.

Inbound vessels over 50 grt should contact Bahrain Port Control Operations, as follows:

1. Vessels should radio their ETA at Sitrah Lighted Buoy (26°10.2'N., 50°42.9'E.), with draft and details of any deficiencies in vessel handling or seaworthiness, when within VHF range.
2. Vessels using Deepwater Fairway should request permission to proceed past Lighted Buoy No. 3 (26°29'N., 50°57'E.).
3. When passing the charted Reporting Points.
4. Vessels should report their intention to anchor to Port Control in sufficient time for an alternative anchorage to be stipulated.
5. When berthed, moored, or anchored.

Outbound vessels over 50 grt should contact Bahrain Port Control Operations, as follows:

1. Vessels should contact Port Control 15 minutes before, and immediately prior to, getting underway.
2. When passing the charted Reporting Points.
3. Vessels using Deepwater Fairway should request permission to proceed past Bahrain Approach Lighted Buoy.

Vessels with a waterline length of less than 33m, when approaching Bahhrain, are required to report to Bahrain Port Control prior to passing beyond the vicinity of the positions of the following check points:

- a. 26°27.4'N, 50°34.4'E. (about 1.8 miles SSW of the charted tower on the N end of Fasht al Jarim)
- b. 26°10.4'N, 50°54.5'E. (in the vicinity of Qitat al Jaradah)

All vessels are required to maintain a continuous listening watch on VHF channel 74 when within the port area, including while anchored. Bahrain Port Control should be contacted if the vessel is to shift berth or anchorage and again when the vessel is situated.

Vessels berthing at Sitrah should have their outboard anchor cleared and ready to let go before approaching the dock; however, the anchor should not be let go in the vicinity of the dock, except on the advice of the Mooring Master.

Anchorage

Anchorage on arrival may be obtained, in depths of 18 to 20m, clear of the fairway, within one of the 11 designated anchorage areas (A1-A4, B1-B7), which may best be seen on the chart. These areas are situated S or SE of Lighted Buoy No. 27. The roadstead is suitable for vessels over 100,000 dwt and for vessels awaiting the tide before sailing. Caution is necessary to avoid the wrecks and obstructions, best seen on the chart, lying in the S extremity of Anchorage Area A-1 and in the N extremity of Anchorage Area A-2, as well as in the area between the two anchorages.

Anchorage is prohibited in the open roadstead S and W of Sitrah Lighted Buoy.

Vessels carrying explosives anchor in an area shown on the chart centered about 1.2 miles SE of Sitrah Lighted Buoy. A dangerous wreck lies close outside the W limits of the explosives anchorage. The wreck is marked close NW by a lighted buoy.

Sitrah Anchorage (26°11'N., 50°41'E.), the limits of which are shown on the chart in the approaches to the shipyard, is restricted to vessels acting under instructions of the port authority. Sitrah Anchorage shows charted depths of 9 to 15.4m, sand and shells. It has been reported that ships using this anchorage may be required to get underway on 1 hour notice. It has also been reported that large groups of jellyfish and plankton blooms pose a hazard to sea suction while at anchor.

Anchorage is available in Khawr al Qulayah sheltered from the shamal, clear of the shoals and dredged channel and prohibited anchorage areas shown on the chart, but the pilot should be consulted before anchoring.

Directions

Deepwater Fairway is intended for deep-draft vessels entering or departing the ports. Proceed as safe navigation permits to the vicinity of **Bahrain Lighted Buoy** (26°33'N., 51°04'E.) then follow the recommended track shown on the chart. The critical areas of the fairway are between Lighted Buoy No. 1 and Lighted Buoy No. 5, between Lighted Buoy No. 9 and Lighted Buoy No. 13, and close N of Lighted Buoy No. 14.

If the vessel's underkeel clearance is critical, a reduction in speed may be necessary within these areas. Vessels drawing

less than 9.1m should keep clear of the deep water fairway and proceed as described below.

From the vicinity of Bahrain Lighted Buoy, steer SW to a position 2.5 miles SE of Lighted Buoy No. 3. Then steer 240° to pass at least 0.5 mile SE of Caisson Wreck Lighted Buoy, and about 0.5 mile N of Sitrah Inward Lighted Buoy, moored 8.5 miles NW and WNW, respectively, of Fasht ad Dibal Lighted Beacon. Then pass W of Sitrah Inward Lighted Buoy, steering 199° with Lighted Buoy No. 16 ahead on that bearing until W of Vidal Lighted Buoy, which marks Vidal Patch, a 7.9m shoal 10.5 miles NE of Sitrah Lighted Buoy.

Then steer due S, keeping E of Deepwater Fairway until Lighted Buoy No. 18 bears almost due W. Then alter course to pass N of Lighted Buoy No. 18 and then to the pilot boarding position, thus keeping clear of any deep-draft vessels leaving the harbor. The least charted depths close to this route are a 10.7m shoal 1.5 miles NNW of Vidal Patch and depths of 10.1m in the vicinity close NW and S of Vidal Patch. There are several patches near this route with depths of less than 10m, the position and details of which may be seen on the chart.

Caution

A local magnetic anomaly has been reported to exist in the vicinity of the Deep Water Jetty at Mina Salman.

Several wrecks, shoals, submarine cables, pipeline areas, and prohibited anchorage areas lie within the waters of the port.



Khawr al Qulayah North Range from close W of the ASRY Shipyard

Vessels should exercise caution if navigating outside of the defined channels in Khawr al Qulayah, as changes to the charted depths have been reported.

It has been reported (2003) that the intense background lighting in the port makes the lighted navigational aids difficult to distinguish at night.

Less water than charted has been reported (1995) up to about 4 miles N of Sitrah Lighted Buoy.

The charted range, located close W of the ASRY Shipyard and in range bearing 106°53', marking the outbound channel from the Deep Water Jetty, is located close to the waterline and has been reported (2002) to be difficult to discern from a distance.

16.7 Al Manamah (26°14'N., 50°35'E.) (World Port Index No. 48310), the capital of the country, is located on Ras ar Rumman (26°14'N., 50°35'E.), the N extremity of Al Bahrayn. The town is an important commercial center. The outer harbor, about 4 miles N of the town, is used chiefly by local craft and ships discharging into lighters.

Winds—Weather.—Although Fasht al Jarim, the extensive detached reef N of Al Bahrayn, protects the harbor from the shamal, it does not prevent considerable sea from making up in the outer harbor. When the wind is strong, however, communication with the shore is seldom interrupted and vessels ride easily at the anchorage. Inner Harbor affords much better shelter, but it is usually full of local craft.

Tides—Currents.—The tidal current N of Jazirat al Muharraq sets WSW and ENE at a velocity of 1 to 2 knots.

The tidal current setting S along the E side of Fasht al Jarim joins the WSW current and turns SW into the harbor.

The tidal current setting NE across the entrance of Inner Harbor is appreciable and caution is advised.

Depths—Limitations.—The least depth in the approach channel to Outer Harbor is 6.1m; from Outer Harbor to Inner Harbor it is 4.6m, but vessels drawing more than 4m should not enter Inner Harbor. Depths in Outer Harbor are 5.8 to 11.9m; depths in the Inner Harbor are 1.8 to 5.5m.

The principal dangers in the approach to Al Manamah include **Fasht al Jarim** (26°24'N., 50°30'E.), an extensive reef having its N end about 17 miles NNW of Qalali.

Three low-lying islands have been constructed from material dredged from a channel which extended 2.7 miles NE from position 26°23'N., 50°27.5'E. The NE end of the channel ends in a small harbor surrounded by reclaimed area. The harbor is dredged to 4.7m, the channel depth is 3.6m and marked by beacons.

Jadam (26°22'N., 50°30'E.), a sand bank, is the S extremity of Fasht al Jarim; shoal flats extend S and at least about 6 miles E. Detached 5.5m patches lie up to 3.5 miles E.

Ras Khusayfah Spit (26°19'N., 50°35'E.), with very shallow depths, extends 3.5 miles NW of **Qassar Khusayfah** (26°17'N., 50°37'E.) and close to the fairway.

West Spit (26°17'N., 50°31'E.), with depths up to 5.5m, lies on the W side of Outer Harbor and is marked close E by a lighted buoy. Al Manamah is fronted by drying reefs which extend N from the town and NE to Jazirat al Muharraq, which is also fronted by drying reefs extending 2.5 miles NW to Outer Harbor of Al Manamah.

Ras Dawarin (Ras Zurawen) (26°15'N., 50°34'E.), marked by a lighted beacon, is the W extremity off Ras ar Rumman.

Al Manamah Harbor is entered between Ras Khusayfah Spit and the shoal flat extending SE from **Jadam** (26°22'N., 50°30'E.).

The Inner Harbor is a bight in the reefs WNW of Al Manamah. It affords good shelter and is usually congested with

small vessels having a draft of less than 4m. The reefs bordering Inner Harbor are all flat and show up well in a good light. There are several small piers for shallow draft craft only.

Customs Pier, with a depth of 1.5m alongside, has a floodlit tower at its head.

Aspect.—Several mosques are reported conspicuous in Al Manamah. About 2.5 miles SW of Ras ar Rumman are the ruins of a large mosque with twin minarets. The upper part of the minarets are good marks over the tree tops until the ship nears Inner Harbor.

Abu Mahir Fort (26°14'N., 50°37'E.), with its several towers, is conspicuous from the anchorage. It stands on a low detached bank which becomes an islet at HW. Domes on the Ruler's Palaces are good marks. Portuguese Fort, a shapeless light-colored heap of stones 3 miles W of town, shows up well in the early morning light.

Pilotage.—There is no pilotage service.

Anchorage.—Anchorage is available in Outer Harbor, in depths of 7 to 9m, over a bottom of sand and coral, with the N end of Jazirat al Muharraq bearing between 085° and 090°.

Caution should be taken when anchoring here, as a dangerous wreck, with a depth of 9.1m, and two submarine cables lie in the vicinity. Vessels with a draft of less than 4m may anchor in Inner Harbor over a bottom of sand and mud, with the lighted tower on Ras Dawarin bearing 000°, distant 0.5 mile.

Directions.—From seaward, proceed as safe navigation permits to Bahrain Approach Lighted Buoy (26°22'N., 50°47'E.).

From Bahrain Approach Lighted Buoy, steer W to pass close S of Bahrain Outer Lighted Buoy (26°21'N., 50°42'E.) and then N and W of Bahrain Inner Lighted Buoy, lying 5 miles NW of the N extremity of Jazirat al Muharraq.

At Bahrain Inner Lighted Buoy, alter course to bring the W shoulder of **Jabal ad Dukhan** (26°02'N., 50°33'E.) to bear 182° ahead, and keep it so, until approaching the anchorage.

Alternatively, steer for Portuguese Fort bearing about 195°, ahead, until the N end of Al Muharraq bears about 105°; then alter course as necessary for the anchorage.

Caution.—It is essential that the vessel fix its position accurately before entering the channel, as the buoyage has been reported to be unreliable. If the vessel's position is in doubt, it should not proceed into depths of less than 11m.

If the buoys are not seen due to poor visibility, the vessel should fix its position frequently. Particular caution should be taken to avoid the shoal patches E of Fasht al Jurin and those off Ras Khusayfah Spit.

16.8 From Al Manamah, a channel leads NW among the reefs and other dangers to the anchorage at Ras Tannurah, a distance of about 30 miles. Vessels with a maximum draft of 4.6m can transit this channel.

Pilots, embarked at Al Manamah, should be employed. This passage is entered between **West Spit** (26°17'N., 50°31'E.) and the flat extending S from Fasht al Jarim.

For the first 6 miles, the channel is about 1 mile wide, but then opens into a basin known as Khawr al Bab.

There are a few 5.5m patches in the fairway, and in **Khawr al Bab** (26°24'N., 50°25'E.), an extensive shoal with a least depth of 4.1m.

From Khawr al Bab, the passage leads between **Najwah** (26°33'N., 50°15'E.), a reef marked 0.5 mile W by a lighted beacon, and **Hayr as Sarah** (26°32'N., 50°24'E.), a pearl bank.

There are depths of about 9.1 to 14.6m between the reef and bank. Lighted buoys mark the fairway.

Bahrain—West Coast

16.9 The N side of Al Bahrayn is fronted by reefs and shallows extending as far as 4.5 miles offshore.

Umm an Nasan (Umm Nasan) (26°09'N., 50°24'E.) is a low and sandy island with two rocky peaks, the W of which is conspicuous. Two very small islands lie on the fringing reef N and NE of Umm an Nasan. A submarine oil pipeline, laid from Al Khubar, is landed on the coast of Al Bahrayn, just E of Umm an Nasan.

Malik Fahd Causeway (26°10'N., 50°22'E.) spans Dawhat Salwa, between Saudi Arabia and Al Bahrayn. The bridge/causeway, which extends along the N shore of Umm an Nasan, may best be seen on the appropriate chart. The main navigational span in the causeway is Bridge No. 3, located 4 miles from the Saudi Arabian shore.

The width of the span is 122m, with a vertical clearance of 28.5m and a depth under the span of 7m. The fairway, for a distance of 0.8 mile on each side of the bridge, is marked by lighted beacons.

Bridge No. 1 and Bridge No. 4, situated 0.5 mile and 7.5 miles, respectively, from the Saudi Arabian shore, both have a span with a navigable width of 45m, a vertical clearance of 15.5m, and a depth under the span of 5.5m.

Bridge No. 5, at the E end of the causeway between Al Barayn and Umm an Nasan, has the same width and height as Bridge No. 1 and Bridge No. 4, but a depth under the span of 4.5m.

Lights are shown from the channel piers of all the bridges; green lights are shown on the W side of the span while red lights are shown on the E side of the span. The piles are floodlit.

Anchoring and fishing are prohibited within 500m of all embankment bridges and navigational channels.

Az Zallaq (26°03'N., 50°29'E.) is a village with a T-head pier having a depth of 2.4m alongside. Barges from the mainland discharge cargo at the pier. Landing is good at the village only.

Anchorage is taken about 3 miles off the village, in a depth of 9m, with the highest peak on Umm an Nasan bearing 335°. The anchorage should be approached with the village bearing 081°.

Ras al Barr (25°48'N., 50°34'E.), the S end of Al Bahrayn, is a long low, sandy point which cannot be approached closer than 5 miles due to shallow flats which extend to Az Zallaq.

Caution.—Extensive changes to depths and navigational aids have occurred off the SE and SW coasts of Bahrain and in Dawhat Salwa. Vessels are urged to navigate with caution in these areas, especially S of 26°00'N.

Saudi Arabia—Dawhat az Zuhun to Ras Abu Ali

16.10 Dawhat az Zulum (26°00'N., 50°05'E.) is an extensive shal-low basin located 23 miles NW of Ras Sayyah

(25°37'N., 50°16'E.), with uninhabited shores backed by many sand hills, one of which rises 36m on the S side of the basin.

Between the W end of Al Bahrayn and the mainland W, the passage is obstructed to a great extent by reefs, through which constricted and shallow channels lead to the mainland and Az Zallaq.

The preferred channel lies close W of Umm an Nasan. It is marked by lighted beacons, even numbered on the E side, and has a least depth of 4.9m. Natural landmarks in the area are best in fixing positions, but there may be difficulty due to refraction and mirage.

The tidal currents set N and S, attaining a rate of 2 or 3 knots at springs.

Al Aziziyah (26°11'N., 50°13'E.), about 19 miles NNE of Dawhat az Zuhum, has a prominent desalination plant, a power station with five conspicuous chimneys, and a jetty used by local tankers. Two more jetties stand 1 mile S of Al Aziziyah. Unauthorized navigation is prohibited in the approach channel to these jetties, which has a depth of 6m and is marked by buoys.

The W end of the Mina Faud Causeway, linking Saudi Arabia and Bahrain, is located about 3 miles N of Al Aziziyah and has been previously described in paragraph 16.9.

Al Khubar (26°17'N., 50°13'E.) lies 6 miles N of Al Aziziyah and is approached from the S via a channel leading W close N of the causeway, then N between the coastal bank and **Hadd Shabib** (26°14'N., 50°14'E.), an extensive rocky shoal area fronting this part of the coast. The harbor is used only by local fishing vessels. There are depths of less than 6m in the channel, which is marked by buoys.

Az Zahran (Dhahran) (26°18'N., 50°08'E.) is a city and the site of oil tanks and pipelines leading to Ad Dammam and Al Khubar.

Ras Kawakib (26°22'N., 50°13'E.), on the mainland about 15 miles NW of Al Bahrayn and 5 miles N of Al Khubar. Reefs extend 8 miles E and NE from the point, with drying sand banks at the reef's outer end. Al Midra ash Shamali is a high conspicuous hill about 8 miles WSW of Ras Kawakib. A large radar scanner is on it.

16.11 The coast from Ras Kawakib to Ras Abu Ali is fronted by many reefs and shoals, through which are several channels marked by navigation aids. The shores are generally low and sandy along this coast, with the oil tanks and refinery on Ras Tannurah the most conspicuous objects.

With the exception of the settlement at Al Jubayl, the coast is almost uninhabited. Detached shoal patches lie as far as 40 miles offshore. A channel suitable for the arrival and departure of deep-draft vessels, and governed by a Traffic Separation Scheme, provides access to the portion of the coast containing Ad Dammam, Ras Tannurah, and Ju Aymah terminals.

Ad Dammam and Ras Tannurah may also be approached from the E by an inshore channel, described below.

Vessels utilizing this channel are restricted in length and draft; see the channel descriptions for details. Ju Aymah Oil Terminal is provided with a separate deep-water departure channel, which is described below.

The deep-water approach and departure channels for all three terminals are governed by an IMO-adopted Traffic Separation Scheme, best seen on the appropriate chart.

Mariners are reminded that Rule 10, of the International Regulations for Preventing Collisions at Sea, applies to IMO-adopted Traffic Separation Schemes, and that a vessel not using a Traffic Separation Scheme shall avoid it by as wide a margin as is practicable.

Depths—Limitations.—Vessels utilizing Main Channel are required to maintain an underkeel clearance of 1.5m at all times. Entering vessels are restricted to a draft of 16.5m plus the height of tide for an absolute maximum draft of 18m.

Departing vessels with a draft in excess of 19.5m must wait for enough of a tidal rise to maintain the required underkeel clearance.

Main Channel, entered about 50 miles N of **Jazirat al Mu-harraq** (26°16'N., 50°37'E.), is available to dry cargo vessels approaching Ad Dammam with a draft of more than 10.4m, the channel is also open to tankers approaching Ras Tannurah with like drafts, and lengths of 244m or greater.

All other vessels should use East Channel. All vessels approaching Ju Aymah should use Main Channel. Main Channel shows general depths of 25 to 45m from the N end of the TSS to its junction with the traffic lanes for Ju Aymah.

South of the junction, the inbound lane is restricted to a width of about 0.2 mile due to a shoal reported to exist in position 26°50.5'N, 50°10.0'E.

The S end of the scheme has been wire dragged to a depth of 17.7m. The critical area in the outbound lane is in the vicinity of the S end. The dangers lying near Main Channel are described with Ras Tannurah in paragraph 16.14.

The Ju Aymah Departure Channel, with depths of 38 to 56m, provides a safe route for laden vessels proceeding from Ju Aymah Oil Terminal to sea, and is best seen on the chart.

East Channel, entered in the vicinity of **Shutaya Light Buoy** (26°43'N., 50°50'E.), is a buoyed channel providing access to Ad Dammam or Ras Tannurah. This fairway is open to dry cargo vessels drawing 10.4m and less, or tankers of like drafts and lengths of less than 244m. The fairway is reported to have a least known depth of 12.2m, but passes over an 11.9m depth about 15 miles NE of Ras Tannurah.

Pilotage.—See the respective port descriptions for details on pilotage.

Regulations.—See Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean for details pertaining to vessels in Saudi Arabian waters.

See also the respective port descriptions for details on required entry messages or further regulations. Departure regulations are given in the port descriptions.

Inbound vessels should contact the Ras Tannurah pilots on VHF channels 14 and 16 when 100 miles from Ras Tannurah/Ras al Ju Aymah for anchoring, boarding, and berthing instructions.

Vessels should not enter the channel or navigate within the port limits without the permission of Dammam Port Control.

All vessels shall monitor VHF channels 10 and 16 when underway in the approach channels to Ras Tannurah, in the area of the Ju Aymah Oil Terminal and the Ju Aymah LPG Terminal, when underway in the Ras Tannurah channel S of Lighted Buoy A, in the vicinity of Ras Tannurah Terminal, and in the anchorage areas of Ras Tannurah Terminal.

Inbound vessels should report when passing the Reporting Points listed in the accompanying table.

Inbound Reporting Points		
Reporting point	Station	VHF channel
Ras Tannurah Lighted Buoy	Ras Tannurah Port Control	10
Lighted Buoy RTE2	Ras Tannurah Port Control	10
Entry Lighted Buoy	Ras Tannurah Port Control	10
Lighted Buoy A	Ras Tannurah Port Control	10
Lighted Buoy C	Ras Tannurah Port Control	10
Lighted Buoy D1	Damman Port Control	16

Inbound vessels may not exceed a speed of 5 knots between Lighted Buoy E and the S limit of the tanker anchorage E of Sea Island. After passing S of Lighted Buoy 9, inbound vessels must not overtake and must maintain an interval of at least 1 mile between ships proceeding in the same direction.

Outbound vessels may not exceed a speed of 5 knots between the S limit of the tanker anchorage and Lighted Buoy G and Lighted Buoy 18. Until N of Lighted Buoy B, outbound vessels may not overtake and must maintain an interval of at least 1 mile between ships proceeding in the same direction.

All vessels using East Channel should keep to the starboard side of the fairway. Overtaking is prohibited between Lighted Buoy RTE 4 and Lighted Buoy RTE 8. Outbound vessels should not depart this channel until Lighted Buoy RTE 2 has been cleared.

Signals.—Ras Tannurah Pilots may be contacted on VHF channels 14 and 16, while the radar station may be reached on VHF channels 10 and 16. All anchoring vessels should maintain a listening watch on VHF channel 16.

Anchorage.—North Holding Anchorage, centered about 28 miles N of Ras Tannurah, shows charted depths of 25 to 47m, bottom quality unknown. Holding Anchorage, about 20 miles NE of Ras Tannurah, shows charted depths of 19.8 to 23m, bottom quality unknown.

Directions.—See also the Regulations topic. Sail as safe navigation permits to the vicinity of Ras Tannurah Lighted Buoy, then proceed W to the appropriate lane of the Traffic Separation Scheme. If proceeding to North Holding Anchorage, do not leave the TSS until clear of Ras Tannurah Entry Lighted Buoy at position 27°06'N, 50°23'E.

Take care when navigating near either end, but exercise particular caution near the junction of Main Channel and the Ju Aymah traffic lanes; partially loaded tankers sailing from Ras Tannurah to Ju Aymah may be met, in addition to other traffic following the scheme.

Vessels sailing from North Holding Anchorage to the berths should enter the inbound lane of the Traffic Separation Scheme and not pass W of **Fasht Gharibah** (27°00'N., 50°13'E.).

Vessels that are departing Ras Tannurah and are heading for North Holding Anchorage should follow the outbound traffic lane as through proceeding to sea, then alter course W at Ras Tannurah Approach Lighted Buoy and proceed to the anchorage.

Vessels should not cross the separation zone in order to proceed directly to the anchorage.

Caution.—Local authorities should be contacted for the latest information on depths and approach routes before using the Eastern Channel.

From a position about 2 miles N of Shutaya Lighted Buoy, steer WNW to pass 1 mile N of Lighted Buoy RTE2. Then alter course to SSW to pass W of Lighted Buoy RTE6 and E of Lighted Buoy RTE5; then steer WSW to pass between Lighted Buoy RTE7 and Lighted Buoy RTE8.

Take care not to steer too N a course, as Hayr Khawrah, a shoal with a least charted depth of 3.6m, lies just N of the track. The channel passes between many shoals and dangers best seen on the chart.

Dammam Port (26°30'N., 50°12'E.)

World Port Index No. 48335

16.12 Dammam Port, also known as King Abdul Aziz Port or Mina al Malik Abd al Aziz, is the principal dry cargo port on the E seaboard of Saudi Arabia. The port is connected by road and rail to the mainland. The port is formed entirely on reclaimed land.

The basins and jetties are connected to the mainland by a wide causeway, 3.5 miles long, carrying a road and a railway.

Another large area of reclaimed land, known as Al Shati, extends 3 miles N from the town of Ad Dammam, 3 miles W of the causeway.

There is limited shelter for small craft at the SE corner of Al Shati, but otherwise there are no port facilities at Ad Dammam.

Saudi Ports Authority Home Page—The Ports

<http://www.ports.gov.sa>

Winds—Weather.—During the shamal season, the NW winds may blow fresh to strong for 3 or 4 days at a time, diminishing at night. Lighters can not be worked during the shamal because of wind conditions and choppy seas. Southeast winds are light and not bothersome. The highest swells usually occur with S winds. In the summer, the climate is very hot and humidity is high. The climate is pleasant during the winter.

Tides—Currents.—The mean range of tide in port is about 1.3m. Tidal currents in the vicinity of the main wharf attain a velocity of 4 knots. The flood current sets SE and the ebb current sets NW across the harbor entrance. Tidal currents have been reported to reach a rate of 6 knots.

Depths—Limitations.—The entrance channel to Port Dammam has a minimum depth of 14m and is entered 3.5 miles NNE of Najwah Lighted Beacon. Dangers in the form of shoals and flats are best seen on the charts, as well as detached shoal patches and obstructions lying close to the channel. It has been reported (2005) that the basin and approach channel will be dredged to a depth of 16m by late 2007.

Ships anchored, in and outside the anchorages and channel, constitute a hazard while transiting Port Dammam Channel, as the channel buoys and beacons are often hidden from view.

Dredging in the approaches and channels, as well as alongside piers, may necessitate the removal or shifting of beacons and buoys.

East Basin, on the E side of the main quay, offers 22 berths and is approximately 1.5 miles long and 0.2 mile wide. Breakwaters protect this basin to the E and NE.

West Basin, on the W side of the main quay, offers 17 berths and is also approximately 1.5 miles long and 0.2 mile wide, with a breakwater protecting its W side.

Berth information for both East Basin and West Basin are given in the accompanying table.

A small craft harbor exists S of East Basin and is approached through a dredged channel of 6m. The harbor consists of three small basin, with a total berthing length of 480m and depths of 4.5 to 6m alongside. The harbor entrance is protected by an L-shaped breakwater.

Aspect.—Ad Dammam contains many modern high-rise buildings, water towers, and elevated flood lights. The control tower, on the head of the main quay, is 97m high and conspicuous. A large black and white hotel is situated at the root of Al Shati.

A stranded wreck lies 1 mile S of Najwah Lighted Beacon; another stranded wreck, lying 2.5 miles SW of the lighted beacon, is marked by a lighted buoy. Both wrecks are easily seen and provide good radar targets.

Damman Port—Berth Information							
Berth	Length	Depth	Remarks	Berth	Length	Depth	Remarks
East Basin				West Basin			
No. 1	240m	12.9m	Bulk grain. Can accommodate a vessel with a maximum draft of 13.5m.	No. 23	240m	12.5m	Containers.
No. 2	240m	12.9m	Bulk grain.	No. 24	240m	12.7m	Containers.
No. 3	240m	13.0m	Bulk grain.	No. 25	240m	12.0m	Containers.
No. 4	180m	11.0m	General cargo.	No. 26	240m	12.0m	Containers.
No. 5	180m	10.6m	General cargo.	No. 27	240m	13.1m	Containers and ro-ro.
No. 6	150m	8.1m	General cargo.	No. 28	240m	13.1m	Discharging grain.
No. 7	150m	7.7m	General cargo.	No. 29	180m	13.1m	Discharging grain.
No. 8	150m	7.3m	General cargo.	No. 30	180m	12.4m	Discharging grain.
No. 9	150m	8.2m	General cargo and fertilizer.	No. 31	180m	13.1m	Containers and ro-ro.
No. 10	215m	9.5m	General cargo.	No. 32	180m	11.5m	General cargo and ro-ro.
No. 11	180m	9.5m	General cargo.	No. 33	180m	11.3m	General cargo and ro-ro.
No. 12	180m	10.7m	General cargo.	No. 34	180m	11.1m	General cargo and ro-ro.
No. 13	180m	10.5m	General cargo.	No. 35	180m	11.1m	Refrigerated cargo and ro-ro.
No. 14	180m	10.4m	General cargo and ro-ro.	No. 36	180m	12.0m	Bulk clinker and cement.
No. 15	180m	10.5m	General cargo.	No. 37	180m	12.0m	Bulk clinker, cement, and grain.
No. 16	180m	10.9m	General cargo.	No. 38	180m	11.0m	Cement and edible oils.
No. 17	180m	10.2m	General cargo.	No. 39	190m	11.0m	Explosives and hazardous cargo.
No. 18	180m	11.1m	General cargo.				
No. 19	180m	10.0m	General cargo.				
No. 20	180m	10.6m	General cargo.				
No. 21	240m	12.5m	General cargo.				
No. 22	240m	12.8m	General cargo and ro-ro.				

Note.—It has been reported that depths at all berths may be up to 2m less than charted.

Pilotage.—Pilotage is compulsory for all commercial vessels 150 gross tons and over. Pilots usually board between Lighted Buoy D11 and Lighted Buoy D13.

Vessels with a draft over 10m embark the pilot in the vicinity of Lighted Buoy D1 at the beginning of the pilotage area.

Regulations.—The vessel's ETA should be sent upon departure from the last port visited, then 5 days in advance, revising or confirming information 48 hours and 24 hours before arrival. Additionally, vessels must have an appointment (request to berth) approved prior to entry into port.

Vessels are urged to contact the local authorities or the vessel's agent, if possible, for the latest information on regulations and entry requirements for this port. See the approach channel descriptions for regulations and contact points dealing with these waters.

Additionally, Dammam Port Control should be contacted 1 hour before arrival at Lighted Buoy D1, marking the dredged channel leading to the port, giving the following information:

1. Vessel name.
2. LOA.
3. Maximum draft.
4. Cargo tonnage.
5. Cargo type.
6. Hazardous cargo on board.
7. Whether the vessel has a list or mechanical defect.

The vessel should contact Damman Port Control again, upon passing the buoy. The channel should not be entered until express permission is given by Damman Port Control. Outbound vessels should report to the radar station after passing Lighted Buoy D1.

Vessels should not exceed a speed of 8 knots in the buoyed channel leading to the port. Overtaking is prohibited. See paragraph 16.11 for inbound reporting procedures.

Details of the vessel's radar equipment are required prior to arrival.

Anchorage.—Anchorage berths within the port limits are usually assigned by Port Control, with the holding ground reported to be generally good. Approach (Holding) Anchorage, dredged to a depth of 14.3m, lies on the W side of the approach channel, about 4 miles WSW of Najwah Lighted Beacon. Working Anchorage, on the NE side of the channel, about 3 miles SW of the beacon, shows charted depths of 9.5 to 12m.

Explosives Anchorage, SE of Working Anchorage, shows a least charted depth of 7.5m. Small Craft Anchorage, just NE of the breakwater protecting East Basin, shows charted depths of 6.5 to 10m.

Directions.—After clearing the S end of the Traffic Separation Scheme in Main Channel, vessels should follow the buoyed channel into port.

16.13 As Sayhat (Sayha) (26°29'N., 50°02'E.) is a town on the coast about 5 miles W of Dammam Port. Thick date groves extend about 8 miles N of the town to Al Qatif.

Al Qatif (26°33'N., 50°00'E.) is an important town located in an oasis which extends 9 miles N and S of town, whereas the town is 3 miles inland. Al Qatif is used only by local fishing craft.

Tarut (26°34'N., 50°04'E.) is an island lying on a coastal reef extending 7 miles offshore. Darin, a town at the S end of the

island, has a square fort with a prominent tower. A causeway connects the island with Al Qatif.

There is also a prominent tower in Sanabis, 2 miles N of Darin.

The low coast trends N from Al Qatif for about 6 miles to a shallow bay, which is formed by the W side of a low, sandy peninsula which extends SSE to Ras Tannurah. The entire bay around Tarut is shallow and encumbered with dangers.

The coastal bank, with depths of 5.5m, extends S from the SW end of Ras Tannurah.

Off the SW side of the sand strip forming Ras Tannurah is an area about 3 miles long, where the depths are 5.8 to 9m.

Ras Tannurah (26°38'N., 50°10'E.)

World Port Index No. 48340

16.14 The oil port of Ras Tannurah, about 5 miles NE of Tarut, is located at the SE end of a narrow, sandy strip of land.

The extremity of Ras Tannurah consists of sand over coral and is only 0.9m high.

Winds—Weather

The winds in the area are unpredictable. Winds of varying strength may come from any quarter; the prevailing wind is from the NNW. Winds of any strength at all tend to create a sharp, but short, choppy sea, which comes up very quickly and calms down as rapidly. Winds from E cause heavy seas.

In general, the visibility of this area of the Persian Gulf is fair to excellent, but at times, usually in the middle of summer or middle of winter, fine dust is held in suspension in the atmosphere and visibility is reduced to a very short distance.

These dust phenomena are more deceptive than fog, in that mariners are apt to believe visibility to be greater than it actually is. At times, genuine sandstorms have occurred in this area. Fogs, without sand or dust, may occur in the early morning hours.

The local weather of Ras Tannurah is, on the whole, favorable, and the exposed position of the port tends to mitigate the heat of summer; however, the humidity is very great and frequently exceeds 85 per cent. Proper precautions should be taken against sun and heat stroke during the summer months.

Tides—Currents

The mean range of tide is 1.2m, with a spring range of about 1.5m. Winds may raise the tidal level to 2.4m or may reduce it to 0m. Irregular or uncertain currents may be encountered in the approach to Ras Tannurah, and mariners are cautioned to obtain a navigational fix as often as possible.

Because of the configuration of the coast in the vicinity of the piers, a local system of tidal currents prevails in the vicinity of North Pier and South Pier. The flood tidal current sets SSE and the ebb currents sets NNW.

The rate of the spring flood current is from 3 to 4 knots and the spring ebb current is from 1 to 3 knots, but the direction of the wind materially influences these rates and may even, in the case of strong winds during neap tides, stop or reverse the

current. Spring ebb tidal currents of 4 to 6 knots have been experienced off the extreme S end of Ras Tannurah.

During neaps and springs, the current velocity at Sea Island is 0.6 and 1.3 knots, respectively. At North Pier and South Pier, the velocity is 1 to 2 knots during neaps and springs.

Depths—Limitations

The dangers that are lying near Main Channel are described here. Numerous other shoals and detached patches exist here and are best seen on the chart.

Rennie Shoals (27°03'N., 50°42'E.), comprising two shoals about 2 miles apart, with a least depth of 3.3m, are the outermost dangers in the approach. There is no visible indication of these shoals, other than the lighted buoys N and S of them.

Fasht Abu Safah (26°58'N., 50°23'E.) is a rocky shoal, with a least depth of 0.6m, lying on the SE side of the channel. The sea breaks heavily over the shoal at times, but with HW and a calm sea it can't be seen. Shallow water lies up to 2 miles N and W of this rocky shoal. An unlit platform stands on Fasht Abu Safah.

Hayr al Khushaynah (26°57'N., 50°18'E.), a shoal with a least charted depth of 7.9m, lies about 5 miles WSW of Fasht Abu Safah.

Fasht Gharibah (27°00'N., 50°13'E.), with a least depth of 4.5m, lies on the NW side of the approach route to Ras Tannurah and Ju Aymah Oil Terminal. The S extremity of the shoal is marked by a lighted beacon with racon.

Hayr Abu Subayti (26°54'N., 50°14'E.), with a least depth of 4.3m, lies 5.5 miles S of Fasht Gharibah.

Hayr as Safra (26°53'N., 50°08'E.), with a least depth of 2m, is marked at its SE and NW ends by lighted buoys.

Hayr al Buhaym (26°52'N., 50°10'E.), with a least depth of 8.8m, lies close to Main Channel SE of Hayr as Safra.

Hayr al Wasiah (26°48'N., 50°12'E.), a sandy shoal with a least depth of 8.5m, lies on a ridge with depths of less than 15m extending N to Hayr Abu Subayti and S along the E side of the channel to 6 miles NE of Ras Tannurah.

Hayr Khawrah (26°40'N., 50°18'E.), an extensive shoal on the E side of the channel, has least depths of 3.5 and 5m; the latter depth is located at the SW end of the shoal. Lighted Buoy RTE 7 is moored close S of the 5m patch.

Ras Tannurah, an open roadstead E of a peninsula, is partially protected by off-lying reefs, shoals, and the peninsula. These shoals tend to ease the sea movement of the tankers loading alongside, but lighters and small craft have difficulty.

The harbor consists of Sea Island Terminal, described below; Ju Aymah Oil Terminal, described in paragraph 16.15; and Ju Aymah LPG Terminal, described in paragraph 16.16.

South Pier, about 366m long, is connected to shore by a causeway. The pier contains Berths 1, 2, 3, and 4. It has been reported that these berths are not presently in use. Berth limitations are, as follows:

South Pier		
Berth	Depth alongside	Maximum vessel length
1	9.8m	207.3m.

South Pier		
Berth	Depth alongside	Maximum vessel length
2	9.6m	189.0m
3	9.6m	170.7m
4	9.1m	170.7m

Range lights, shown about 0.5 mile NNW of the root of the causeway, lead close N of the N end of the pier.

North Pier, 701m long, located 0.5 mile N of South Pier, is connected to shore by a causeway. The pier contains Berths 6, 7, 8, 9, 10, and 11. Vessels up to 135,000 dwt can be accommodated. The limiting minimum depths and maximum drafts are, as follows:

North Pier			
Berth	Minimum depth	Maximum draft	Maximum vessel length
6	13.6m	12.6m	219.7m
7	12.0m	11.0m	198.1m
8	14.1m	13.1m	219.7m
9	13.8m	11.8m	219.7m
10	15.1m	14.1m	283.5m
11	13.6m	12.6m	219.7m

Bulk petroleum products can be loaded at all berths, while Berths 6, 8, and 10 also service LPG vessels.

West Pier, on the W side of Ras Tannurah about 0.5 mile NNW of the tip of the point, is a 96m long concrete mole with a depth alongside of 5.8m. Freighters with a draft of 5.5m discharge cargo alongside.

West Oil Pier, L-shaped and with a depth of 5.5m alongside its head, is used for bunkering small craft and loading coastal tankers. A submarine oil pipeline, laid S to Ad Dammam, is landed close to the N of the West Oil Pier. Beacons mark the extent of the submerged pipeline.

Sea Island Terminal, offshore berths lying 1.5 miles NE of N Pier, consists of four loading platforms, with four breasting dolphins on each side joined by a catwalk.

There are six active berths at Sea Island Terminal; Berth 12 and Berth 14 have lighted buoys, which prevent using the berths, moored alongside. The entire terminal is almost 1 mile long and has a depth of 26m alongside.

Loaded drafts are governed by the limiting depths in the departure channel, as well as the 1.5m underkeel clearance required.

Sea Island berths are usually reserved for very large tankers loading crude oil. The limiting dimensions are, as follows:

Sea Island Terminal—Berthing Limitations			
Berth	Length	Minimum depth	Maximum vessel size
15	426m	25.0m	300,000 dwt

Sea Island Terminal—Berthing Limitations			
Berth	Length	Minimum depth	Maximum vessel size
16	426m	26.4m	220,000 dwt
17	421m	24.4m	327,000 dwt
18	421m	26.2m	327,000 dwt
19	533m	27.7m	500,000 dwt
20	533m	26.9m	500,000 dwt

Caution.—At times there are strong tidal currents in the vicinity of Ras Tannurah. Near Sea Island, the tidal currents set N and S at velocities usually not exceeding 1 knot.

A ship rounding Ras Tannurah should have enough way on to offset tide rips and eddies. The N submarine oil pipeline, laid between Sea Island Terminal and the shore, is marked by a light shown from a pile structure 3.5 miles N of Ras Tannurah.

There are depths of 7.5 to 10.7m about 0.5 mile N and NNE of North Pier, near the maneuvering area for North Pier and Main Channel.

A well, with a least depth of 0.5m, has been reported to lie about 19 miles NE of Ras Tannurah Lighted Buoy, in approximate position 27°23.8'N, 51°06.1'E.

Aspect

A light is reported to be shown close off the S extremity of Ras Tannurah. There is a large oil tank farm located within 1.5 miles N of Ras Tannurah.

Light and gas flares burn near the root of the causeway leading to North Pier; red obstructions lights, about 155m high, are shown from the flare structures.

The various gas flares are first seen on approaching port, especially a flare about 5 miles NW of North Pier. On closing port, the radio towers topped by lights, oil tanks, sheer legs, and towers on the wharves come into view.

Pilotage

Pilotage for vessels proceeding to or from the tanker berths at Ras Tannurah is compulsory. Vessels proceeding through Main Channel directly to Ras Tannurah Terminal board the pilot S of Lighted Buoy H, as advised by Ras Tannurah Port Control.

If the vessel is proceeding from Tanker Anchorage to a berth, the vessel will be boarded about 1.5 miles SE of the S end of Sea Island Terminal, dependent on weather and tidal conditions.

Regulations

A vessel should send its ETA message 72 hours, 48 hours, and 24 hours prior to arrival to “Aramco Terminal Planning Office” through HZY.

Vessels bound for or departing the terminal are advised to listen to HZY’s traffic lists for several days prior to berthing or movement, as the terminal will communicate with the vessel,

asking for additional information. Berthing schedules are broadcast daily over HZY. Vessels should call the terminal pilots on VHF channel 14 or 16 within 100 miles of port for berthing instructions.

Inbound vessels who have been instructed to proceed to Tanker Anchorage should contact HZY at least 12 hours in advance, to obtain permission to use Main Channel or Eastern Channel, as appropriate.

Vessels should report to Ras Tannurah Port Control on VHF channel 10 on passing the following points:

1. Ras Tannurah Lighted Buoy (27°06.0'N 50°57.0'E).
2. Lighted Buoy RTE2 (26°47.0'N, 50°34.0'E).
3. Entry Lighted Buoy (27°05.0'N, 50°23.0'E).
4. Lighted Buoy A (26°56.2'N, 50°12.6'E).
5. Lighted Buoy C (26°48.3'N, 50°10.2'E).

Outbound vessels should notify the pilot station 1 hour prior to the completion of the loading operation. Outbound vessels at the anchorages off Ras Tannurah should contact the Ras Tannurah Port Control at least 30 minutes prior to hauling up.

Vessels of 150,000 dwt and over, with a draft of 18.28m or more, may request additional pilotage assistance to line up for the Deep Water Departure Channel. Such pilotage is compulsory for vessels with a draft of 20.73m or more.

The pilot will remain on board until the vessel is aligned on a safe course for the Departure Channel.

Aramco Terminal Planner may be contacted on VHF channel 16, while Ras Tannurah Pilots may be contacted on the same frequency. The radar station may be reached on VHF channel 10.

Anchored vessels should maintain a continuous watch on VHF channels 10 and 16.

See paragraph 16.11 for further information on regulations.

Anchorage

The holding ground within the anchorages off Ras Tannurah is reported to be only fair, with a varied bottom.

The anchorages here are exposed and difficult for boat and lighter work. Vessels should use a good scope of cable in unfavorable weather conditions.

Tanker Anchorage, centered about 4 miles ENE of Ras Tannurah, shows charted depths of 18.5 to 30.5m, with a spoil ground charted near its center. Vessels with a draft of less than 18.2m use this anchorage. Vessels with a draft of greater than 18.2m can use the 21.9m swept area located about 1 mile N of Sea Island Terminal outside the charted anchorage prohibited area.

Freighter Anchorage, about 2 miles ESE of Ras Tannurah, shows charted depths of 10 to 14m. Anchorage for vessels carrying explosives lies just S of Freighter Anchorage, with charted depths of 10 to 12m. Anchorage can be taken SW of West Pier, in a depth of about 7.3m, hard bottom. This anchorage is not recommended as the tidal currents, even at neaps, are strong. The anchorage is sheltered from the shamal, but the kaus sends in a heavy sea. A line of mooring buoys lies on the W side of the anchorage.

Anchorage is prohibited within the vicinity of the berths and the submarine pipelines leading to them, all of which may best be seen on the chart.

Directions

See the channel descriptions and the Regulations topic in paragraph 16.11. The approaches to the loading berths may best be seen on the chart.

Ju Aymah Oil Terminal (26°56'N., 50°02'E.)

World Port Index No. 48343

16.15 Ju Aymah Oil Terminal is an offshore oil-loading facility located about 7 miles NNE of **Ras al Juaymah** (26°49'N., 50°00'E.). A tank farm and a radio mast, marked by red obstruction lights, are located close NW of the point.

The restricted area surrounding the oil terminal berths is restricted to vessels under pilotage proceeding to and from the loading berths. The SW corner of this area is contiguous with the NE corner of the restricted area for the Qatif Oil Field.

Winds—Weather.—See paragraph 16.1 for further information.

Depths—Limitations.—The channel to the terminal has a least charted depth of 7m in a shoal area just N of the port limits. A shoal, marked by a buoy, has a least depth of 11.5m, and lies just SW of the charted limits to the pilot boarding area. The area encompassing the Single Point Moorings, the LPG Jetty, and the LPG Anchorage lie within a swept area, the limits of which are best seen on the chart.

There are no draft limitations when departing. Six SPM berths, best seen on the chart, are connected to a central platform by a submarine pipeline. The limitations are reported, as follows:

Ju Aymah Oil Terminal		
Berth	Maximum depth	Maximum vessel size
SPM No. 31	32.1m	500,000 dwt
SPM No. 32	33.8m	500,000 dwt
SPM No. 33	34.0m	500,000 dwt
SPM No. 34	35.0m	750,000 dwt
SPM No. 35	32.0m	750,000 dwt
SPM No. 36	32.2m	450,000 dwt

Pilotage.—Pilotage is compulsory for the port. Pilots board by helicopter W of Gharbarah Beacon (26°59.5'N., 50°13.0'E.). The helicopter service operates on VHF channels 11, 12, 13, 14, and 16.

Regulations.—Vessels bound for the port may be instructed to anchor at the pilot station and wait. Vessels proceeding to the port should listen to the berthing schedules broadcast by HZY in advance of arrival. Inbound vessels proceeding directly to the boarding ground should radio the Ras Tannurah pilots on passing Ras Tannurah Lighted Buoy.

See paragraph 16.11 for further information on regulations.

16.16 Ju Aymah LPG Terminal (26°52'N., 50°03'E.), an L-shaped pier, on the outer arm of which is the loading platform,

is connected to the shore by a causeway extending 5 miles NNE from a position 1.5 miles SE of Ras Ju Aymah.

The LPG loading platform provides a berth on each side, in a depth of about 23.8m. Vessels of 25,000 to 200,000 dwt can be accommodated. The maximum arrival draft at the terminal is 16.3m; the maximum sailing draft is 23m.

Leading lights, in line bearing 244.75°, mark the approach leading into the anchorage area. The lights are exhibited from a causeway about 1 mile from the jetty head.

Special regulations are in force at the terminal. The LPG anchorage, for cooling tanks, is shown on the chart centered about 3 miles NE of the terminal. The holding ground is fair and extra cable is recommended.

Pilotage is compulsory. Pilots board at the N end of the LPG anchorage, about 2 miles S of Ju Aymah SPM No. 36. Arriving LPG carriers will be instructed either to proceed to Northern Holding Anchorage or Ju Aymah pilot boarding position.

The Ju Aymah Departure Channel is open to vessels leaving the port for sea, and has already been described in paragraph 16.11.

See paragraph 16.11 for further information on regulations.

16.17 Qatif Oil Field (26°53'N., 49°58'E.), lying within a restricted area, the limits of which are shown on the chart, extends from 4 to 6 miles N from the coast in the vicinity of Ras al Ju Aymah and Ras al Qulayah.

Numerous well heads and associated structures usually exhibiting lights, submarine pipelines, and unlighted obstructions lie within the limits of the oil field. Great care should be taken by ships navigating in the vicinity.

The port of **Ras al Ghar** (26°54'N., 49°52'E.) is located about 2 miles N of the point of the same name. The terminal consists of five piers, with depths alongside of 10 to 12m, protected by a breakwater. The port is approached through a buoyed channel which is indicated on the chart. The least depth in the channel is 10.6m.

Lights, in line 214°, mark the last leg of the channel. Pilotage is compulsory and should be requested at least 6 hours before arrival at the channel entrance. The pilot boards near Ras al Gar Entry Lighted Buoy. Pilotage is available 24 hours.

Anchorage for cargo vessels is available in a charted area, entered about 4 miles NE of the port, in depths of 10 to 22.5m, bottom quality unknown.

The coast between Ras Tannurah and **Ras al Qulayah** (26°51'N., 49°57'E.) is low and sandy. **Ras al Ghar** (26°52'N., 49°52'E.) is a cliff. A large power plant is located 2 miles E of Ras al Ghar on the coast.

Jabal az Zulayfayn, about 2 miles SW of Ras al Ghar, is a conspicuous black hill. Currents set parallel to the coast.

Al Jurayd (27°12'N., 49°57'E.), an offshore sandy islet, is reef-fringed for at least 0.5 mile N and up to 0.1 mile S of the islet. A conspicuous round gray tower, 43m high, stands near the center of the island. A rayon is located at the unlit beacon off the SE coast of the island.

Jana (27°22'N., 49°54'E.), a sandy reef-fringed islet affording shelter from the kaus and shamal, is marked by a light. A stranded wreck lies 0.5 mile E of the islet; a dangerous wreck, with a depth of 8.9m, lies 2.5 miles NNW of the islet.

Al Jubayl (Jubail) (27°05'N., 49°40'E.)

World Port Index No. 48338

16.18 Al Jubayl, originally built to relieve the congestion at Ad Damman, is essentially two ports sharing an artificial basin extending up to 5.5 miles offshore. Several other basins and harbors lie within the port area and are described below.

Saudi Ports Authority Home Page—The Ports
<http://www.ports.gov.sa>

Winds—Weather.—See paragraph 16.1 for further information.

Tides—Currents.—The tidal rise at Al Jubayl is 1.6m at MHHW, and 0.7m at MHW.

Depths—Limitations.—The buoyed approach fairway to the port, entered about 9 miles ESE of Jana, shows general depths of about 22 to 53m as far as the S end of Freighter Anchorage.

From the S end of the deep water channel to the entrance fairways for the berthing areas, the roadstead shows depths of about 7.9 to 33m.

Commercial Port, the southernmost of the major commercial berthing facilities, offers 16 berths and is entered via a buoyed channel dredged to a depth of 14m.

Al Jubayl Fishing Harbor, S of Commercial Port, has depths of up to 3m.

King Fahd Industrial Port, composed of Industrial Quay and the Petrochemical Basin, is entered between the detached breakwater S of the port, and the N breakwater, which extends 0.9 mile S of the causeway. The entrance to the port has been dredged to a depth of 16m.

The Petrochemical Basin lies between the N breakwater and a pier extending S from the causeway; four berths are located on W side of the basin and three berths are located on the E side.

Industrial Quay, extending S from the causeway, is located W of the Petrochemical Basin; the ore unloaders alongside the berths are conspicuous. It has been reported (2004) that a shoal depth of 9.5m lies close SW of Berth No. 23, with another shoal depth of 12.5m lying close NW of Berth No. 23.

Open Sea Tanker Terminal, located on an extension of the causeway, is nearly 1.2 miles long, with alongside depths of 26 to 28.5m. Four berths, numbered Berth No. 61 to Berth No. 64, are available, although only Berth No. 61 is operational.

Berth information is given in the accompanying table.

Al Jubayl—Berth Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Length	Draft	
Commercial Port					
No. 1	212m	12.0m	—	See Note 1.	General cargo.
No. 2	212m	12.0m	—	See Note 1.	General cargo.
No. 3	212m	12.0m	—	See Note 1.	General cargo.
No. 4	212m	12.0m	—	See Note 1.	General cargo.
No. 5	212m	12.0m	—	See Note 1.	General cargo.
No. 6	212m	12.0m	—	See Note 1.	General cargo.
No. 7	212m	12.0m	—	See Note 1.	General cargo.
No. 8	212m	12.0m	—	See Note 1.	General cargo.
No. 9	300m	14.0m	—	See Note 2.	General cargo.
No. 10	300m	14.0m	—	See Note 2.	General cargo.
No. 11	250m	14.0m	—	See Note 2.	Grain.
No. 12	250m	14.0m	—	See Note 2.	Grain.
No. 13	250m	14.0m	—	See Note 2.	General cargo.
No. 14	250m	14.0m	—	See Note 2.	General cargo.
No. 15	250m	14.0m	—	See Note 2.	Containers and ro-ro.
No. 16	250m	14.0m	—	See Note 2.	Containers and ro-ro.
King Fahd Industrial Port—Industrial Quay					
No. 21	230m	14.0m	—	See Note 2.	Sulphur.
No. 22	230m	14.0m	—	See Note 2.	General cargo.

Al Jubayl—Berth Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Length	Draft	
No. 23	240m	14.0m	—	See Note 2.	General cargo.
No. 24	250m	14.0m	—	See Note 2.	Iron ore.
No. 25	250m	14.0m	—	See Note 2.	Iron ore.
No. 26	230m	14.0m	—	See Note 2.	Bulk and bagged urea.
No. 27	245m	14.0m	—	See Note 2.	Bulk and bagged urea.
No. 28	245m	14.0m	—	See Note 2.	Bulk and bagged urea.
No. 29	255m	14.0m	—	See Note 2.	Bulk and bagged urea.
King Fahd Industrial Port—Petrochemical Basin					
No. 41	282m	16.0m	250m	See Note 3.	Chemicals. Can accommodate vessels up to 100,000 dwt.
No. 42	282m	16.0m	250m	See Note 3.	Chemicals. Can accommodate vessels up to 100,000 dwt.
No. 43	282m	16.0m	250m	See Note 3.	Chemicals. Can accommodate vessels up to 100,000 dwt.
No. 44	282m	16.0m	250m	See Note 3.	Chemicals and petroleum products. Can accommodate vessels up to 100,000 dwt.
No. 51	282m	16.0m	250m	See Note 3.	Petroleum products. Can accommodate vessels up to 100,000 dwt.
No. 52	282m	16.0m	250m	See Note 3.	Chemicals and petroleum products. Can accommodate vessels up to 100,000 dwt.
No. 53	282m	16.0m	250m	See Note 3.	Chemicals and LPG. Can accommodate vessels up to 100,000 dwt.
Open Sea Tanker Terminal					
No. 61	346m	28.0-30.0m	348m	25.0m	Can accommodate vessels up to 360,000 dwt.
Note 1. —The maximum permissible draft is 10.8m at low water and 11.4m at high water.					
Note 2. —The maximum permissible draft is 12.6m at low water and 13.3m at high water.					
Note 3. —The maximum permissible draft is 14.4m at low water and 15.2m at high water.					

King Abdul Aziz Naval Base (26°59'N., 49°42'E.) lies about 3 miles S of the entrance to the Commercial Port.

The area S of 27° N and W of 49°43'E is a restricted area for use by authorized vessels only. The harbor is protected by breakwaters and provides berthing alongside five finger piers.

The N entrance to the harbor is approached via a channel, dredged to a depth of 12m at its inner end, although depths of as little as 11m have been reported (2005). The channel is marked by lighted buoys and range lights. The range lights, in line bearing 203°, lead through the breakwaters into port.

Within the harbor, there is a dredged depth of 12m, although lesser depths have been reported (2005). The E entrance to the harbor, with depths of 3.1 to 8m, is approached by a secondary channel, running parallel to and 1 mile E of the main channel and is marked by range lights.

Aspect.—Three conspicuous flares stand close together near the shore, about 2 miles NW of the town center. Al Jubayl water tower, which is conspicuous, stands near the shore about 1 mile S of the town center. About 2.5 miles further S is another conspicuous water tower, standing in the vicinity of the Naval Base. At night, the cranes in the Commercial Harbor, which are floodlit, are prominent.

Pilotage.—Pilotage is compulsory for all vessels greater than 150 gross tons and is available 24 hours. Pilots may be ordered through Jubayl Port Control and board in the vicinity of Lighted Buoy No. 7 or close E of Lighted Buoy No. 9, as requested.

Regulations.—Vessels should send an ETA 7 days, 5 days, 72 hours, 48 hours, and 24 hours in advance. A revised ETA should be sent when any changes occur.

Contact Jubayl Port Control on VHF channel 16 when passing Jubayl Fairway Buoy, giving the following information:

1. Vessel's length.
2. Beam.
3. Draft.
4. ETA.

A Vessel Traffic Service is in effect for the port, the port's anchorages, and the approach channel. The service may be contacted through Jubayl Port Control before entering or crossing the approach channel. Surveillance radar is in use for the port and its approaches.

The movement of LPG vessels is done during daylight hours only.

Anchorage.—Outer Anchorage, which is the anchorage for tankers, lies in a charted area NW of the approach channel, about 15 miles NE of Open Sea Tanker Terminal. The anchorage shows depths of 35 to 48m, bottom quality unknown.

Inner Anchorage, formerly the Freighter Anchorage, also charted NW of the fairway, lies about 7 miles NE of the tanker terminal, and shows depths of 17 to 39m, bottom quality unknown. It should be noted that the pilot boarding ground overlaps this anchorage.

Naval Anchorage, centered about 4 miles E of the tanker terminal, shows charted depths of 11.3 to 33m, holding ground not stated. Explosives Anchorage, charted about 9 miles SE of the terminal, offers depths of 16 to 28m. It should be noted that no type of ballast is permitted to be discharged directly to the sea. Clean ballast is discharged ashore.

Caution.—Aids to navigation in the area are reported (2005) to be unreliable. They may be missing, unlit, or out of position.

16.19 Al Barri Oil Field (27°12'N., 49°42'E.) adjoins the N side of the port of Al Jubayl and occupies the shallow bay Dawhat Abu Ali and its approaches and the vicinity N and E of Ras Abu Ali. The oil field, encompassed by a restricted area, contains many well heads and associated structures, some of which exhibit lights, and other submerged and unlit obstructions.

Special caution should be exercised when in the vicinity and vessels should keep well clear of the area. Less water than charted was reported about 10 miles SSW of Ras Abu Ali.

Saudi Arabia—Ras Abu Ali to the Saudi Arabia/Kuwait Border

16.20 Ras Abu Ali (27°18'N., 49°42'E.) is the E point of Abu Ali, an island forming the N side of Dawhat Abu Ali. A sand spit, with depths of 1.2 to 5.5m, extends 2.5 miles E from the point. The sea breaks heavily on the spit and ships should give it a wide berth. A light is shown from a tower located about 2 miles E of the point. A tomb, in ruins, stands on a hill close within Ras Abu Ali.

The coast between Abu Ali and Ras al Qulayah, about 121 miles NNW, is fronted by numerous reefs, drying banks, and shoals, many of which are unsurveyed. The coast is low and sandy, with marshy ground inland. Most of the dangers are contained within the 40m curve, which lies 45 or more miles offshore.

There are several steep-to islets and reefs which lie as far as 57 miles offshore and are difficult to distinguish in hazy weather or after a shamal.

Jazireh-Ye Farsi (27°59'N., 50°10'E.), the outermost of five islets, is fringed by reefs which are clearly visible. Landing can be made on the W side of the islet, which is marked by a light and racon, and is a good radar target at 17 miles distant under normal conditions. Depths of less than 6m may exist as far as 1 mile off the islet.

Al Arabiyah (27°47'N., 50°11'E.), a sand and rock islet fringed by a partly drying reef, is marked by a cairn and light. Landing can be made only on the N side of the islet.

Jazirat Harqus (27°56'N., 49°41'E.), a low barren islet, is fringed by a reef which makes a landing impossible. The islet is marked by two lights. Isolated shoal patches are charted in the area.

16.21 Jazirat Karan (Al Qiran) (27°43'N., 49°50'E.), a very low and level islet, is reef-fringed, steep-to, and marked by a light.

Anchorage can be taken off the SE side of the islet, in a depth no less than 31.1m, coarse sand, fair holding ground, and protected from the shamal.

Jazirat al Qurayyin (Jazirat Kurayn), a low sandy reef-fringed islet, is difficult to distinguish, including on radar. A light is shown from the islet.

An extensive but shallow bay is entered between the NW side of Abu Ali and **Ras az Zawr** (27°25'N., 49°19'E.), a low, sandy point. In the N part of the bay is an inlet extending W, known as Dawhat Musallamiyah; an inlet extending S is known as Dawhat ad Dafi.

Jazirat Qannah (27°22'N., 49°19'E.), an islet low in the W part and high in the E part, has a fort and round tower on its summit and a village at its N part. Sand banks extending about 2 miles NE of the islet front a boat basin, with a depth of 5.5m.

Dawhat Musallamiyah (27°25'N., 49°14'E.) is entered between Ras az Zawr and Jazirat Qannah. The island of Al Musallamiyah, on which is located a village, lies 5 miles within the bay entrance. Reefs and shoals, visible at high tide, and extending N from Jazirat Qannah, reduce the entrance of the bay to a width of 0.2 mile. Boats are able to reach the village through an intricate channel at HW. There is a conspicuous cliffy bluff on the mainland just S of the island. A branch channel leads S between the mainland and Jazirat Qannah to the village on that island.

Anchorage, unsheltered, can be taken, in depths of 7.3 to 9.1m, about 5 miles NE of the fort on Jazirat Qannah. An allowance of at least 1m of water should be made when anchoring due to the action of winds and tide lowering the water level.

16.22 Fasht al Kashsh (27°30'N., 49°30'E.) is an unsurveyed danger area, best seen on the chart, lying with its center 9.5 miles E of **Ras al Ghar** (27°28'N., 49°18'E.). A microwave tower, position approximate, lies near the point.

Dangerous shoals, some of which break, lie as far as 20 miles N and NNE of Ras al Ghar.

Between Ras al Ghar and **Ras at Tanaqib** (27°50'N., 48°53'E.), a low point rising to a flat-topped hill, there are numerous submarine pipelines, oil wells, platforms, etc., which

ships should avoid approaching. The area is encompassed by a Restricted Area designation.

Port Tanaqib (27°46'N., 48°53'E.), located about 4 miles S of Ras Tanaqib within a Restricted Area, is comprised of a pier able to accept a vessel with a length of 60m and a draft of 5m. A channel, marked by lights, leads from seaward to the pier.

Ras Saffaniyah (27°59'N., 48°47'E.) is a low coastal point on the N side of which is a barge pier with several oil storage tanks standing near its root.

Fasht Buldani (28°00'N., 49°06'E.) is an unsurveyed danger area extending 21 miles offshore between Ras Tanaqib and **Ras al Mishab** (28°11'N., 48°38'E.). The area has many above and below-water reefs and shoals and should not be approached by day in depths of less than 30m; at night, an even wider berth is recommended. The approximate limits of the area are shown on the charts.

Caution.—An IMO-adopted Area to be Avoided has been established on Fasht Buldani.

Ras al Mishab (28°07'N., 48°38'E.)

World Port Index No. 48345

16.23 Ras al Mishab, primarily a small dry cargo port, was originally built as a base of supplies for the Trans-Arabian Pipeline. There are eight berths, including one for the discharge of bulk cement.

Winds—Weather.—The winds and weather are similar to that of Ras Tannurah, except that the anchorage and wharf areas are more protected from N winds. This is because of their location on the lee side of Ras al Mishab. Visibility is often affected by dust in the atmosphere.

Tides—Currents.—The tides are diurnal, with a mean range of about 1.3m. It is reported that the maximum tidal range is 2m.

The currents in the area are irregular. Strong currents setting in a NW and SE direction are reported in the approach W of Jazireh-ye Farsi.

Depths—Limitations.—The dredged Entrance Channel from Fairway Buoy runs in an NE to SW direction. It is 125m wide and has a uniform depth of 11m. It has been reported that the maximum draft allowed to enter the port was 10m.

A pier connected to shore by a causeway, about 0.5 mile long, supplies alongside berthing. The pier is 400m long. There are four berths, with charted depths of 11.9m alongside, on each side of the pier.

The charted loading wharf about 1 mile NE of the head of the pier is no longer in service.

A barge pier lies at the head of a causeway, which lies about 0.5 mile WNW of the Main Wharf. The inner approaches to the barge pier are dredged to 3.6m.

Aspect.—**Jazirat Mishab** (28°10'N., 48°38'E.), close S of Ras al Mishab, has high cliffs on its E side and numerous 1.8m patches lying on a bank extending 3 miles E of the island and about 1 mile W of the channel.

A sandy ridge, covered at HW, extends E from the island to within 0.5 mile of the channel. A beacon marks the E edge of the ridge.

The coastal reef and shoals extend N of the beacon and adjoin the entrance channel. The harbor is primarily an open

roadstead which is somewhat protected by the surrounding reefs and Ras al Mishab.

Jabal Amudah (28°10'N., 48°36'E.) is a 31m high dark hill which appears to have four hummocks when seen from seaward.

There are four conspicuous cement silos, from which lights are shown, on the pier.

Pilotage.—Pilotage is compulsory and is available during daylight only. The pilot boards about 5 miles ENE of Ras al Mishab.

Regulations.—Vessels should send their ETA and request for pilotage to the harbormaster 24 hours in advance, confirming 12 hours and 2 hours prior to arrival.

The harbormaster may be contacted on 2182 kHz or VHF channel 9, 11, 13, 14, or 16. The harbormaster maintains watch from each day, and a continuous watch 12 hours before a vessel is expected.

Anchorage.—Anchorage is available, clear of the fairway, as charted, about 13 miles NE of Ras al Mishab. The harbormaster should be contacted for advice before anchoring.

Directions.—From the pilot boarding position vessels should steer S to the Fairway Buoy, which is moored 4 miles NE of the wharf. Passing close to either side of this buoy brings the first pair of range beacons in line 217°. This alignment leads to the dredged buoyed channel. When the inner pair of range beacons are in line, they should be steered for on a bearing of 251°, which leads to the wharf.

Anchorage.—A circular anchorage area, 1 mile in radius and best seen on the chart, is situated close E of the buoyed entrance channel. Foul ground lies close SE of the anchorage area. The anchorage area overlaps the Restricted Area for the Saffaniyah Oil Field.

Caution.—It is advisable to arrive at Jazireh-ye Farsi just before daybreak, as the light on the islet is more easily seen than is the islet itself by daylight.

Caution is necessary as the outer approach channel passes over a submarine pipeline contained within a Prohibited Anchorage Area, best seen on the chart.

16.24 Ras al Mishab (28°11'N., 48°38'E.) is a low, sandy point faced in places with low cliffs. The depths off the coast between Ras al Mishab and Ras al Qulayah are irregular and offer no guide to a coastal approach.

In depths of less than 14.6m the bottom is sand or rock, but in greater depths it is mud. Except for small boats, there is no shelter from the shamal, which blows from the NNW and raises a sea along this coast.

Tidal currents set NNW and SSE and are strong at times. Between Ras al Mishab and Ras al Khafji, about 14 miles NW, the coast consists of sand hills.

Dawhat al Asli (28°20'N., 48°32'E.), a shallow bay, is contained between Ras al Mishab and Ras al Khafji.

Qassar Umm as Sahal (28°14'N., 48°40'E.), a patch which dries 0.5m, lies near the edge of the coastal reef extending 4 miles NE of Ras al Mishab.

Al Kumrah (28°21'N., 48°54'E.) is a detached shoal with a least depth of 0.8m. A gas/oil separator installation is located 1 mile SE of Al Kumrah. The facility consists of three lighted platforms and a flare structure which is visible from a distance.

Numerous oil well structures, pipelines, and obstructions lie as far as 25 miles E of Ras al Khafji.

Ras al Khafji (28°24'N., 48°32'E.) is a small harbor basin located about 1 mile NW of the point with the same name, and close within the entrance of Khawr al Maqta, a constricted inlet. The basin is approached via a buoyed channel dredged to a depth of 5.5m.

Range lights lead through the center of the channel, which is marked by lighted buoys. Two wharves in the harbor have a depth of 5.5m alongside. There is a coast radio station in the harbor.

Caution.—A dangerous wreck lies close S of the range line.

Ras al Khafji Oil Terminal (28°26'N., 48°35'E.)

World Port Index No. 48346

16.25 Ras al Khafji is an oil terminal port. Oil wells are located in areas as far as 29 miles ENE of Ras al Khafji. Since there are many oil pumping structures, platforms, oil rigs, submarine pipelines, and flares in the area, use caution.

Winds—Weather.—The local weather is reported to be hot and dry. Prevailing winds are light and from NNW.

Tides—Currents.—The maximum range of tide is 1.8m. Tidal currents near the loading berths run parallel to the shore and have a maximum velocity of 1.5 knots.

Depths—Limitations.—Depths in the approaches and at the loading berths are adequate for a VLCC.

There are several detached shoal patches shown on the charts in the vicinity of the oil platforms.

A dangerous sunken rock, awash, is located about 17 miles NE of Ras al Khafji, N of Lighted Buoy No. 5.

A 0.7m patch, marked by Lighted Buoy No. 3, lies about 4 miles further E.

The oil loading facilities located here consist of four offshore berths.

Berth No. 1 and Berth No. 2, located about 3 miles ENE of Ras al Khafji, are multi-point moorings able to accept vessels up to 243m long and up to 100,000 dwt. Vessels usually moor on a NNW heading with both anchors down, secured to one buoy forward, and three buoys aft. Berth No. 1 will accept a maximum draft of 14.3m, while Berth No. 2 will accommodate a draft of 15.2m.

Vessels berth at Berth No. 1 and Berth No. 2 during daylight hours only.

Berth No. 3 and Berth No. 4 are Single Point Moorings (SPM), located, respectively, 4.5 and 6.5 miles NE of Ras al Khafji; vessels from 100,000 to 300,000 dwt can be accommodated. Berth No.3 will handle alongside drafts of 16.5m, and up to 17.1m, with a suitable rise of tide. Berth No. 4 will take vessels with drafts of 19.5m, or up to 20.1m on a rising tide.

Aspect.—The oil tank farm and radio masts located close NW of Ras al Khafji are conspicuous. Flares on the point and flare stacks in the area of the offshore wells are prominent.

Pilotage.—Pilotage is compulsory and is available, as follows:

1. Berth No. 1 and Berth No. 2—daylight hours only.
2. Berth No. 3 and Berth No. 4—24 hours.

The mooring master boards in the charted tanker anchorage area about 1.7 miles NE of Berth No. 4.

Regulations.—The vessel's ETA should be sent 72 hours and 6 hours in advance. The terminal can be contacted by e-mail, as follows:

tmd@agoc-aoc.com.sa

Vessels should confirm the ETA before arrival, inform Port Control of the time of anchoring, and maintain a continuous listening watch on VHF channel 16.

An IMO-adopted Traffic Separation Scheme, best seen on the chart, is located in the approaches to Ras al Khafji.

Anchorage.—A charted tanker anchorage, 2 miles in diameter, is located 8 miles NE of Ras al Khafji. There are charted depths of 20 to 22.5m in the anchorage; the holding ground is generally good, clay and mud bottom. Buoys are moored on the W and S edge of the anchorage.

An anchorage for dry cargo ships, 1 mile in diameter, is located 2.5 miles NNE of Ras al Khafji. Vessels should anchor within 0.5 mile of a lighted buoy moored in the center of the anchorage area. There are depths of 11.2 to 15.3m, good holding ground of clay and mud, at the anchorage.

Prohibited anchorage and fishing areas, designated on the charts, lie in the vicinity of the submarine pipelines and oil fields. Navigation, except to ships under direct orders of the Arabian Oil Company, is prohibited within the areas.

16.26 Ras Bard Halq (28°30'N., 48°30'E.) is a low, white sandy point from which a sandspit extends NE. A partly sunken wreck and a 2.2m shoal patch are charted on the banks seaward of the spit. The Saudi Arabia/Kuwait border lies about 4.5 miles NW of Ras Bard Halq.

Kuwait—Saudi Arabia/Kuwait Border to Ras al Qulayah

16.27 Khawr al Mufattah (28°39'N., 48°23'E.), a shallow creek, with a bar in the entrance, lies about 8 miles NNW of the Saudi Arabia/Kuwait border. Fishing craft frequent the inlet.

Vessels anchor and discharge cargo into barges off the inlet entrance. At HW, the barges are unloaded by cranes on a wharf inside the entrance. There is a radio station and small oil storage tanks near the wharf.

Ras az Zawr (28°45'N., 48°24'E.) is the extremity of a low sandy projection from which a spit with depths less than 5.5m extends about 5 miles NE. A shoal area, with a least depth of 9.4m extends as far as 6 miles ESE of Ras az Zawr.

Mina az Zawr (Mina Saud) Oil Terminal (28°44'N., 48°24'E.)

World Port Index No. 48356

16.28 Mina az Zawr (Mina Saud) is an oil-loading terminal located at Ras az Zawr. The terminal is connected by pipeline to the oil production center at Wafra, 31 miles NW.

The oil refinery, with its oil storage tanks, buildings, and warehouse, stands near the point and is reported to be a good

radar target. A submarine oil pipeline is laid ENE for 1.5 miles from the point to the loading berths.

Winds—Weather.—During the summer months, the winds generally are light to moderate from the N and NW, with occasional NW winds of gale force. Winds are governed by the strength of the Southwest Monsoon outside the Persian Gulf.

During autumn and early winter, the weather is fine, but in late winter and spring, strong SE winds with rough seas are frequent, due to the approach of low pressure systems. Berthing may be hindered.

Tides—Currents.—Tides are a combination of diurnal and semi-diurnal. The range of tide averages 2.7m at springs and 1.5m at neaps.

The main direction of the flood current and the ebb current is 010° to 190° but is variable. At the berths the currents set NNE to SSW.

Depths—Limitations.—The main facility is a Single Point Mooring (SPM) about 4 miles ENE of Ras az Zawr. There is a depth of 19m at the SPM, which can accommodate vessels with the following characteristics:

1. Vessel size—80,000 to 400,000 dwt.
2. Vessel length—230 to 370m.
3. Vessel draft—13.0 (maximum arrival draft) to 17.6m (maximum departure draft).
4. Minimum underkeel clearance—2m.

Berth No. 2, about 2 miles WSW of the SPM, is only used if the SPM is damaged or under repair; there is a depth of 16.4m at the berth. Vessels up to 140,000 dwt can fully load while vessels up to 370,000 dwt can partially load. The maximum departure draft may not exceed 15.85m.

The local port authority should be contacted for further information.

Aspect.—The refinery flare is the most conspicuous object observed on approaching the berths. Also the high lighted radio mast is very prominent as is Ras az Zawr Beacon. A power station, with two prominent high chimneys at an elevation of 193m, stands close to the coast about 3.2 miles SSW of Ras az Zawr.

A pier, showing a light from its E end, extends from the shore about 3 miles S of Ras az Zawr.

Pilotage.—Pilotage is compulsory. Mooring Masters in their capacity as pilots board tankers in the anchorage area and pilot them to their berths. They supervise the mooring and unmooring and advise on loading procedures as Company Representative.

Tankers should not close the loading berths without a pilot on board. The pilot boat is equipped with VHF.

Regulations.—The vessel's ETA should be sent, via the agent, 96 hours and 72 hours in advance, with confirmation sent 48 hours and 24 hours in advance.

The terminal can be contacted by e-mail, as follows:

deranar@texaco.com

Anchorage.—Anchorage can be taken in the charted Tanker Anchorage located E of the terminal, in charted depths of 17.1 to 20.9m. Three anchor berths, designated A, B, and C, are located within the anchorage area as shown on the chart. A

prohibited anchorage area, best seen on the chart, surrounds the terminal.

Directions.—Tankers approaching Mina az Zawr (Mina Saud) from the Persian Gulf should pass about 2 miles S of **Mandaira Reef Beacon** (28°56'N., 48°46'E.) and then steer a course of 242° for the anchorage and pilot station. Loaded tankers depart via the deep-water channel from Berth No. 2.

Caution.—Deep-draft tankers should avoid the shoals ESE of Ras az Zawr; when approaching the anchorage keep the refinery flare bearing less than 273°.

There are several oil fields with interconnecting submarine pipelines, along with numerous detached and charted dangers, lying off the coast of Kuwait.

16.29 Zuluf Oil Field (28°23'N., 49°14'E.) is centered about 37 miles E of Ras al Khafji. This installation is no longer in operation; however, the presence of oil rigs, etc. constitutes a hazard. An anchorage is charted S of the limits to Zuluf Oil Field. The local authorities should be contacted for information concerning this anchorage before attempting to use it.

Marjan Oil Field and Feridoon Oil Field are adjoining oil fields located about 63 miles ENE of Ras al Khafji. Oil platforms and rigs from which lights are shown stand throughout the area.

Although fog signals are sounded from many of the oil structures, it is advisable to avoid this charted area, even in clear weather.

Anchorage is available in a charted area centered about 7 miles S of Marjan Oil Field but the local authorities should be consulted before anchoring here.

A submarine oil pipeline is laid from the Marjan Oil Field NE to Jazireh-ye Khark. All the above oil fields lie in restricted areas.

Regulations.—A Traffic Separation Scheme leads between Zuluf Oil Field, and Maharah Oil Field and Marjan Oil Field to the E. The details of the scheme are best seen on the chart.

16.30 Lulu Oil Field (28°38'N., 49°25'E.) is located 12 miles W of Feridoon. Hut Oil Field (Hout Oil Field) and **Durrah Oil Field** (Dorra Oil Field) (28°48'N., 49°00'E.) are extensive, with numerous oil platforms, rigs, and obstructions within the limits shown on the charts.

A submarine pipeline is laid S from Hut Oil Field to Ras al Khafji main pipeline terminal.

Sirus Oil Terminal(Soroosh Oil Terminal)(Cyprus Oil Terminal)(29°01'N., 49°29'E.)

World Port Index No. 48468

16.31 Sirus Oil Terminal lies in the Persian Gulf about 53 miles WSW from Jazireh-ye Khark. The area has several oil wells and structures which constitute a hazard to navigation.

There is a permanently-moored oil storage tanker, reputed to be of 130,000 dwt, which is anchored close NE of the loading berth. The terminal operates 24 hours a day, 7 days a week, weather permitting.

Winds—Weather.—During November through March, severe SE storms occur, often with little or no advance warning. Tankers at anchor and at the loading berth must have their

main engines ready for immediate use. Anchored tankers should run out an adequate scope of chain.

Depths—Limitations.—Vessels up to 70,000 dwt, with a maximum length of 290m, can be accommodated.

Pilotage.—Pilotage is compulsory. Mooring Masters, acting as pilots, board tankers about 2 miles SE of the storage tanker and remain aboard at the loading berth to advise on loading.

Regulations.—The national flag of Iran must be displayed while at the terminal and within Iranian territorial waters.

Quarantine officers will board tankers at the berth. The standard quarantine message should be sent 24 hours before arrival.

The terminal can be contacted on VHF channel 72 and by e-mail, as follows:

fsu001@iooc.net

fsu999@iooc.net

Vessels must send their pre-arrival information to the terminal 7 days prior to the accepted range or ETA, whichever is earlier. The vessel's ETA must be sent via fax (+98(0)21-871-6345) to Production and Planning and Export Coordination (attention Bahregan Marine) 96 hours and 48 hours in advance. Vessels must also send their ETA to the terminal 72 hours, 48 hours, and 24 hours in advance.

Vessels should start contacting the terminal on VHF channel 72 beginning 4 hours prior to arrival.

Anchorage.—Anchorage can be taken, in a depth of 45m, in the area best seen on the appropriate chart. Anchoring is prohibited SE of the oil terminal and in the pipeline area extending S from the S side of the island.

Directions.—All tankers should approach the terminal from the SE, using caution to avoid the storage tanker and oil structures.

Caution.—A dangerous wreck, marked close N by a lighted buoy, lies about 7 miles NW of the oil field.

16.32 Mudayrah Reef (28°56'N., 48°46'E.), lying 23 miles NE of Ras az Zawr, is a steep-to coral reef with a least depth of 1.4m. In fine weather, the reef extent is noted by the slight overfalls; in bad weather, the reef breaks. A light marks the reef.

Jazirat Qaruh (28°49'N., 48°47'E.) is a low sandy islet encircled by shoals and a drying bank. The islet is a good radar target, at a distance of 7 miles, under normal conditions. The island is marked by a light.

Jazirat Umm al Maradim (28°40'N., 48°39'E.) is a sandy islet which is steep-to on the edge of its fringing reef. A 4.2m shoal extends about 2 miles ESE of the light marking the islet.

A drying reef, marked by a light, lies 2 miles NNW of the islet.

Kuwait—Ras al Qulayah to Khawr Abd Allah

16.33 Ras al Qulayah (28°53'N., 48°17'E.) forms the low NW point of Dawhat az Zawr, which indents the coast between the point and Ras az Zawr. The bay has depths of less than 11m and is encumbered with several reefs and shoals. A spit, with

depths of less than 5.5m, extends about 4 miles NE of Ras al Qulayah.

An area in which anchoring and fishing are prohibited extends 1 mile N, 2.5 miles E, and 3 miles S from Ras al Qulayah. A breakwater extends from the coast 1 mile S of Ras al Qulayah; a light is shown from its outer end. This breakwater marks the entrance to **Kuwait Naval Base** (28°52'N., 48°17'E.). There are charted depths of 9.4 to 10.1m at North Jetty, Main Quay, and Main Jetty; a quay located on the inner side of the breakwater has charted depths of 9.7 to 11.5m alongside. The initial access to the base is via a buoyed channel with a sector light and then by two additional sector lights, which are all best seen on the chart. An anchorage for naval vessels, with a charted depth of 9.2m, lies 0.3 mile ESE of the head of the breakwater.

The coast between Ras al Qulayah and Ras al Ard, about 30 miles NNW, is low, stony desert, brownish in color. A few miles inland are hills 61 to 91m high. To the NE of Ras al Ard, the coast is fronted by numerous reefs and shoals. Depths of 11m and less exist as far as 37 miles SE of **Jazirat Bubiyan** (29°43'N., 48°16'E.).

16.34 Jazirat Kubbar (29°05'N., 48°30'E.) is a sandy islet, about 4m high, that is covered with brush. Reefs encircle the islet. A rocky tongue, on which the sea breaks in bad weather, extends about 0.5 mile NW of the islet, which is a good radar target at a distance of 14 miles.

A dangerous submerged rock lies 0.5 mile NNE of the islet; a 1.8m patch lies 0.5 mile W of the islet.

Unsheltered anchorage can be taken, in a depth of about 20.1m, 0.5 mile SSE of the light on the islet.

Umm al Aysh (Taylor Rock) (29°01'N., 48°35'E.) is a detached coral patch, with a least depth of 3.2m, which breaks at times. A lighted beacon stands on the E side of the rock. In fine weather, there is no indication of its presence, but in bad weather it probably breaks.

Qit at Urayfijan (29°00'N., 48°16'E.) is a small detached steep-to coral reef with depths of less than 0.4m. A lighted beacon is located off the SE edge of the reef.

Tidal currents in the vicinity of these islets and dangers set NW and SE and attain a velocity of 1.5 knots at springs.

Mina Abd Allah (Abdulla) (29°01'N., 48°10'E.)

World Port Index No. 48360

16.35 Mina Abd Allah, also known as Mina al Abdulla, is an oil-loading terminal on the E coast of Kuwait, about 5 miles S of Mina al Ahmadi.

Winds—Weather.—The main prevailing winds are from NW, which may cause sandstorms, and SE, which cause a heavy swell.

Tides—Currents.—There is a mean tidal range of 3m. The tidal current has a velocity of 0.5 knot to 2 knots.

Depths—Limitations.—Depths in the approach range from 14.6 to 18.3m. Mina Abd Allah Sea Island consists of two berths primarily used for loading.

Berth No. 19, the seaward berth, accommodates tankers from 25,000 to 276,000 dwt. The minimum depth of water is

17.9m. The maximum berthing draft is 13.7m; the maximum loading draft is 16.9m.

Berth No. 18, the inner berth, accommodates tankers from 25,000 to 90,000 dwt. The minimum depth of water is 17.3m. The maximum berthing draft is 13.7m; the maximum loading draft is 16.3m.

Aspect.—The terminal consists of an offshore loading berth and an offshore platform. The berth and platform are supplied by submarine oil pipelines leading to several large oil storage tanks and the refinery ashore.

A tank farm and refinery, as well as the gas flare, are all conspicuous. A prominent radio mast stands about 1 mile SSW of the refinery.

Range lights, located on shore close S of the oil tanks, lead from the anchorage to the platform.

Pilotage.—Pilotage is compulsory. The Mooring Master, acting as pilot, boards the ship within 1.5 miles of the loading berths and remains on board during loading operations to assist as company representative.

Regulations.—Weather permitting, ships are berthed day or night and may depart at any time. The vessel's ETA should be sent 72 hours, 48 hours, 24 hours, and 12 hours in advance through the agent.

Every ship entering and departing port between sunrise and sunset shall display its national flag and the national flag of Kuwait.

On entering, the ship shall display its International Signal letters. Outbound ships have priority over inbound ships.

Pratique may be granted following receipt of the standard quarantine message, transmitted 48 hours before arrival, or else by the Medical Officer at the anchorage or berth.

Mina Abd Allah, Ash Shuaybah (paragraph 16.36), and Mina al Ahmadi (paragraph 16.37) are surrounded by a security zone. This security zone is marked by yellow lighted buoys numbered S1 through S17. Navigation within the security zone is controlled, as follows:

1. Vessels and tankers proceeding to the Ash Shuaybah commercial port must obtain permission from the Ash Shuaybah control tower on VHF channel 13 to obtain permission to proceed.
2. Vessels and tankers proceeding to Mina Abd Allah, the Ash Shuaybah Petroleum Products Pier, or Mina al Ahmadi must obtain permission from the Mina al Ahmadi control tower on VHF channel 69 to obtain permission to proceed.
3. Small craft and fishing boats are requested to avoid entering the security zone and to limit transit only through the following navigational passages:

a. Ash Shuaybah commercial port—A navigational passage of 090°/270° from Lighted Buoy S7 (29°02'36"N., 48°22.'18"E.).

b. Fahaheel dhow harbor—A navigational passage of 030°/210° from Lighted Buoy S15 (29°10'03"N., 48°12'00"E.).

An IMO-adopted Traffic Separation Scheme, best seen on the chart, is located in the approaches to Mina Abd Allah.

Signals.—During the loading process, the following signals are used in addition to radio communication:

Day	Night	Meaning
Start up		
One red flag	One red light	A slow rate on the loading pumps
Two red flags	Two red lights	Full loading rate
Shut down		
One red flag	One red light	A slow rate on the loading pumps
Lowering the flag hoist	Extinguishing all lights	Stop the flow

The emergency shut-down signal is a continuous sounding of the ship's whistle.

Anchorage.—Anchorage is available for vessels awaiting a berth at the Shuaybah Petroleum Products Pier in the charted Petroleum Product Pier Anchorage Area located about 2 miles N of Qit at Urayfijan (29°00'N., 48°16'E.). Anchorage is prohibited in an area containing the oil terminal, as shown on the chart.

Ash Shuaybah (Shuaiba) (29°02'N., 48°10'E.)

World Port Index No. 48357

16.36 The port of Ash Shuaybah consists of a small craft harbor, two berthing moles, and an oil pier.

Kuwait Ports Authority Home Page
<http://www.kpa.com.kw>

Winds—Weather.—The prevailing winds are from the NW. During the summer months, fresh SE winds raise a swell which may part mooring lines.

Ash Shuaybah Basin—Berthing Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Draft	Length	
Ash Shubayah Basin					
No. 1	140m	10.0m	9.5m	120m	Bagged and bulk fertilizer.
No. 2	160m	11.5m	9.5m	120m	Bagged and bulk fertilizer.
No. 3	200m	12.0m	10.5m	180m	General cargo, clinker, and iron ore.

Ash Shuaybah Basin—Berthing Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Draft	Length	
No. 4	175m	7.5m	6.7m	170m	See Note 1 below.
No. 5	175m	7.5m	6.7m	170m	See Note 1 below.
No. 6	258m	10.5m	10.0m	180m	Bulk sulphur. See Note 1 below.
No. 7	200m	12.5m	11.0m	180m	General cargo, clinker, and iron ore. See Note 1 below.
No. 8	200m	12.5m	11.0m	180m	General cargo, clinker, and iron ore. See Note 1 below.
No. 9	200m	14.0m	13.0m	200m	General cargo.
No. 10	200m	14.0m	13.0m	200m	General cargo.
No. 11	200m	14.0m	13.0m	200m	General cargo.
No. 12	210m	14.0m	13.0m	200m	General cargo.
No. 13	210m	14.0m	13.0m	200m	General cargo.
No. 14	210m	14.0m	13.0m	200m	General cargo and coke.
No. 15	220m	14.0m	13.0m	See Note 2 below.	Container and ro-ro vessels.
No. 16	220m	14.0m	13.0m	See Note 2 below.	Container and ro-ro vessels.
No. 17	220m	14.0m	13.0m	See Note 2 below.	Container and ro-ro vessels.
No. 18	220m	14.0m	13.0m	See Note 2 below.	Container and ro-ro vessels.
No. 19	225m	14.0m	13.0m	200m	Limestone and clinker.
No. 20	225m	14.0m	13.0m	200m	General cargo.
Notes:					
1. Only usable in good weather only, as they are exposed.					
2. No limit on vessel length, but subject to berth occupancy.					
Ash Shuaybah Petroleum Products Pier					
Berth	Length	Depth alongside	Displacement		Remarks
			Minimum	Maximum	
No. 1	428m	15.8m	5,000 dwt	120,000 dwt	Vessels should berth port side-to.
No. 2	303m	13.7m	5,000 dwt	65,000 dwt	Vessels always berth starboard side-to.
No. 3	412m	15.8m	5,000 dwt	120,000 dwt	Vessels should berth starboard side-to.
No. 4	328m	13.7m	5,000 dwt	75,000 dwt	Vessels always berth port side-to.

Tides—Currents.—The average tidal range is 2.5m during springs and 2m during neaps. Currents generally set in a N/S direction, with a velocity of up to 2 knots at springs. The flood sets S; the ebb sets N.

Depths—Limitations.—The port basin, the majority of which have been dredged to a depth of 14m, offers 20 dry cargo berths. Caution is necessary as lesser depths than charted have been reported (2002) in the basin and its approaches. Dredging is in progress to restore the 14m depths and should be completed in 2006.

The Petroleum Products Pier extends 0.5 mile ENE from the knuckle of the S mole to a T-head, which provides four tanker berths. Berthing information for each berth is given in the accompanying table.

A pier, used for the export of liquid bitumen, is located close N of the port basin. Vessels up to 5,000 dwt can be accommodated.

Aspect.—Lights are shown from the heads of all piers and the dry cargo mole. Two oil flares, 0.5 mile SW of the root of the mole, are conspicuous.

The conspicuous Control Tower, 48m high and surmounted by a radar scanner, stands at the head of the S breakwater.

Pilotage.—Pilotage is compulsory and is available 24 hours. Pilots should be requested through Ash Shuaybah Port Control and board about 3 miles E of the Petroleum Products Pier. Tugs come alongside after the pilot boards and secure on the off-shore side.

Regulations.—Ships berth heading into the current. Vessels over 198m in length berth/unberth during daylight hours only.

Vessels are required to have a minimum arrival draft of 3.1m forward and 4.6m aft.

Vessels send their ETA, vessel details, and cargo details 72 hours and 36 hours in advance. The confirmation of the ETA should be sent 12 hours in advance.

Vessels carrying explosives or dangerous cargo must declare quantities and categories of same when they report their ETA.

The National Flag of Kuwait must be displayed during daylight hours. Other regulations are similar to those for Mina Abd Allah.

An IMO-adopted Traffic Separation Scheme, best seen on the chart, is located in the approaches to Ash Shuaybah.

For information on the security zone surrounding Ash Shuaybah and reporting requirements, see Mina Abd Allah (paragraph 16.35).

Anchorage.—Anchorage is available for vessels awaiting a berth at the Petroleum Products Pier in the charted Petroleum Product Pier Anchorage Area located about 2 miles N of Qit at Urayfijan (29°00'N., 48°16'E.). This anchorage is also used by vessels awaiting a berth at Mina Abd Allah.

Vessels waiting for bunkers or orders are not permitted to anchor W of 48°15.1'E.

Directions.—Vessels are urged to contact the local authorities for the latest information on regulations and approach routes for this port before planning a voyage here.

Caution.—The approach passes within 1.5 miles of the recommended tracks for Ras al Khafji and within 0.5 mile of the foul ground extending from Ras al Qulayah.

Mina al Ahmadi (29°04'N., 48°10'E.)

World Port Index No. 48361

16.37 Mina al Ahmadi is one of the largest oil-loading ports in the Persian Gulf, especially when joined to Mina Abd Allah, Ash Shuaybah, **Al Fuhayhil** (29°05'N., 48°09'E.) and **Abu Hulayfah** (29°07'N., 48°08'E.) as a complex.

The town of Al Ahmadi, located about 3 miles inland, is connected by pipeline with the oil field at Burqan and the installations in port.

Winds—Weather.—Weather conditions are generally good. The prevailing winds are NW in summer, raising seas 1 to 1.5m high. The shamal raises a moderate sea and at times rough seas will close the port. Daybreak is the most favorable time for a lull in the seasonal winds, which are strongest in the afternoon. The NW winds may also cause sandstorms.

During the winter months, fresh sustained SE winds raise a SE swell, which may cause ships to surge and part mooring lines at the berths.

Sudden fierce squalls, with winds up to 70 knots, have been recorded, especially during the transition months of April to May and November to December.

Tides—Currents.—The mean tidal range is about 1.2m. In the vicinity of North Pier and South Pier, the tidal current sets N on the flood and S on the ebb with a velocity of 1 to 1.5 knots.

At Sea Island, the flood tidal current sets NW and the ebb sets SE, at a velocity of 1 to 1.5 knots.

Depths—Limitations.—The least depth in the approach is 16.5m, although there is no specific approach channel.

The deep-draft departure channel is 28 miles long; it extends from the Sea Island Terminal to Madara Reef and is marked by lighted beacons and buoys. Depths in the departure channel range from 27.4 to 31m and over.

Two patches of 27.6 to 28m lie in the channel, about 9 miles and 14 miles, respectively, from Sea Island. A sunken wreck lies in 21m of water, about 3 miles ENE of South Pier.

The harbor consists of two piers and the Sea Island Terminal. One sea berth is located S of South Pier. Ships can berth day and night.

South Pier is a T-head pier connected to shore by a trestle 0.7 mile long. The T-head is formed by an oil pier extending N for 855m and the general cargo/oil pier extending S for 328m. Berth No. 7 and Berth No. 8 are used by small craft. Berth No. 9 is out of service. Extensive construction has been reported (2001) in the area surrounding South Pier, extending to Mina Ash Shuaybah North Mole; a new South Pier is under construction. Vessels are prohibited from entering this area.

Mina al Ahmadi—Berthing Information						
Facility	Length	Maximum draft		Displacement		Remarks
		Berthing	Loaded	Minimum	Maximum	
South Pier						
Berth No. 1	283m	12.2m	13.2m	35,000 dwt	126,000 dwt	LPG loading. Vessels always berth port side-to.
Berth No. 3	283m	12.2m	13.2m	35,000 dwt	100,000 dwt	Oil loading/discharge. Vessels always berth port side-to.
Berth No. 4	293m	12.2m	13.7m	35,000 dwt	100,000 dwt	Oil loading/discharge. Vessels always berth port side-to.
Berth No. 5	233m	7.6m	11.5m	5,000 dwt	35,000 dwt	Oil loading/discharge. Vessels always berth starboard side-to.
Berth No. 6	215m	7.6m	11.5m	1,500 dwt	5,000 dwt	Oil loading/discharge. Vessels always berth starboard side-to.

Mina al Ahmadi—Berthing Information						
Facility	Length	Maximum draft		Displacement		Remarks
		Berthing	Loaded	Minimum	Maximum	
Berth No. 10	320m	12.2m	14.0m	35,000 dwt	126,000 dwt	LPG loading. It is preferred that vessels berth port side-to.
North Pier						
Berth No. 11	454m	15.2m	16.9m	35,000 dwt	315,000 dwt	Oil loading. It is preferred that vessels berth starboard side-to.
Berth No. 12	351m	15.2m	16.9m	35,000 dwt	315,000 dwt	Oil loading. It is preferred that vessels berth port side-to.
Berth No. 15	265m	10.0m	16.3m	35,000 dwt	120,000 dwt	Oil loading. Vessels always berth starboard side-to.
Berth No. 16	256m	10.0m	16.3m	35,000 dwt	120,000 dwt	Oil loading. Vessels always berth starboard side-to.

Bitumen Pier, extending from the shore about 0.2 mile N of South Pier, has a T-head about 100m in length, with alongside depths of 6m. It was reported (2002) out of service.

North Pier, located about 3.5 miles N of South Pier, is connected to the shore by a trestle about 0.8 mile long. The L-head of this oil pier extends NNW for 702m. There is a depth of 18m along the outer face and a depth of 16.7m along the inner face.

Sea Island Terminal (29°07'N., 48°17'E.), about 8 miles E of North Pier and South Pier, is a steel-piled structure standing in 28.5m of water. It consists of a central loading platform, with a high control tower and six mooring and four breasting dolphins, all interconnected by catwalks. Sea Island Terminal is partially destroyed and out of service. The S part was destroyed to sea level; the N part is used as a control room for loading operations at the CALM buoys, described below.

Lighted Buoy A, Lighted Buoy B, and Lighted Buoy C mark the run of the submarine pipeline from the terminal WSW to Mina al Ahmadi.

Berth No. 22, the Single Point Mooring (SPM) tower charted E of Sea Island Terminal, is in a cooled condition and is no longer in service (2002). A one time the berth could accommodate tankers of 120,000 dwt to 500,000 dwt, with a maximum berthing draft of 15.2m and a maximum loaded draft of 27.4m. The local authorities should be consulted for information on this berth.

Two Catenary Anchor Leg Mooring (CALM) Buoys, known as Berth No. 20 and Berth No. 21, are located 2.4 miles NE and 3.1 miles ENE of Sea Island Terminal. Tankers of 120,000 dwt to 550,000 dwt can be accommodated at the CALM berths. The maximum berthing draft allowed is 15.2m; the maximum loaded draft allowed is 27.4m.

Aspect.—The large tank farm and refinery towers, conspicuous from offshore, are reported to be a good radar target at a distance of 26 miles.

A gas flare shows prominently about 1 mile WNW of the root of South Pier. The oil piers and several high stacks are prominent. At night, the entire area presents a sky-glow visible for many miles seaward.

Pilotage.—Pilotage is compulsory for all berthing and unberthing operations and for all movements within the port

limits and restricted areas surrounding the offshore terminals. The pilot, acting in the capacity of Mooring Master, for North Pier, boards the vessel 2.25 miles ESE or 2.75 miles NE of the pier. Pilots for South Pier board 2.5 miles ESE of the pier. Pilots for the offshore terminal board 1.25 miles SE of SPM No. 21. Berthing can be accomplished at any time of the day and night, weather permitting.

Regulations.—The vessel's ETA should be sent 72 hours, 48 hours, 24 hours, and 12 hours in advance, with confirmation 24 hours in advance, to KUOCO.

All vessels, other than tankers transiting through the port limits, must report to Mina Al Ahmadi Port Control on VHF channel 69 at the following reporting points:

1. Northbound vessels—29°02.9'N, 48°13.6'E.
2. Southbound vessels—29°10.4'N, 48°13.3'E.

Reporting vessels must provide the following information:

1. Vessel's name.
2. Call sign.
3. Last port of call.
4. Destination.
5. Cargo on board.

Vessels should establish contact with Port Control when within VHF range.

The National Flag of Kuwait must be displayed within the port limits, which lie 1 mile N of North Pier and 3 miles S of South Pier. Ships at anchor awaiting a berth should advise the harbormaster of the time the ship anchored, as well as position relative to South Pier Control.

Anchored ships are required to be ready to berth on 1 hour notice from Port Control.

Normally, no tugs or launches will come alongside before the pilot boards, therefore the ship's crew must not signal for tugs.

Deep-draft ships, with a draft of greater than 21.3m, that are restricted as to movement in the channel, are required to display the following signals:

1. By day—a black cylinder.
2. By night—four red lights, vertically disposed.

The main engines must be kept ready for immediate use, as well as both anchors, while at the loading berths. Ships arriving to bunker only should be properly ballasted.



Mina al Ahmadi

The authorities refuse to handle loaded ships for bunkers only.

Pratique is granted if the standard message is transmitted 48 hours before arrival; otherwise, it will be granted at the berth or anchorage.

The terminal can be contacted by e-mail, as follows:

kduaij@kockw.com

An IMO-adopted Traffic Separation Scheme, best seen on the chart, is located in the approaches to Mina Al Ahmadi.

For information on the security zone surrounding Mina al Ahmadi and reporting requirements, see Mina Abd Allah (paragraph 16.35).

Anchorage.—Vessels should contact the local authorities for the latest information on depths and anchorage locations before anchoring.

Anchorage for vessels awaiting a berth at North Pier or South Pier is available in an area centered about 2.5 miles s of Sea Island Terminal.

Anchorage for vessels awaiting a berth at the SPM berths is available in an area centered 6.5 miles ESE of Sea Island Terminal.

Outer Waiting Anchorage Area, for vessels without loading or discharge instructions, is 5 miles WSW of Umm al Aysh (29°01.5'N., 48°34.5'E.), clear of the Deep Water Departure Channel.

Anchorage is available in the chartered Special Anchorage Area 3.5 miles SE of Sea Island Terminal. This anchorage, which has depths of 24 to 28m, is used by vessels engaged in tank cleaning, cooling, or bunkering operations.

A chartered Restricted Area surrounds Sea Island Terminal. Passage is prohibited except for vessels proceeding to or from the terminal. Anchorage is also prohibited in this area, except in an emergency.

Anchoring and navigating are prohibited in the chartered Restricted Area located between the coast extending to the S end of North Pier and the N end of South Pier.

An prohibited anchorage area lies between the two Restricted Areas and is best seen on the chart.

Directions.—From **Ahmadi Lighted Buoy** (28°56'N., 48°53'E.), about 33 miles from port, a course of 296° for 22 miles will lead to a position about 2 miles N of Jazirat Kubbar. Then steer various courses to the berth or anchorage assigned by Port Control or the harbormaster. The least depth over this route is 17.1m.

Deep-draft ships depart via the lighted buoy channel shown on the charts between Sea Island Terminal and Kasr Mudayrah. Vessels in a light condition should keep clear of this channel.

Caution.—Mariners are cautioned to keep well clear of the port area and on no account are they to pass within a distance of 2 miles of North Pier or South Pier without a pilot on board.

A submarine cable, best seen on the chart, extends seaward from a point about 8 miles N of North Pier. Anchoring and trawling are prohibited within 0.5 mile of this cable.

16.38 The low sandy coast between **Abu Hulayfah** (29°07'N., 48°08'E.) and **Ras al Ard** (29°21'N., 48°06'E.) contains several villages, some of which have forts nearby.

Both Abu Hulayfah and Al Fintas are villages; the former contains a fort. Another conspicuous fort and minaret stand atop a hill about 5 miles SW of Ras al Ard. Palaces near the coast are prominent.

Ras al Ard (29°21'N., 48°06'E.), low and sandy, is marked by a light and a racon. A ferry harbor lies close W of the point. A prominent building stands close W of the ferry harbor.

16.39 Kuwait Harbor (29°25'N., 47°55'E.) is a large inlet indenting the coast between Ras al Ard and a point about 12 miles NNE. A mud flat, with depths of 9m and less, extends up to 29 miles SW, 18 miles S, and about 7 miles SE of the point. Mud flats extend up to 5.5 miles off the inlet's N and S shores.

A prohibited anchorage area stretches across the entrance of the inlet and is best seen on the chart.

Off Ras al Ard during SE winds, a very heavy sea breaks off the point. At springs, the tidal currents off Ras al Ard are strong. The NW shamal raises a considerable sea in the S part of the inlet, the wind being particularly strong between May and October.

Dust storms are common. Strong SE winds arise during winter months, raising a swell in the harbor. The mean tidal range is about 2.8m.

Jazirat Faylakah (29°27'N., 48°20'E.) lies on an extensive mud flat. This island, on the E side of the approach to the harbor, is very low. A small, but conspicuous tomb stands on the SW end of the island. A radio mast, about 300m high, is located 1.5 miles E of the tomb. The village of Az Zawr is situated near the middle of the NW side of the island. There is a boat landing near the village.

Maskan (29°29'N., 48°15'E.), a sandy islet lying on an extensive mud flat, is marked by a lighted tower on its SE side and a lighted beacon on its NW side.

16.40 Jazirat Awhah (29°23'N., 48°27'E.) and **Ras al Yahi** (29°24'N., 48°28'E.), a sandy islet and a rocky drying patch, respectively, are marked by a light and a buoy. A cairn marks the S side of the islet.

Ras Ajuzah (29°23'N., 48°00'E.) lies about 6 miles WNW of Ras al Ard. The point is low and fronted by a rocky flat and a spit extending about 2 miles NNW of the point. The end of the spit is marked by a light.

The point may be identified by a group of slender conspicuous pointed towers standing close SW; the highest of the group reaches an elevation of 182m and is marked by obstruction lights.

Two conspicuous radio masts, each 76m high, stand 0.4 mile SSW and 0.5 mile S, respectively, of the point. A breakwater extends 0.3 mile NNE from the point.

Ras Ajuzah is at the NW end of a bight, indenting the coast for 5.5 miles WNW of Ras al Ard. The bight has depths of less than 5.5m; an inshore channel, showing depths of 2 to 21m, runs as far as **Salimiyah** (29°21'N., 48°04'E.).

The N shore of Kuwait Harbor is fringed by a mud flat, with depths of less than about 5.5m, that extends about 8 miles S from shore.

The S shore of the harbor is indented by three shallow bays, with the E part of the middle bay containing the port of Al Kuwait.

Al Kuwait (Kuwait) (29°23'N., 47°58'E.)

World Port Index No. 48370

16.41 The port of Al Kuwait, also known as Mina ash Shuwaykh, is located on the S side of Kuwait Harbor and is entered between Ras Ajuzah and Ras Ushayriq (Ras ad Dawhah), about 8 miles W.

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Dawhat Abu Talhah, at the head of the harbor, is filled with extensive drying sand and mud flats. Al Akaz is an extensive reef in the center of the harbor, which dries in patches, and consists of dead coral, mud, and sand.

Al Kuwait (Mina ash Shuwaykh)—Berth Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Length	Draft	
No. 1	198m	10.0m	175m	9.5m	General cargo and bulk grain
No. 2	208m	10.0m	175m	9.5m	General cargo
No. 3	183m	10.0m	175m	9.5m	General cargo
No. 4	177m	10.0m	175m	9.5m	General cargo
No. 5	186m	10.0m	175m	9.5m	General cargo
No. 6	198m	10.0m	175m	9.5m	General cargo
No. 7	198m	10.0m	175m	9.5m	General cargo
No. 8	212m	10.0m	220m	9.5m	Bulk cement
No. 9	200m	10.0m	220m	9.5m	

Al Kuwayt (Mina ash Shuwaykh)—Berth Information					
Berth	Length	Depth alongside	Maximum vessel		Remarks
			Length	Draft	
No. 10	200m	10.0m	220m	9.5m	
No. 11	200m	10.0m	220m	9.5m	
No. 12	200m	10.0m	225m	9.5m	Containers
No. 13	180m	10.0m	225m	9.5m	Containers
No. 14	200m	6.7m	220m	6.0m	
No. 15	180m	6.7m	180m	6.0m	
No. 16	155m	6.7m	110m	6.0m	
No. 17	200m	8.5m	220m	8.0m	
No. 18	180m	8.5m	200m	8.0m	
No. 19	200m	8.5m	220m	8.0m	Reefer vessels
No. 20	200m	8.5m	220m	8.0m	Reefer vessels
No. 21	200m	8.5m	220m	8.0m	Livestock vessels

Fasht al Hadibah (29°24'N., 47°57'E.) is the outer end of a shallow rocky spit on the W side of the approach to the port. A light is shown from a beacon close E of Fasht al Hadibah, about 2 miles NW of Ras Ajuzah.

Winds—Weather.—Prevailing winds are reported to be from the NW. Winds from NW or SE can create a heavy swell in the harbor.

Tides—Currents.—The tidal range is about 3.4m. Winds from the N tend to lower the height of tide while winds from the S tend to increase the height of tide.

Tidal currents off the entrance to the port, E of the light at the N end of Fasht al Hadibah, set ENE and WSW and may attain rates of 2 to 3 knots at springs; within the entrance the currents set fairly through the channel.

Depths—Limitations.—The city of Al Kuwayt is fronted for about 0.5 mile seaward by shallow flats which partly dry.

Boat basins, dry at LW, are contained within stone breakwaters marked by lights.

Ash Shuwaykh (29°21'N., 47°56'E.), the principal part of the port, has deep-water berthing facilities, fronted by Mina ash Shuwaykh.

Outer Shuwaykh Channel (Outer Entrance Channel) leads 2 miles SW from a position between the lights marking Fasht al Hadibah and the spit N of Ras Ajuzah. Inner Shuwaykh Channel (Inner Entrance Channel), a continuation of Outer Shuwaykh Channel, leads SW to two basins, named Basin Approach and Bandar ash Shuwaykh.

Both channels, 150m wide and marked by buoys and beacons, should be used with caution; Outer Shuwaykh Channel (Outer Entrance Channel) is also marked by a directional light. Both channels are reported (2002) to have a least depth of 7.0m; the deep center portions of the channels are reported (2002) to have a depth of about 9.0m, but are only 50 to 75m wide. Dredging is in progress to restore the 10m depths and should be completed in 2006.

Berth information for Ash Shuwaykh can be found in the above table.

A fishing harbor, dredged to a depth of 6.7m, lies on the NW side of the harbor.

Two dolphin berths, accepting vessels with a length of 183m and a maximum draft of 8m, are located at the extreme NE end of the harbor.

Aspect.—See paragraph 16.40 for landmarks located on Ras Ajuzah. High buildings and towers are prominent in the city.

A power station with three conspicuous chimneys stands on the SE side of the entrance to the basin. A conspicuous flour mill stands 0.3 mile SW of the chimneys. Three conspicuous silos stand near the S corner of the basin.

Pilotage.—Pilotage is compulsory for all merchant vessels 400 nrt or over entering the dredged channel and may be obtained about 1 mile NE of the entrance to the dredged channel.

Regulations.—The vessel's ETA should be sent 24 hours before arrival, along with the following information:

1. Vessel's name.
2. Vessel's ETA at anchorage.
3. The IMO class number and UN page number of any dangerous cargo.
4. Quantity of cargo.
5. Whether the cargo is ready for discharge.
6. Whether cargo equipment is in order and specific capacity.
7. Draft fore and aft.
8. LOA.
9. Crews' general health and whether they are vaccinated.
10. Ports visited in the 2 weeks before arrival.

There are coast and port radio stations located at the signal station. The visual signal station maintains a 24-hour watch, and messages, including arrival messages, can be passed to and from ships in the outer anchorage.

A continuous listening watch is maintained on port radio VHF channel 16. Ship's radios cannot be used alongside and VHF channels 12 and 16 can only be used to communicate with the signal station.

Vessels should maintain a continuous listening watch on VHF channel 16 when approaching Ras al Ard (29°21'N., 48°06'E.) from seaward. Vessels at anchor awaiting berthing instructions should listen on VHF channel 16, as follows:

- a. 0400 to 0600.
- b. 0800 to 1100.
- c. 1600 to 1800.

Vessels should cable the port health officer with select information and a request for free pratique prior to arrival.

When the vessel reaches the anchorage and anchors, it should contact the port health officer on VHF channel 16. The Kuwait National Flag must be displayed at all times within the territorial waters of Kuwait.

It has been reported that vessels with a draft of 7.5m or greater could only enter the harbor at or near HW.

Anchorage.—Vessels wishing to berth at Al Kuwayt must first proceed to the appropriate anchorage before berthing. No vessel is allowed to enter the dredged channel unless it has been assigned a berth by the harbor master.

Anchorage areas A to E are shown and marked on the chart; ships should anchor according to requirements as tabulated on the chart.

Anchoring is not permitted in Mina ash Shuwaykh. A prohibited anchorage area extends NE and E of Ras al Ard.

Caution.—Vessels are urged to contact the local authorities for the latest information on regulations and approach channels before planning a voyage here.

It has been reported that navigational aids may be unlit or out of position and that harbor installations were damaged.

Take care to avoid the many small craft anchored off the dredged areas of the port, as they may be unlighted.

16.42 Dawhat Kazimah (29°25'N., 47°48'E.), the inner part of Kuwait Harbor, is entered N of **Ras Ushayriq** (Ras ad Dawhah) (29°23'N., 47°51'E.), a point marked by a conspicuous chimney, about 61m high. The shores of this bay are low and sandy.

Umm an Naml (29°23'N., 47°52'E.) is a rocky islet lying on mud flats, which extend around the shores forming Dawhat Kazimah. Numerous detached and isolated rocky and sandy patches, some marked by buoys, are scattered throughout the bay; they are best seen on the chart.

Doha Harbor (Mina ad Dawhah) (29°23'N., 47°48'E.) is a dhow and coastal harbor located SSW of **Qit at Abu Talih** (29°24'N., 47°48'E.), a small reef with a depth of 0.6m and marked by a lighted buoy. The channel to Doha Harbor, which has a least charted depth of 4.7m, is marked by lighted buoys. There are nine berths, with a total length of 2,600m and an alongside depth of 4.3m. Berthing is allowed during daylight hours only. Vessels should send their ETA to the port authority and their agent 72 hours in advance.

Doha Power Station (29°22'N., 47°48'E.), with four prominent chimneys, stands near the coast on the S side of the bay 3 miles WSW of Ras Ushayriq.

Entry is prohibited in a rectangular area centered 2.5 miles NNW of Ras Ushayriq. The corners of the restricted area are marked by lighted buoys.

16.43 Jazirat Bubiyan (29°43'N., 48°14'E.), low and barren, partly covered at HW, lies with **Ras al Barshah** (29°35'N., 48°13'E.), its S point, located 3 miles NE of Kuwait Harbor. It is separated from the mainland NE by Khawr Abd Allah and from the mainland SW by Khawr as Sabiyah; the latter channel trends around the N end of Jazirat Bubiyan, separating it from Jazirat Warbah.

There are numerous rocks and drying patches in approaching Khawr as Sabiyah; the channel is only for small craft. The mud flat extends from Kuwait Harbor to about 3 miles E of Ras al Barshah.

It has been reported (2005) that a deep-water facility, to be opened in 2009, is under construction on Jazirat Bubiyan. The facility will consist of a ro-ro terminal, an oil terminal, and a general cargo port.

Jazirat Warbah (30°00'N., 48°04'E.) is low and flat. Warbah Spit, drying 0.6m, extends at least 2.5 miles E of the island, leaving only a very narrow channel into **Khawr Shetana** (30°02'N., 48°03'E.).

Khawr Abd Allah

16.44 Khawr Abd Allah (29°53'N., 48°20'E.), entered about 6 miles S of the entrance of Shatt Al Arab via the buoyed channel of **Khawr Al Amaya** (29°35'N., 48°55'E.), trends about 35 miles NW to Jazirat Warbah.

East of the E extremity of Jazirat Warbah (30°00'N., 48°09'E.), Khawr Abd Allah divides into two channels. The N channel, which has been dredged to accommodate ocean-going vessels, consists of two parts; Khawr Shatanah is the E part and Khawr Saka is the W part. Khawr Bubiyan, the S channel, is not recommended.

The channel about 4 miles above the W end of Khawr Saka is known as Khawr Umm Qasr; above that, it is known as Khawr az Zubayr.

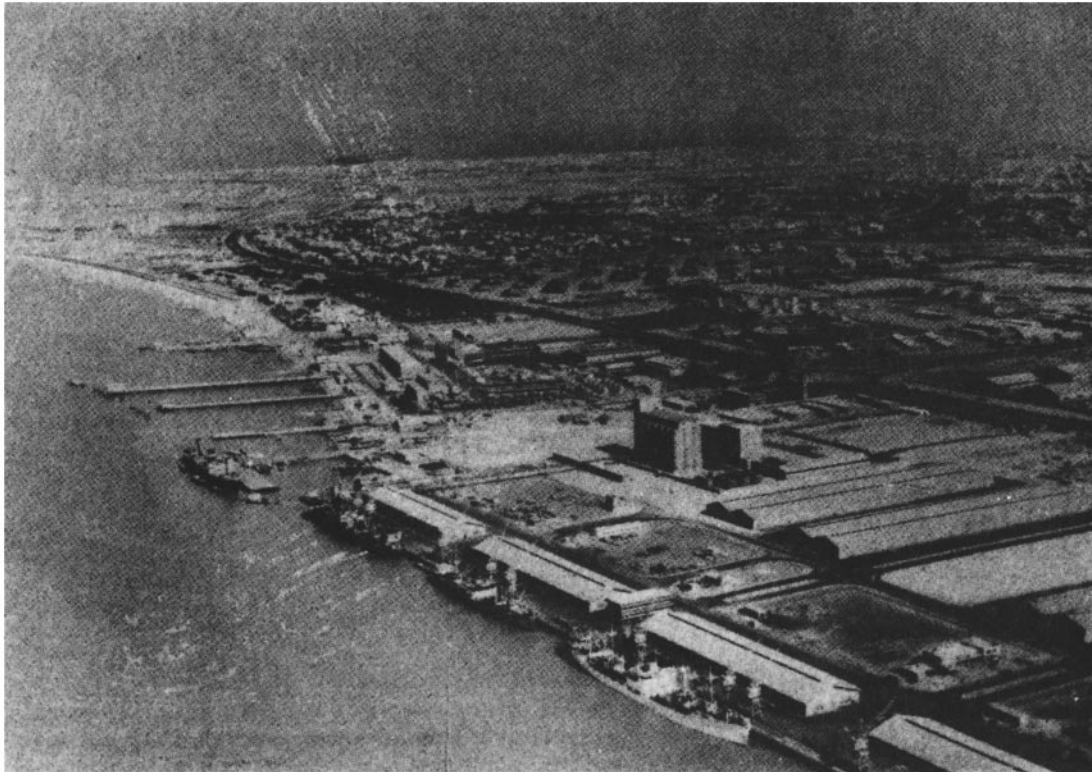
Tides—Currents.—In Khawr Abd Allah, springs rise about 4.2m and neaps about 3.7m; mean LW springs have a rise of 0.6m. At Umm Qasr, springs rise 4.6m; neaps rise about 4.2m. It has been reported (2003) that tidal levels may be up to 1m less than predicted.

The tidal currents in the entrance of Khawr Abd Allah attain a velocity of 1.5 knots in the spring on a rising tide and 2.5 knots on a falling tide. It has been reported (2003) that tidal currents in the narrower sections of the waterway at the N end of Khawr Abd Allah, in Khawr Shatanah, and off Umm Qasr can reach a rate of 6 knots.

Depths—Limitations.—Lesser depths than charted have been reported (2005) at numerous locations in the channel. Mariners are urged to consult local authorities to obtain the latest information concerning controlling depths and maximum authorized drafts. It has been reported (2005) that dredging has been completed in Khawr Abd Allah; dredged depths are

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Al Kuwayt—Ash Shuwaykh

11.0m over the bar, 12.5m from the inner side of the bar to a position E of the E end of Jazirat Warbah, and 12.3m from this position to a position in the E entrance to Khawr Umm Qasr. The width of this dredged channel is 200m, except for an area NE of the E end of Jazirat Warbah, where the width is only 100m.

The channel through Khawr Shatanah and Khawr Saka has been dredged (1990) to 13.2m.

Several shoals are reported to lie in the approach to the Khawr Abd Allah and Umm Qasr.

Athan Shoal (29°44'N., 48°35'E.) has a least depth of about 2.7m.

Fasht Al Ayk (29°45'N., 48°30'E.) is a detached bank of hard sand, which dries 0.9m.

Atlassi Shoal (29°54'N., 48°21'E.) has a least depth of 4.2m.

There are numerous other shoals of 1.8m and greater lying in Khawr Abd Allah.

Aspect.—The entrance of Khawr Abd Allah lies between **Ras al Qayd** (29°46'N., 48°22'E.) and Maraqat Abd Allah, the extensive, partly drying flats lying NE. Both shores of the inlet are low, alluvial land covered with reeds and grass, and fronted by shallow mud flats.

Several beacons stand on the HW line on both sides of Khawr Abd Allah.

The channel through Khawr Shatanah and Khawr Saka is reported to be marked by lighted buoys.

Anchorage.—A holding anchorage for vessels bound for Umm Qasr lies about 3 miles ESE of the E extremity of Jazirat

Tides—Currents.—The tidal rise at Umm Qasr is 4.2m at

Warbah. The charted stranded wrecks should be given a wide berth.

Caution.—It has been reported (2003) that most of the channel buoyage is either unlit, out of position, or missing. Night passage is not possible and should not be attempted.

It has been reported (2003) that large deep-draft vessels navigating in Khawr Saka may encounter shallow water effects leading to a loss of control.

In addition to the charted dangers, many uncharted wrecks and obstructions have been reported (2005) in Khawr Abd Allah, Khawr Shatanah, and Khawr az Zubayr.

It has been reported (2003) that, due to the danger of mines, vessels transiting Khawr Abd Allah should remain in the navigable channel and avoid anchoring, fishing, and submarine and sea bed operations.

Acts of piracy have been reported (2005) in the approaches to Khawr Abd Allah.

Umm Qasr (30°01'N., 47°57'E.)

World Port Index No. 48399

16.45 Umm Qasr is situated on the W bank of Khawr Umm Qasr, about 4 miles NW of its junction with Khawr Saka.

Winds—Weather.—Heavy squalls may be experienced here, especially during late afternoon. As these squalls may occur without warning, vessels should be securely moored.

MHW, while at MLHW, the rise is 0.7m.



Umm Qasr from SE, distant about 1 mile

No tidal information is presently available for Khawr al Zubair. The current can attain a rate of 4 knots.

The local authorities and the pilot should be consulted for further information on tides, currents, and tidal currents.

Depths—Limitations.—It has been reported vessels with a maximum draft of 9m may enter the port. The main wharfage, Berth 1 through Berth 8, has alongside depths of 5 to 7m. The new port, Berth 10 to Berth 21, has an alongside depth of 5.5m. It has been reported (2003) that the basin of the new port has silted considerably; the unmarked entrance channel is 150m wide, with reported controlling depth of 4.9m.

Pier information regarding the berth number, length, and cargo handled are given in the accompanying table.

Pilotage.—Pilotage is compulsory. Vessels bound for Umm Qasr or Khawr al Zubair will board the river pilot between Lighted Buoy No. 1 and Al-Basra Oil Terminal (29°41'N., 48°49'E.).

Harbor pilots will board in the vicinity of Buoy No. 36, about 0.5 mile SSW of the S extremity of Jazirat Hijam (30°01'N., 47°58'E.).

The river pilot can be contacted on VHF channels 14 and 16. The harbor pilot can be contacted on VHF channels 12 and 16.

Umm Qasr		
Berth	Length	Remarks
2	201m	General cargo
3	201m	Sulphur
4	200m	Sulphur
5	250m	Containers
6	183m	General cargo
7	183m	General cargo
8	183m	General cargo
8A	73m	Lighters
9	285m	Grain silo
10	200m	Vegetable oil
11-18	200m	General cargo
19	—	Containers
20	54m	Ro-ro

Umm Qasr		
Berth	Length	Remarks
1	201m	General cargo

Regulations.—Vessels bound for Umm Qasr or Khawr al Zubair should send their ETA to Umm Qasr Port Control 48 hours, 24 hours, and 12 hours in advance, for the latest details concerning Khawr Abd Allah. Vessels should also report, on both inbound and outbound transits, when passing Lighted Buoy No. 23 and Lighted Buoy No. 24.



Umm Qasr—Berth 20

Umm Qasr Port Control can be contacted on VHF channels 12 and 16.

Anchorage.—Anchorage may be obtained in Khawr Umm Qasr, about 2 miles below the port.

Caution.—Caution is advised, as details on aids to navigation marking the channel are presently lacking. The local authorities and pilots should be contacted for the most current information.

Numerous wrecks are reported (2003) to hinder access to the berths in the new port. Unexploded ordnance is likely to exist in the wrecks and on the seabed surrounding the wrecks. It has been reported (2005) that many of these wrecks have been removed or are in the process of being removed.

Recent surveys (2003) in the approaches to Umm Qasr have shown that the dredged channels have silted up considerably, especially along their sides.

Due to the existence of unexploded ordnance, vessels should only anchor as directed by local authorities.

16.46 Khawr al Zubair (Khor al Zubair) (30°11'N., 47°54'E.) lies about 11 miles upriver from Umm Qasr. The ebb current, which runs strongly and causes considerable eddies, can attain a rate of 3 knots along the berths.

The fairway from Umm Qasr to Khawr al Zubair is marked by lighted buoys although it has been reported (2005) that all the channel buoyage from Umm Qasr to Khawr al Zubair is missing.

The channel is dredged to 13.2m for a distance of 7 miles above Umm Qasr. From this position to the turning basin at Khawr al Zubair, the channel is reported to be dredged to a depth of 12m. Local authorities should be consulted for details of the latest controlling depths and the maximum authorized drafts.

It has been reported (2003) that depths at Berth 2 to Berth 10 range from 0.9 to 5.3m. Many of the berths are occupied by other vessels. It has been reported (2005) that a drying patch exists off Berth 9. It has been reported (2005) that many of the wrecks blocking access to the berths have been removed or are in the process of being removed.

Berthing information is given in the accompanying table.

Khawr al Zubair—Berth Information		
Berth	Length	Remarks
1	240m	Bulk crude and iron ore
2	320m	Bulk crude and iron ore
3	250m	General cargo
4	250m	General cargo
5	250m	Bagged and bulk urea
6	250m	Bagged and bulk urea
7	250m	Bagged and bulk urea

Khawr al Zubair—Berth Information		
Berth	Length	Remarks
8	180m	General cargo
9	180m	General cargo
10	180m	General cargo

Anchorage may be obtained off the berths, where the river is about 0.3 mile wide.

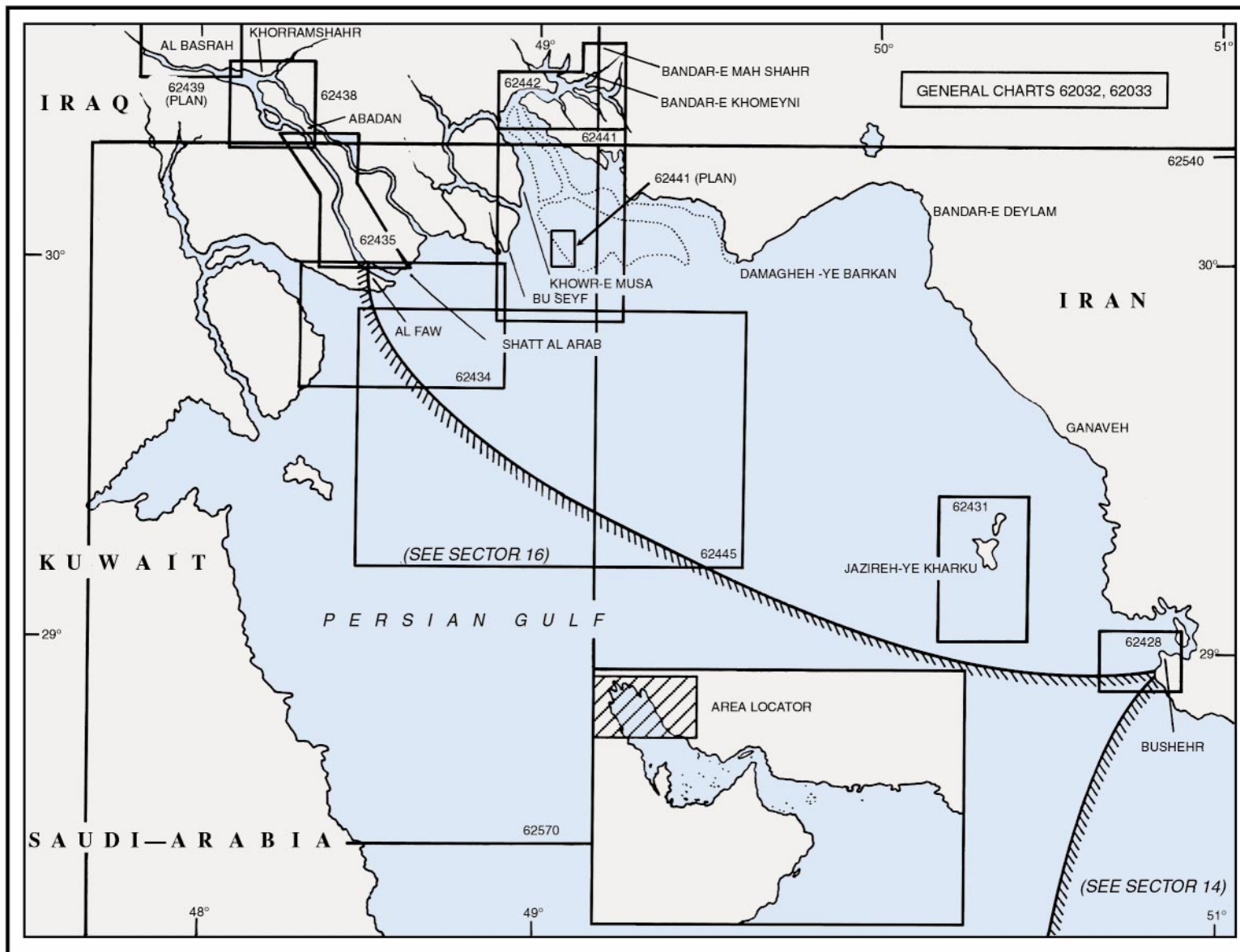
The port can be contacted by e-mail, as follows:

khoralzubair@iraqports.com

See Umm Qasr, paragraph 16.45, for information on pilotage, reporting requirements, and the approach channels.

Caution.—Recent surveys (2003) in the approaches to Khawr al Zubair have shown that the dredged channels have silted up considerably, especially along their sides.

Due to the existence of unexploded ordnance, vessels should only anchor as directed by local authorities.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 17 — CHART INFORMATION

SECTOR 17

THE PERSIAN GULF—IRAN—BUSHEHR TO THE SHATT AL ARAB

Plan.—This sector describes the coast, with adjacent islands and dangers along the N part of the Persian Gulf, from Bushehr to the head of the gulf. Klowr-e Musa and the Shatt al Arab are also described. The sequence of description is NW from Bushehr.

General Remarks

17.1 The stretch of coast from Bushehr to the Shatt al Arab, excluding the complex indentations between Damagheh-ye Bahrgan and the Shatt al Arab, has a total length of about 210 miles.

The coast for the most part is low and mountains, with the exception of Kuh-e Bang, are some distance inland. Two small islands lie off the S part of this coast.

Important river and tidal inlet oil ports are reached through the head of the gulf. Banks of less than 5.5m extend from 1 to 1.5 miles offshore; bars and shoals constitute nearshore obstructions. Exposed anchorage is 2 to 3 miles offshore; several tidal inlets offer shelter for small craft.

It has been reported that the ports of Abadan and Khorramshahr are not in operation. The Shatt al Arab must be cleared of wrecks and extensive dredging is required before these two ports may be used by ocean-going ships again.

Drilling platforms, which may or may not show lights, may exist from time to time almost anywhere in this area. All vessels heading for Iranian ports should report to Bandar Abbas Port Control on passing Ras al Kuh, stating their ETA at the Strait of Hormuz and their destination.

If clearance is not granted before passing Bandar Abbas, then vessels should begin to proceed to the Bandar Abbas anchorage.

Several offshore oil fields, some lying within charted limits or restricted areas, are situated within the waters covered by this sector. Vessels should navigate with extreme caution within the vicinity of or within such fields, as numerous above and below-water charted and uncharted dangers to navigation exist here. Unauthorized vessels should avoid entering restricted areas.

Winds—Weather.—The dominant wind in this area of the Persian Gulf is the NW shamal, which prevails for 9 months of the year. In winter, the shamals average force 3 to 4, although occasionally they may reach force 7 for 3 or more days at a time. During the summer, although there is not much change in the prevailing wind direction, the winds tend to decrease in force. The shamal causes dust storms in the Persian Gulf, which reduce visibility at sea to less than 2 miles.

Other strong local winds are experienced, such as the SE kaus, the NE nashi, and the SW suhaili. In the summer, from April to September, the coastal regions experience temperatures of over 32°C.

The whole coast is almost rainless and humidity is high. In winter, from October to March, the coastal regions have a mild

and relatively pleasant climate, with daytime temperatures from about 13° to 21°C.

Tides—Currents.—Currents in the Persian Gulf are variable in strength and direction. Tide and current conditions at the head of the gulf are very complex because of the variation in flow of water from the Shatt al Arab at various seasons, the presence of extensive drying mud flats and tidal inlets, and the influence of onshore or offshore winds.

Along the coast between Bushehr and Damagheh-ye Bahrgan, the tidal currents run generally parallel to it and have a velocity of about 0.5 to 1.5 knots. In the vicinity of Jazireh-ye Khark and Jazireh-ye Kharku, tidal currents set NW and SE at a rate sometimes exceeding 2 knots. Off Damagheh-ye Bahrgan, the tidal currents set almost E and W.

The tidal currents in the lower part of Khowr-e Musa set NNW and SSE, turning about at the time of HW or LW. In the vicinity of Bandar-e Shahpur, currents attain a velocity of 3 knots.

Depths—Limitations.—The offshore approaches to the coast between Bushehr and Damagheh-ye Bahrgan are clear, except for two small easily-avoided islands about 30 miles NW of Bushehr.

Nearshore approaches should be made with caution and during HW because of the mud flats and shoals which fringe most of this coast. The 20m curve ranges from 5 to 24 miles offshore. Between Damagheh-ye Bahrgan and the mouth of the Shatt al Arab, about 55 miles W, the offshore approaches are mostly shallow and obstructed by shoals and drying mud flats, except for dredged channels leading into Khowr-e Musa and the Shatt al Arab. The 20m curve will be found from 15 to 40 miles off the poorly-defined shore.

Caution.—It has been reported that some charted oil production platforms in the Persian Gulf may have been removed. In many cases, all that remains of the platform are pipes extending from 3.1 to 6.1m above the waterline; these pipes do not show up well on radar and are a hazard to navigation.

Mine Danger Areas (MDA), best seen on the chart, are located in the area covered by this sector. Mariners are warned that a greater mine threat exists within an MDA and no swept routes have been established in these areas. Caution is also necessary, as drifting mines may be encountered anywhere.

Bushehr to the Shatt al Arab

17.2 Bushehr (28°59'N., 50°50'E.), a town at the N end of a 12-mile long peninsula, is situated on a rocky ridge having an elevation of not over 12m. The port facilities face the inlet which separates Bushehr from the mainland to the E. Between Bushehr and Damagheh-ye Bahrgan, about 88 miles NW, the coastline is fairly regular, except for two large shallow bays.

The coast itself consists of a low, sandy plain of varying width, with large marshy areas in places and an occasional rocky hill. A rough mountain range backs the plain and heights up to 1,037m are within 35 miles of the shore.

Kuh-e Bang, about 300m high, is 52 miles NNW of Bushehr, its summit rising about 2 miles inland; its seaward face is precipitous and from S it appears as a conspicuous bluff.

Anchorage is generally poor because of exposure to the shamal or the kaus. Small craft can shelter in the bay N of Bushehr and in the many tidal inlets and stream mouths.

The best anchorage for large vessels is in the bay E of Damagheh-ye Bahrgan. Anchorage in the lee of Jazireh-ye Khark offers shelter from the shamal or a kaus, but the holding ground is rocky and indifferent.

Between Damagheh-ye Bahrgan and the estuary of the Shatt al Arab, about 55 miles W, the coast is a complex of indentations and is poorly defined. The shores are almost entirely marshy or swampy and fringed by extensive mud flats. Most of the shores are subject to temporary inundation and are intersected by many tidal inlets and several large rivers. Backing the marshy shores is a low swampy plain, which extends a considerable distance inland before giving way to desert plains. Several small villages lie along the river banks and on the more solid parts of the plain. The important ports of Bandar-e Khomeyni and Bandar-e Mahshahr are about 34 and 41 miles from the bar at the entrance of Khowr-e Musa. Abadan and Khorramshahr are about 42 and 56 miles inside the Shatt al Arab from the Rooka Channel entrance. Anchorage can be taken almost anywhere in the channels and inlets which intersect the fringing mud flats, and anchorage and berthing facilities are available at the four above mentioned ports; the degree of protection offered varies at the different anchorages.

Bushehr (28°59'N., 50°50'E.)

World Port Index No. 48470

17.3 Bushehr, once a major port for Iran, has been relegated to minor importance with the growth of the oil ports. However, Bushehr serves as the port for two provinces in Iran.

Iranian Ports and Shipping Organization Home Page
<http://www.ir-pso.com/bushehr>

Winds—Weather.—The shamal occurs from June to September, and dust haze reduces visibility to less than 1 mile.

Gales from SW are frequent in winter; during January and February they prevent lightering operations about 3 days a week. The climate is hot and humid, with annual temperatures averaging 24°C.

Tides—Currents.—Tidal currents are generally weak in the outer roadstead and attain a velocity of about 1 knot at springs in the Inner Anchorage; they set NNE to ENE and SW to WSW. Off the town in Khowr-e Soltani, the currents are very strong. The winds have a considerable effect on the currents and the water level. A 1.5 knot N to S current has been reported along this section of coast. The shamal causes the currents to turn and lower the general level, sometimes as much as 0.3m; the kaus raises the general level. The highest spring tide is during July.

Depths—Limitations.—An extensive flat, with depths of less than 5m, fills the bay between Bushehr and Ras osh Shatt, 9 miles NW, except for an area of deeper water known as

Khowr-e Deyreh, which forms the Inner Anchorage. Obstructions and wrecks are charted in the vicinity of the channel entrance, about 4 to 5 miles W of **Jafreh** (28°58'N., 50°49'E.).

A flat, with depths of less than 2m, extends 2 miles NW and N of Bushehr; its NW end, known as **Ras al Marg** (29°02'N., 50°48'E.), extends to the entrance channel leading to port.

The flat E of Ras al Marg is known as **Kad Lakfeh** (Lakfeh Sands) (29°01'N., 50°49'E.). The sea seldom breaks on this flat, except at very LW or during strong winds.

Raq At Al Ali (29°02'N., 50°46'E.), with general depths of less than 2.5m, is the sandy S extremity of an extensive flat extending S from **Ras osh Shatt** (29°06'N., 50°42'E.) to a position about 4 miles WNW of the N end of Bushehr. The depths in the approach channels are maintained as far as possible by periodic dredging.

The harbor authorities should be consulted for the latest information. Vessels up to 30,000 dwt, with a maximum length of 200m and a maximum draft of 8.65m, can use the port. The harbor consists of two berths, with a total length of 416m and alongside depths of 7.3 to 8.0m. The dolphin berth in the turning basin off the above berths has a depth of 5.8m. Ships can discharge into lighters at the dolphin berth.

There is a naval berth which is often available to commercial vessels with a draft up to 6.4m. This berth is suitable only for direct delivery or special cargo discharge due to the restricted size of the berth. There is an oil pier about 100m long, with a depth of 7.5m alongside, on the SW side of **Khowr-e Pudar** (28°58'N., 50°52'E.).

Aspect.—The harbor at Bushehr is formed by **Khowr-e Soltani** (28°59'N., 50°51'E.), which extends SE for 2 miles between the peninsula and the mainland. The NE side of the harbor is composed of drying mud flats; the W side, formed by the peninsula, is partly fronted by a seawall which dries at LW. A village and tower are conspicuous on the N coast of a very low island lying NNE of Bushehr.

The quarantine station and hospital are prominent on an island lying 2.5 miles NE of Bushehr. Radio towers and several buildings, including one with high arched windows and three towers standing at the S end of Jafreh, are all prominent.

Pilotage.—Pilotage is compulsory for all ships or craft entering the dredged channel and proceeding to Bushehr. The pilot boards ship at the Outer Anchorage, about 2 miles NW of the channel entrance. Vessels send their ETA 48 hours in advance. The message should include details of cargo to be discharged.

Regulations.—No quarantine message is necessary if there is a clean bill of health. The Medical Officer boards the ship at the Outer Anchorage to grant pratique. The national flag of Iran must be displayed at all times while the ship is in port.

To minimize departure delays, the date and time of arrival, as well as the ETD should be sent to the Port and Quarantine Officer upon arrival.

Anchorage.—Ships waiting to enter Khowr-e Soltani, or whose draft will not permit them to enter the Inner Anchorage, should anchor in the Outer Anchorage as convenient NW of the entrance to the dredged channel. The anchorage is open to the shamal and the kaus. A small vessel may anchor, temporarily, in a depth of about 4m, with the building with two towers, standing 1.5 miles NNE of Jafreh, bearing about 080°, distant 0.5 mile.

Khowr-Deyreh (29°01'N., 50°48'E.), containing the Inner Anchorage, is an area about 1 mile long, with depths of 4.9 to 6m, mud, good holding ground. The anchorage is approached through the outer entrance channel. The farther NE anchorage is taken, the better the shelter from the shamal.

Directions.—Approaching from SE, a vessel should pass about 6 miles off Ras-e Halileh and proceed NW, in depths not less than 11m, until the Outer Anchorage is reached. Depths decrease regularly as the coast is approached.

From the Outer Anchorage, steer in the fairway of the buoyed channel to the Inner Anchorage. The range beacon alignment of 043° should be strictly adhered to. From the Inner Anchorage, steer through the buoyed channel, whose axis runs 143° to 323° to the harbor.

The turn into this fairway is sharp, therefore caution is advised.

Caution.—A ship bound for Khowr-e Soltani should note that a turn of 100° must be made at the junction of the outer and inner channels where the width is 0.5 mile. The tidal currents set E and W across the mouth of Khowr-e Soltani and off the town the currents are strong. The shamal lowers the water level; the kaus raises it.

Jazireh-ye Khark (Kharg Island)

17.4 Jazireh-ye Khark (Kharg Island) (29°14'N., 50°19'E.) and Jazireh-ye Kharku lie about 19 and 21 miles WNW and NW, respectively, of **Ras osh Shatt** (29°06'N., 50°42'E.).

Jazirat-ye Khark, the S and larger of the two islands, has table-topped hills running N and S throughout the island.

About 0.5 mile NE of the summit is Mir Mohammed Tomb, a conspicuous conical tower topped by a small dome.

Hills that are at the S end of the island terminate in several precipitous bluffs on which there are detached hummocks.

The hills at the NW part of the island terminate in cliffs. A wedge-shaped hill at the N end of the island is prominent. Gas flares, some burning from towers, are conspicuous from the offing.

A lighted radio mast is conspicuous, and a tank farm near the S and SW end the island, appears prominently.

The W coast of Jazireh-ye Khark consists of several rocky points, between which are sandy beaches; the hills on that side end abruptly in cliffs. On the E side of the island is a cultivated plain terminating NE in a low, sandy point, on which is situated the airport.

A high radio mast, marked by red lights, stands near the NE end of the island. A naval boat basin, protected by breakwaters, is situated about 1 mile W of the NE extremity.

Fishermans Harbor, protected by a breakwater, is situated 0.5 mile W of the NE end of the island.

Jazireh-ye Khark is fringed by a reef which extends as far as 0.4 mile offshore. A sandspit, with a least depth of 4m, extends almost 1 mile E from the NE end of the island.

A velocity of 2 knots or more is attained over the spit with a SE tidal current.

A bank with depths less than 18.3m extends 1.5 miles SE from the SE side of the island.

Jazireh-ye Kharku (29°19'N., 50°21'E.), controlled by the Navy, is an uninhabited, very low island, composed of white sand covered by coarse grass.

Except off its steep-to N end, the island is reef-fringed for almost 1 mile offshore. There is a light shown from the N end of the island. Submarine oil pipelines connect the islands with the mainland. The waters adjacent to the island are prohibited to commercial shipping.

In the channel between the two islands, the fairway is about 1 mile wide, with irregular depths ranging from 7.3 to 11.3m.

A depth of 9.7m can be carried through the channel. Local knowledge is necessary.

An obstruction lies about 1.3 miles E of the S extremity of the island. A stranded wreck lies 1.5 miles ESE of the S extremity of the island.

Caution.—It has been reported (2005) that lesser depths than charted exist in the approaches to Jazireh-ye Khark and Jazireh-ye Kharku.

17.5 Kharg Island Oil Terminal (29°14'N., 50°20'E.) (World Port Index No. 48465), the principal crude oil-loading terminal in Iran, is situated about 0.5 mile E of Jazireh-ye Khark. Other facilities are situated SW and W of the island.

Winds—Weather.—The prevailing winds are from the NW, so the loading pier is partially sheltered. Southeast winds, strong during the winter, may cause berths to become untenable.

From May to September, the weather is very hot and humid, whereas from November to March, the weather is mild and pleasant.

Tides—Currents.—The maximum tidal rise is 2.4m, with an average tidal height of 1.2m above chart datum.

Tidal currents generally set parallel with the E coast and loading pier, with a maximum velocity of about 1.5 knots. In the vicinity of the N end of the loading pier a strong W set is experienced for a short time about 4 hours after high tide.

Depths—Limitations.—Depths in the approaches are adequate for deep-draft ships. There are numerous oil rigs and platforms, connected to shore by submarine pipelines, situated off the SW coast of Jazireh-ye Khark.

Other submarine oil pipelines are laid from the S end of the island SW to the Feridoon Oil Field and the Ardeshir Oil Field.

Main Jetty (29°13.8'N., 50°20.3'E.) is a T-head pier connected to the shore by a stone causeway and trestle jetty. The T-head is 1,840m long, with five berths on its outer face and five berths on its inner face, which can best be seen on the chart.

The berths are exposed to SE winds; winter storms can raise seas 2 to 3m high. Limiting factors at each berth are, as follows:

Main Jetty			
Berth No.	Depth alongside	Maximum vessel size	Maximum sailing draft
1	21.3m	Berth is not operational	
2	19.8m	Berth is not operational	
3	21.3m	275,000 dwt	20.42m
4	20.1m	Berth is not operational	

Main Jetty			
Berth No.	Depth alongside	Maximum vessel size	Maximum sailing draft
5	21.3m	275,000 dwt	20.73m
6	18.3m	100,000 dwt *	16.15m
7	18.3m	175,000 dwt	17.07m
8	19.2m	Berth is not operational	
9	17.4m	175,000 dwt	16.46m
10	16.1m	90,000 dwt	14.02m
* Maximum length of 274m.			

An oil company boat harbor is formed by the inner part of the causeway and a N breakwater. Lights mark the N and S sides of the entrance. The least depth of water alongside tug berths is 6m. Other berths have 4m.

Sea Island Terminal (Azarpad Terminal) (29°13.7'N., 50°17.2'E.) is an offshore oil-loading platform situated about 2 miles NW of the S extremity of Jazireh-ye Khark. The terminal is 548m long, and provides two inner berths and two outer berths, best seen on the chart. The berths cannot handle vessels that are less than 150,000 dwt. Limiting factors are, as follows:

Sea Island Terminal			
Berth No.	Depth alongside	Maximum vessel size	Maximum sailing draft
11	32.0m	500,000 dwt	29.87m
12	29.5m	300,000 dwt	27.43m
14	25.9m	Berth is not operational	
15	27.4m	500,000 dwt	29.87m

All the above berths can become untenable during prolonged periods of strong NW winds. Tankers should use the maximum number of mooring lines. Quick release hooks are provided.

Darius Oil-Loading Terminal (Daryush Terminal) (29°12.7'N., 50°20.8'E.) is an offshore mooring berth situated about 1 mile off the SE corner of Jazireh-ye Khark. There is only one berth. The tanker is secured to five mooring buoys with both anchors out. Unlit buoys mark the oil pipeline between shore and terminal.

The mooring berth, in a depth of about 19.8m, can accommodate a tanker up to 160,000 dwt loading to a maximum draft of 18.3m, provided the distance from the stern to the loading manifold does not exceed 152m.

The terminal operates 24 hours a day, 7 days a week.

The sea berth is somewhat protected from the prevailing NW wind, but berthing may become impossible after prolonged S winds.

An oil company small craft harbor, situated close N of the shore end of the oil pipeline to Darius, is formed by a stone causeway with a breakwater extending N from its outer end. There are depths of 4.6 to 5.5m in the harbor. The approach channel is marked on each side by three lighted beacons.

Khemco Loading Pier (29°12.8'N., 50°20.2'E.), about 0.5 mile SE of the small craft harbor, consists of two piers extending ESE for 0.3 mile to a 360m long T-head formed by dolphins. Liquefied sulphur and LPG are loaded in tankers berthed alongside the T-head.

Berthing is carried out day and night. There is 12.8m of water alongside the T-head at low tide.

Pilotage.—Pilotage is compulsory from the anchorage area to the terminals. Berthing Masters, acting in a pilot capacity, board tankers at the anchorage, berth them, and remain aboard as Safety and Loading Coordinators.

Dry cargo vessels discharging cargo at the anchorage do not require a pilot or Boarding Master. The Khemco Terminal Berthing Master will board the ship at the anchorage or outside the port area.

Berthing Masters board tankers bound for Kharg Island Terminal and Sea Island Terminal about 1.2 miles E of the Kharg T-head pier. The pilot for Darius Oil-Loading Terminal boards 2 miles seaward of the terminal. Vessels are berthed day or night.

Ships should not approach closer without the Boarding Master aboard. Ships bound for Sea Island Terminal must, unless otherwise instructed, proceed to the anchorage off the E side of the island.

Regulations.—Vessels send their ETA 72 hours, 48 hours, 36 hours, and 24 hours in advance; an additional 12-hour notification is required for Darius Oil Loading Terminal. The 36-hour message should contain the following information:

1. Cargo requirements and supplier.
2. Deballasting time.
3. Loading rate.
4. ETA at the anchorage.
5. Arrival and departure drafts.
6. Other information as required by the operators.

Vessels should not use VHF channels 10, 12, 16, and 77 for intership traffic while in the anchorage and alongside. A continuous listening watch on VHF channel 16 should be maintained while at anchor.

There is a port radio station at Jazireh-ye Khark. Ships are advised to use this VHF/RT when within range of the harbor, using standard frequencies. In poor visibility, when a ships approach may not be observed from shore, radiotelephone use can avoid delay in berthing.

Pratique can be requested by radio 72 hours before arrival in the harbor. The Standard Quarantine Message should be sent to "Port Health Officer Khargiran." Regulations generally pertain to all terminals within the harbor.

All vessels within Iranian territorial waters (12 miles seaward of land and adjacent islands) and harbor limits must display the Iranian national flag during daylight hours.

On arrival, all ships proceed E of the East Harbor Limit, anchor, and await the Berthing Master. All the area within the harbor limits is a Prohibited Anchorage and Restricted Manoeuvring Area. Only ships berthing and unberthing are allowed to transit the area.

While at anchor, ships should maintain normal listening watch on VHF/RT (Kharg Island).

Tending mooring lines while at Sea Island Terminal must be done one line at a time and under supervision of a ships officer.

Anchorage.—Designated anchorage areas have been established SE and E of Kharg Island, as follows:

1. Anchorage Area A (centered about 4.5 miles SE of the S extremity of Kharg Island)—Vessels bound for Sea Island Terminal.

2. Anchorage Area B (centered close E of Anchorage Area A)—Dangerous cargo anchorage.

3. Anchorage Area C (centered about 6 miles E of the S extremity of Kharg Island)—Vessels bound for Main Jetty.

4. Anchorage Area D (centered about 3.5 miles ENE of the head of Main Jetty)—Ship-to-ship oil transfer anchorage.

Dry cargo vessels anchor, in at least 21.9m, about 0.5 mile SE of Darius Oil Loading Terminal. Anchorage off the E side of Jazireh-ye Khark is sheltered when the Outer Anchorage at Bushehr is untenable due to the weather. Dry cargo vessels anchor on good holding ground NE of the **Naval Boat Harbor** (29°15'N., 50°20'E.) and discharge cargo into barges.

The limits of the Prohibited Anchorages and Restricted Areas as well as the Harbor Limits are best seen on the charts.

Directions.—Ships approaching from W, and going to anchor E of Jazireh-ye Khark, should pass S of the island.

Ships approaching Kharg from S should keep at least 2.5 miles E of the island; ships approaching from N should keep W of the island and outside the Restricted Area. Ships should not pass between the islands.

17.6 The coast between **Ras osh Shatt** (29°06'N., 50°42'E.) and Ganaveh is low and sandy. Inlets, breaking the continuity of the coast in several places, have shallow entrances but greater depths within. Local craft transit some of the inlets to villages.

Bandar-e Rig (29°29'N., 50°38'E.), a village, is fronted by two sandy islets which give partially-sheltered anchorage to small craft.

Ganaveh (29°33'N., 50°31'E.), a group of villages situated about 0.5 mile inland, has a few date palms and a conspicuous large tomb with a spire.

Bandare Khowr (29°34'N., 50°31'E.), the tidal mouth of a river fronting Ganaveh, has drying sands extending 0.5 mile off its mouth. Large dhows can enter the river at HW. A water tank, a radio mast, and lighted derrick post are conspicuous.

An oil company has quarters SE of the river entrance, which is marked by a beacon. Stakes mark the sides of the river channel, with the port side markers having oil drum topmarks. About 183m within the entrance is a jetty with steps which affords a sheltered landing at all stages of the tide.

Anchorage can be taken, in about 5.5m, good holding ground of clay and mud, about 2 miles offshore SW of Ganaveh. Larger vessels anchor about 5 miles SSW of Bandar-e Khowr entrance, clear of the Prohibited Anchorage Area.

The coast between Ganaveh and **Ras-e Tanb** (29°56'N., 50°09'E.) is low, sandy, and interspersed with steep, high hillocks. Tombs mark the summits of some hillocks.

Kuh-e Bang (29°45'N., 50°22'E.), a conspicuous mountain, has a summit rising 2 miles inland and a seaward face which is precipitous; from S this face appears as a conspicuous bluff.

Emam Hasan (29°52'N., 50°15'E.) is a village with a conspicuous mosque. Pipelines for oil are laid from the coast near the village W towards Damgheh-ye Bahrgan, WSW to an oil field SW of the entrance to Khowr-e Musa, and SW to offshore

oil-loading terminals. A flare burns on the coast near the pipeline landings; a lighted oil rig stands 7.5 miles W of Emam Hasan.

17.7 Barkan Oil-Loading Terminal (29°44'N., 50°10'E.) is situated 20 miles NW of Ganaveh. The terminal consists of two berths. The terminal operates continuously night and day, 7 days a week. Berthing and unberthing, however, is only carried out in calm to moderate weather conditions.

Barkan Oil Center, situated on the coast 20 miles NNW of Ganaveh, may be identified by two oil flares which burn continuously near its vicinity.

Depths—Limitations.—The inner berth, consisting of a group of six mooring buoys in a depth of about 15.5m, lies about 5 miles SW of Barkan Oil Center. It can accommodate tankers up to 45,000 dwt. The outer berth consists of an SBM, in a depth of 24m about 8 miles SW of Barkan Oil Center, that can accommodate tankers up to 250,000 dwt. An underkeel clearance of 1m is required at both berths.

There are no reported surface dangers in the area of the berths. However, anchorage is prohibited within 1.2 miles of the berths and within 1 mile on either side of the submarine oil pipelines laid between the berths and oil center.

When tidal and wind conditions oppose each other, it is incumbent upon the master to exercise caution on approaching the loading berths, especially at night and in poor visibility. Flood tidal currents set NW; ebb tidal currents set SE.

Radar is of great help in ascertaining distance from the buoy at night and in locating the floating loading hoses at night and during periods of low visibility. The tanker, when about 0.5 mile from the berth, should only have way on for steerage and should keep the SBM and floating hoses on the port bow.

Pilotage.—Pilotage is compulsory. Vessels wait for a pilot about 2 miles S of the terminal.

Regulations.—Vessels should send their ETA via fax (+98(0)21-871-6345) to Production and Planning and Export Coordination (attention Bahrgan Marine) 96 hours and 48 hours in advance.

All ships must display the Iranian national flag from the foremast while in the territorial waters of Iran.

Vessels should start contacting the terminal on VHF channel 11 beginning 4 hours prior to arrival.

Anchorage.—Anchorage can be taken in suitable depths about 2 miles SW of the SPM buoy.

Caution.—Submarine pipelines are laid from Barkan Oil Center to the offshore loading berths and also to Nowrouz Oil Field 49 miles WSW. They are also laid from a position 2 miles NW of the oil center to Bahrgan Sar Oil Field. Mariners should not anchor near the pipelines.

Port limits embracing Barkan Oil Loading Terminal and Barkan Oil Center extend about 10 miles offshore and are best seen on the chart. Vessels should not enter the port limits without permission from Barkan Oil Center Port Radio.

17.8 Khalij-e Deylam (30°00'N., 50°00'E.), a large bay, indents the low coast between **Ras-e Tanb** (29°56'N., 50°09'E.) and Damagheh-ye Bahrgan.

Bandar-e Deylam (30°04'N., 50°09'E.) is a coastal town with a large, conspicuous fort which appears as an island from the offing. Local craft can reach town at HW via a creek lead-

ing through drying mud flats. A high radio mast stands 2 miles S of the fort.

Anchorage can be taken, in about 7.3m, soft mud, about 4 miles offshore, or, in 5.5m, clay, about 3 miles W of town. The anchorages are sheltered from the shamal; the kaus does not raise the usual sea and swell, even though it is strong.

A lighted oil rig stands 4 miles SW of **Shah Abu ol Shah** (30°11'N., 50°05'E.), a town near the head of the bay which is backed by a range of high hills extending to Damagheh-ye-Bahrgan.

Damagheh-ye Bahrgan (30°00'N., 49°34'E.), a very low strip of sand covered at HW, is fronted for at least 5 miles by mud flats, some of which dry. Two conspicuous date groves stand about 3 miles N of the point.

Caution.—A submarine pipeline is laid from Bahrgan Sar Oil Field to the coast 2 miles NW of Barkan Oil Center.

Mariners should not approach within 3 miles of Bahrgan Sar Oil Field and Hendijan Oil Field. Mariners are advised not to anchor near the pipeline. The limits of these oilfields are best seen on the chart.

17.9 Rud-e Zohreh (30°04'N., 49°30'E.) empties through a delta into the Persian Gulf. The river has several tortuous reaches but only one main channel. The river approach is through mud flats, with the channel marked by poles and a beacon; the latter is situated 2.5 miles SW of Damagheh-ye Bahran. Dhows and a local vessel with a draft of 2.4m have ascended the river to **Hendijan** (30°15'N., 49°43'E.).

Khowr-e Musa (30°05'N., 49°14'E.) is entered between Ras-e Tanub and Bu Seyf (Bu Sif). Navigation is restricted by tidal flats, which dry in places, to a constricted channel near the W shore of the estuary.

Khowr-e Musa is about 22 miles long and leads to a channel about 14 miles long with an average width of 305m, ending at Bandar-e Mahshahr. Khowr-e Musa is approached via a deep channel, marked by lighted buoys and beacons, about 25 miles long and 0.5 mile wide, which is entered at **Khowr-e Musa Lighted Float** (29°37'N., 49°34'E.).

At the inner end of the channel, in the vicinity of Lighted Buoy No. 5, depths decrease and the fairway becomes more constricted in the vicinity of The Bar. There was a dredged depth of 12.2m over a width 244m.

After clearing the bar, depths increase in the channel allowing commercial ships to transit as far as Bandar Khomeyni and tankers to the oil port of Bandar-e Mah Shahr, a total distance of 37 miles from the end of Bar Channel.

Fasht ol Mova (30°04'N., 49°10'E.) is a large area of flats, which dry in patches, between Ras-e Tanub, The Bar, and Khowr-e Musa Channel. There are numerous detached shoals, with depths of less than 9.1m, lying as far as 30 miles S, SE, and SSE of Ras-e Tanub.

Fasht ol Mova is traversed by several inlets, the principal one being **Khowr-e Qazlan** (30°08'N., 49°07'E.), which joins Khowr-e Musa about 21 miles N of Bu Seyf. The entire area is unsurveyed. It is reported that an unlighted metal platform with a disused tide gauge, standing on a shoal about 27 miles SSE of Ras-e Tanub, is a good radar target.

The shore bank, adjacent to the W side of the Khowr-e Musa approach channel, extends as far as 13 miles SE of Bu Seyf,

and depths of less than 11.4m exist up to 27 miles SE. An oil platform, from which a light is shown, stands 11.5 miles SW of Khowr-e Musa Lighted Float.

Flares burn close N of the platform. There are lighted and unlighted oil rigs within 5 miles of the oil platform. A submarine oil pipeline is laid from the platform to the oil terminal at Barkan.

Ardehsir Oil Field (29°15'N., 49°35'E.) is connected by pipeline E to Kharg Island. Oil rigs, moved at intervals, constitute a possible hazard in the approaches to Khowr-e Musa.

17.10 The Bar (30°00'N., 49°03'E.), lying about 6 miles E of Bu Seyf at the entrance of Khowr-e Musa, is a very constricted channel with a dredged depth of about 12.2m (1992). It is the principal ship channel; within the bar the channel is 1.5 miles wide.

The banks in the entrance of Khowr-e Musa are liable to change. A conspicuous disused tide gauge, about 21m high, makes an excellent daymark. The sides of The Bar channel are marked by lighted beacons. The least width of the channel, between Buoy 15 and Beacon 22, is 302m.

Tides—Currents.—About 5 miles SE of The Bar, the tidal current attains maximum spring velocities of 0.5 and 1.5 knots on the flood and ebb, respectively.

The most difficult part of Khowr-e Musa, especially when the tidal currents are strong, is reported to be in the vicinity of its junction with **Khowr-e Vosta** (30°23'N., 48°55'E.).

Tidal currents of 3.5 knots on the flood and 4.5 knots on the ebb have been experienced in the vicinity of the bend 1.5 miles N of the junction.

Caution should be exercised when passing Qassar Bin Siswan, where the ongoing current attains a velocity of about 3 knots and raises eddies and tide rips over the shoal.

Depths—Limitations.—Qassar Bin Siswan (30°12'N., 48°58'E.), a shoal with a least depth of 1.2m and marked by a lighted buoy, lies in the middle of Khowr-e Musa. The main ship channel lies W of the shoal. An extensive drying reef lies on the E edge of the channel about 2 miles SSE of the shoal. Jazireh-ye Qabr-e Nakhoda lies on flats about 7 miles NNW of Qassar Bin Siswan.

The Khowr-e Musa turns ENE in the vicinity of Khowr-e Vosta and continues navigable for 5 miles or more when it then becomes the **Khowr-e Mah Shahr** (30°27'N., 49°10'E.).

Pilotage.—Pilotage is compulsory. The pilot vessel, painted white and with the name “Khor Musa” in black letters on each side of the hull, maintains station near the entrance to the dredged channel through the bar. When not on station, the pilot vessel is replaced by a tug. Pilots board near Lighted Buoy No. 12 (29°53.4'N., 49°12.6'E.). Pilots will board ships at night. During adverse weather conditions, the pilot vessel may proceed above The Bar for shelter.

On request via radio, the pilot vessel will function as a radio beacon. Vessels requiring this service should make direct radio contact and obtain the precise position of the pilot vessel.

During periods of low visibility due to fog, dust, or sand storms, the pilot vessel will, in addition to the usual signals under such conditions, sound the letters PV in Morse Code on the siren every 15 minutes beginning on each hour; the signal is sounded more frequently on the approach of a vessel.

Regulations.—Vessels should contact Bandar Khomeyni Coast Radio Station (EQN) on VHF channel 16 upon arrival at the pilot boarding position advise ETA at the port.

Anchorage.—In the event of fog or a thick dust storm, anchorage can be taken in the W part of the channel W of Jazireh-ye Qabr-e Nakhoda.

17.11 Bandar Khomeyni (30°26'N., 49°05'E.) (World Port Index No. 48460), a river port, is about 34 miles from the bar at the entrance to Khowr-e Musa. The port itself is built on reclaimed land enclosed by a coral wall; the adjacent area in all directions consists of barren marshes and mud flats. The port area is subject to flooding during heavy rains.

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Winds—Weather.—The prevailing wind is the NW shamal, which blows throughout the summer months, starting about 0900 daily and dying out about sunset.

The N winds of winter are often interrupted by a strong SE *kaus*. With a combination of high wind and choppy sea, berthing and cargo lightering are not permitted. Rainfall is experienced during November through March and is usually associated with S gales. Between April and November shade temperatures range between 32° and 52°C. Sun temperatures often reach 74°C. Fog may occur during October and November.

Tides—Currents.—Tides are considerably affected by strong winds. Variations up to 3 hours in time and 0.9m in height are recorded. Northwest winds tend to lower the level and retard the predicted times of high and LW. Winds from the SE have the opposite effect.

The mean tidal rise at HWS is 4m; the mean tidal rises at HWN is 3m. At The Bar, the MHHW has a rise of 3.4m and MLHW has a rise of 2.7m above chart datum. The rise of tide at The Bar is shown by an automatic tide indicator near Inner Khowr Musa Lighted Buoy No. 28.

At Bandar Khomeyni, the average time of HW is 1.5 hours later than on The Bar. The MHHW has a rise of 5.2m; the MLHW has a rise of 4.3m.

Depths—Limitations.—Bandar Khomeyni is an important commercial port, with the river providing a natural harbor.

Depths in the river off the berths range from about 16.5 to 36.6m. Dangers include a wreck, with a depth of 11.6m, and a 3.6m shoal marked by a lighted buoy. Both dangers are shown on the chart.

Eastern Jetty, consisting of Berth No. 1 through Berth No. 3, is 530m long and has depths of 8.5 to 10m alongside. Western Jetty, consisting of Berth No. 4 through Berth No. 6, is 550m long and has a depth of 11.5m alongside.

The Ore Terminal, located between Eastern Jetty and Western Jetty, can accommodate vessels up to 35,000 dwt, with a maximum draft of 15m and a maximum length of 183m. The ore-loading berth is also used to load livestock.

Many other berths, with depths of 9 to 13m alongside and which may best be seen on the chart, extend W from the head of Western Jetty and then NW along the E bank of Khowr-ye Dowraq. The ro-ro terminal is located close E of Berth No. 7.

The container terminal, with charted depths of 10 to 13m, consists of Berth No. 11 through Berth No. 15.

There are numerous lighters in port. A barge basin exists on the E side of town and is dredged to 3.6m. A slip and jetties, lie close S of the barge basin. The basin and approaches are dredged to 7m.

The grain terminal, which is dredged to 10m on its W side and 13m on its E side, extends about 0.1 mile SE from the area E of the barge basin. About 0.5 mile E of the grain terminal, a fertilizer plant exists, with six berths having depths alongside of 13.4 to 14.0m, although silting may reduce the available depths.

A petrochemical terminal exists at Bandar Khomeyni E of the grain terminal. Tankers up to 25,000 dwt can discharge at the jetty via pipelines to the storage tanks.

The Gulf Agency Company (GAC) operates a self-contained terminal situated N of the port of Bandar Khomeyni. The terminal is comprised of 17 jetties, with depths of 7m alongside.

Ships with a draft of 9.8m can enter port at any time of the day or night. Vessels with a draft of up to 13m can use the port, depending on the state of the tide.

The maximum vessel length that can be accommodated is 260m.

Pilotage.—Pilotage is compulsory. Pilots board ships SE of the entrance to the dredged channel through the bar. See paragraph 17.10 for further information.

Pilots will conduct ships during the day and at night, weather permitting, as far as Bandar Khomeyni anchorage, where a Berthing Master will board and bring the ship alongside a berth, if available. Pilots are ordered 1 hour before sailing on VHF channel 12.

Regulations.—The Quarantine Medical Officer boards ships on arrival off Bandar Khomeyni.

Vessels send their ETA at Khowr-e Musa pilot station at least 48 hours in advance, 72 hours in advance if proceeding to the fertilizer complex wharf. The position of vessels 24 hours prior to arrival at the entrance to the Khowr-e Musa Channel must be forwarded to the Harbormaster.

Anchorage.—Anchorage can be taken immediately S and SW of the port, in 18 to 36m, in a mud holding ground. A minimum of protection is afforded; the anchorage is completely exposed to the prevailing winds and strong currents. Cargo can be discharged into lighters at the anchorage, weather permitting. A Quarantine Anchorage Area is situated off the jetties.

Directions.—Approaching Khowr-e Musa, steer a course for the **Lighted Float** (29°37'N., 49°35'E.) and then set a course through the buoyed channel for Lighted Buoy No. 5.

Then steer courses through The Bar and river channel to the anchorage SW of Bandar Khomeyni.

17.12 Bandar-e Mahshahr (30°28'N., 49°11'E.) (World Port Index No. 48450) is situated on Khowr Mahshahr, a branch of Khowr-e Musa. The port lies about 6 miles ENE of Bandar Khomeyni. Refined oil products are shipped via pipeline from the refinery at Abadan to the loading terminal at Bandar-e Mahshahr. Facilities also exist for the export of crude oil and oil products in drums.

Tides—Currents.—The mean tidal range at HWS is 4.9m; at HWN the mean tidal range is 4m.

Tidal currents in the vicinity of the port attain a velocity of 3 to 4 knots.

Ships arriving on the flood tide are berthed starboard side-to; ships arriving on the ebb tide are berthed port side-to.

Depths—Limitations.—The channel from Bandar Khomeyni to Bandar-e Mahshahr is deep and clear of dangers.

The SE shore of the river is foul but the outer extent of the foul area is marked by several beacons. The channel fairway off the piers is indicated by lighted beacons, aligned 056.5°, and is best seen on the chart.

There is a least depth of 12.2m just off the berths. The harbor berths consist of six T-head piers; berth information is given in the accompanying table.

Regulations.—The oil company will furnish a Port Information Booklet on arrival. All tankers should arrive with clean ballast. The national flag of Iran should be displayed within territorial waters.

Tugs are usually employed for docking and undocking vessels. A Notice of Readiness will be accepted on arrival at Bandar Khomeyni.

Pilotage.—Pilotage is compulsory. Tankers are berthed day and night. Pilots board ships near the entrance to the dredged channel through The Bar. See paragraph 17.10 for further information.

A Berthing Master will board tankers at the Bandar Khomeyni anchorage and bring them to Bandar-e Mahshahr.

Regulations.—Vessels send their ETA 24 hours before arrival at Khowr-e Musa pilot station and when pilot is embarked. There is a port radio station, with VHF radiotelephone, using VHF channels 12, 16, 20, and 26.

Anchorage.—Ships in transit for Bandar-e Mahshahr will anchor in the Bandar Khomeyni anchorage to disembark the bar pilot, await pratique, and board the Berthing Master.

Directions.—See paragraph 17.11.

17.13 From **Bu Seyf** (30°01'N., 48°55'E.), the W entrance point of Khowr-e Musa, the coast trends W about 13 miles to Khowr-e Bahmanshir.

Khowr-e Bahmanshir (30°08'N., 48°34'E.), lying E of and flowing parallel to the Shatt al Arab, is connected to that river by **Haffar Channel** (30°25'N., 48°10'E.), an artificial cutting; the island thus formed is known as **Jazireh ye Abadan** (Jazirat al Khidr) (30°02'N., 48°34'E.).

The unmarked channel of the inlet leads between mud flats and banks, in depths of 1.8 to 5.8m, and can be ascended for about 23 miles by vessels of shallow draft. The N part of the inlet has irregular depths and may be partially blocked by drying mud banks. Local knowledge is necessary.

The Shatt al Arab and its Tributaries

17.14 The **Shatt al Arab** (29°57'N., 48°35'E.) is formed by the confluence of the Tigris River and the Euphrates River, which occurs about 110 miles above the waters of the Persian Gulf.

The E and W banks of the Shatt al Arab, as far as **Khayyen Canal** (30°27'N., 48°07'E.), are in Iranian and Iraqi territory, respectively. The river entrance is a good radar target at a distance of 15 miles under normal conditions. The Shatt al Arab is navigable as far as Al Basrah by any ship able to cross the entrance bar. At the entrance of the Shatt al Arab, the river banks are very low and bordered by date palms.

Above the entrance, the soft mud banks are overgrown with weeds and coarse grass, with the adjacent land often inundated as far inland as Al Basrah. There are date groves and fertile farm lands in some places, especially above Al Faw.

Tides—Currents.—On a falling tide, the water in the river is fresh as far as **Al Faw** (29°58'N., 48°29'E.), except when the river is low in autumn, when it is slightly brackish. About 10 miles above Al Faw, the water is fresh at all times. The turn of the tide does not occur at LW, as the flood current must attain sufficient strength to overcome the outflow of the river, which varies with seasonal changes; consequently, the time of change of the tidal current varies with the season.

During the dry season, when a large tide follows a small tide, the intervening ebb current is not sufficiently strong to be perceptible.

Bandar-e Mahshahr—Berth Information			
Berth	Depth alongside	Maximum draft	Remarks
Jetty No. 1	13.41m	12.20m	Maximum vessel size of 35,000 dwt, subject to the overall vessel length not exceeding 237.7m and the rise of the tide on the bar.
Jetty No. 2	11.73m	12.20m	Maximum vessel size of 45,000 dwt.
Jetty No. 3	11.89m	12.30m	Maximum vessel size of 50,000 dwt.
Jetty No. 4	11.29m	11.20m	Maximum vessel size of 40,000 dwt.
Jetty No. 5	11.89m	12.20m	Maximum vessel size of 55,000 dwt, subject to the overall vessel length not exceeding 237.7m and the rise of the tide on the bar.
Jetty No. 6	13.25m	12.20m	Maximum vessel size of 60,000 dwt, subject to the overall vessel length not exceeding 237.7m and the rise of the tide on the bar. Berth is equipped for loading LNG.

In the Shatt al Arab, both the time and height of the tide are much affected by the prevailing wind. A strong kaus (a SE wind) will raise the level of the river by 0.6 to 0.9m and accelerate the time of HW; a strong shamal (a NW wind) will lower the level of the river and retard the time of HW.

The change in the tidal current in the Shatt al Arab does not occur at LW because the incoming current must attain sufficient strength to overcome the river outflow, which varies seasonally, being greatest in May, June, and July and least in October and November.

The strength of the current in the outer part of the Shatt al Arab varies considerably, depending upon the height of the tide and the stage of the river. The incoming current may not exist or it may attain a rate as great as 2 knots.

The maximum rate of the outgoing current is 3 to 3.5 knots at springs and 2 to 2.5 knots at neaps. Mixed currents are common, with the surface current running in one direction and the subsurface current running in another, or even the opposite, direction.

Seasonal variations in the level of the river are small at the Outer Bar, as follows:

1. July to September—0.1m above normal.
2. January to April—0.1m below normal.

Seasonal variations at Al Basrah are considerable, as follows:

1. May to July—0.7m above normal. The river is discharging the combined flood waters of the Euphrates River and the Tigris River.
2. October and November—0.4m below normal.

The dry season commences in autumn and continues until spring, when the inland snows begin to melt; during winter, however, frequent freshets are caused by local rains.

In Outer Bar Reach, described in paragraph 17.18, the currents set fairly through the channel, except at spring tides, when at either end there is a strong N set on the flood current and a strong S set on the ebb current; at neap tides, these cross-currents are inappreciable.

The maximum rate of the flood current, which at springs is from 1.5 to 2 knots and at neaps from 1 knot to 1.5 knots, occurs at about half tide.

The maximum rate of the ebb current is from 3 to 3.5 knots at springs and from 2 to 2.5 knots at neaps.

At spring tides, the flood current continues to flow for about 40 minutes after the time of HW; at neaps, it is irregular, but usually continues for about 1 hour after HW. The ebb current continues for about 30 minutes after LW at springs and for about 1 hour after LW at neaps.

During the river flood season, when there are small tides, the flood tidal current is not felt at all, especially upriver; even at a position about 1 mile above Outer Bar Reach Lighted Beacon D, little or no flood current is felt.

Depths—Limitations.—Depths in the approach to the Shatt al Arab are very irregular, with many long narrow shoals having depths from about 5.5 to 16.5m. Deeply-scoured channels lead between the shoals.

There are shoals, with depths of 8.5 to 10.4m, lying as far as 30 to 41 miles SE of **Ras al Bishah** (29°55'N., 48°34'E.), the W entrance point of the Shatt al Arab; South Mast Beacon stands about 2 miles WNW of the extremity of the point. Maraqat Abu Allah, which dries in patches, extends ESE of Ras al Bishah.

Palinurus Shoal (29°37'N., 48°48'E.), with a least depth of 5.5m, lies about 22 miles SE of Ras al Bishah. Shoal patches, too numerous to identify and best seen on the chart, lie in the approaches to the Shatt al Arab. In the vicinity of Palinurus Shoal, the tidal current on the flood tide attains a velocity of 0.5 to 1.5 knots; on the ebb tide it attains a velocity 1.5 to 2.5 knots.

Caution.—The many obstructions, wrecks, and foul areas, most of them marked by lighted buoys, lying in the vicinity of the approach channels, are best seen on the charts, as are the oil rigs in the approach.

Major hydrographic changes have occurred in the Shatt al Arab and its approaches, especially in Outer Bar Reach. Recent satellite imagery (2002) shows a major shift in the location of the channel; depths in the area may have changed considerably or are unknown. There are many charted and uncharted obstructions and the aids to navigation are unreliable. The exact location of the international boundary between Iran and Iraq, which was based on a 1978 agreement declaring the thalweg (the deepest part of the channel) to be the boundary, is not precisely known. Mariners are advised to use extreme caution when navigating in this area.

17.15 Khawr al Amaya (29°35'N., 48°55'E.), a channel used mainly by deep-draft tankers, leads about 29 miles NW from position 29°25'N, 49°09'E to Khawr al Amaya Oil Terminal. The channel can be used by tankers with a draft up to 21m. There is a least depth of 15.5m in the channel as far as the oil terminal.

In the entrance to Outer Bar Reach, an obstruction, with a swept depth of 9.1m, lies about 1 mile NNW of the oil terminal; a dangerous wreck lies in an approximate position about 1 mile further NNW.

Khawr al Kafka (29°35'N., 48°53'E.), a deep-water channel marked by lighted buoys, parallels Khawr al Amaya and leads to Al Basra Oil Terminal (Mina al Bakr Oil Terminal).

Loaded tankers have priority when underway in both channels. The banks off the channels are subject to change and channel buoys are moved to reflect changes.

Caution.—It has been reported (1994) that the buoyage may be unlit, out of position, or not as charted.

17.16 Khawr al Amaya Oil Terminal (29°47'N., 48°48'E.) (World Port Index No. 48390) is the principal crude oil-loading port for S Iraq. The terminal consists of three parts or islands connected by catwalks. The NW part is a helicopter landing area. The central part has the loading berths and radio tower; the SE part consists of personnel living quarters.

Tides—Currents.—High water at the terminal occurs about 30 minutes before HW at Shatt al Arab Outer Bar. The mean spring rise is about 3m, while the mean neap rise is about 2.4m.

Tidal currents in Khawr al Amaya attain a rate of from 1 to 2 knots, setting NW on the flood and SE on the ebb. Cross-currents rarely exceeds 0.7 knot.

Currents in the vicinity of the terminal are rotary and rarely exceed 2 knots. Maximum currents generally parallel the berthing faces, but at certain stages of the tide, cross sets of 0.7 knot velocity are experienced.

Depths—Limitations.—The depth of water at the terminal is 17 to 22.3m. The terminal consists of 12 connected platforms,

with a total length of 952m. The central platform has a berth on either side, which can accommodate vessels up to 120,000 dwt. A third berth on the W side of a N extension can accommodate a partially-loaded 330,000 dwt tanker, with a maximum draft of 21m. It has been reported (2004) that two of the berths are operational and that vessels are limited to a sailing draft of 17m.

There are mooring dolphins and platforms ahead and astern of the loading terminal, which is connected by submarine pipelines to the oil tanks at Al Faw.

Pilotage.—Pilotage is compulsory in Khawr al Amaya buoyed channel for tankers with a draft of 15.85m or over, whether inbound or outbound.

Tankers are berthed both day and night. Masters of ships inbound for the terminal should contact the pilot vessel and get instructions via radiotelephone as to whether to lie off, anchor, or proceed towards the pilot boat.

Vessels send their ETA to Basrah (YIR) 72 hours, 48 hours, and 24 hours in advance. Before entering Khawr Al Amaya, all inbound vessels are to contact Khawr al Amaya Harbormaster on VHF channel 14 or 16 for information regarding deeply-laden tankers using the restricted channel and for berthing and anchoring instructions.

Tankers arriving to load at Khawr al Amaya with a draft in excess of 15.85m must give their ETA at the pilot boarding position at least 12 hours in advance by contacting the pilot station on VHF channel 16.

Regulations.—Outbound tankers have the right of way over inbound vessels.

A Warning Zone has been established around the terminal. The zone extends 3,000m from the outer edge of the terminal structure, creating an oval-shaped area 6,990m long and 6,107m wide, centered on the terminal and oriented in a NW/SE direction. Vessels are advised to remain clear of the Warning Zone for all but essential transits. If the vessel's transit requires entry into the Warning Zone, vessels are advised to contact Coalition maritime security forces on VHF channel 16 to identify themselves and make their transit intentions known.

An Exclusion Zone has been established around the terminal; the right of innocent passage around the terminal within Iraqi territorial waters is temporarily suspended, in accordance with international law. The Exclusion Zone extends 2,000m from the outer edges of the terminal structure in all directions. Only tankers and support vessels authorized by the terminal operators or Coalition maritime security forces are allowed to enter the Exclusion Zone.

Anchorage.—A temporary anchorage area lies on the NE side of Khawr al Amaya. It lies between about 9 and 11 miles SE of Khawr al Amaya Oil Terminal and may best be seen on the chart. Ships are not to anchor within the Prohibited Areas best seen on the chart.

17.17 Al Basra Oil Terminal (Mina al Bakr Terminal) (29°41'N., 48°49'E.) (World Port Index No. 48392) is a steel island structure built in Iraqi territorial waters in a depth of about 30m at MLWS. This crude oil-loading terminal is approached via Khawr al Kafka.

Depths—Limitations.—The loading structure has two platforms; each platform has two loading berths. The structure, which is 975m long and 107m wide, is capable of accommodating tankers of 35,000 to 350,000 dwt. Vessels up to 366m

long, with a draft of 21m, can depart the terminal by day or at night.

Loaded tankers have priority in the channel and all other ships must keep clear.

Pilotage.—Pilotage is compulsory for all inbound and outbound tankers using the Khawr al Kafka buoyed channel and having a draft of 15.85m or over. There is a port radio station at the terminal.

For berthing, pilotage is compulsory for all ships; the berthing pilot boards 0.5 mile from the oil terminal. Tugs are normally used for berthing and unberthing. Vessels send their ETA 72 hours, 48 hours, 24 hours, and 12 hours in advance to Basrah (YIR). Vessels contact the terminal for instructions before entering the buoyed channel.

Regulations.—Ships bound for Iraqi territorial waters should contact Al Faw Control (YIS) at least 24 hours before arrival, requesting free pratique from the Medical Officer at Al Faw. The message should indicate the state of health of the crew.

A Warning Zone has been established around the terminal. The zone extends 3,000m from the outer edge of the terminal structure, creating an oval-shaped area 7,030m long and 6,107m wide, centered on the terminal and oriented in a NW/SE direction. Vessels are advised to remain clear of the Warning Zone for all but essential transits. If the vessel's transit requires entry into the Warning Zone, vessels are advised to contact Coalition maritime security forces on VHF channel 16 to identify themselves and make their transit intentions known.

An Exclusion Zone has been established around the terminal; the right of innocent passage around the terminal within Iraqi territorial waters is temporarily suspended, in accordance with international law. The Exclusion Zone extends 2,000m from the outer edges of the terminal structure in all directions. Only tankers and support vessels authorized by the terminal operators or Coalition maritime security forces are allowed to enter the Exclusion Zone.

Anchorage.—Two anchorage areas are situated close E of the Khawr al Kafka buoyed channel. Anchorage Area A lies between 15.5 and 19.5 miles SSE of the oil terminal. Anchorage Area B lies between 3.5 and 8.5 miles SE of the terminal.

Anchorage is prohibited within 1.5 miles of Al Basra Oil Terminal, in an area best seen on the chart.

Caution.—Acts of piracy have been reported (2005) in Anchorage Area B.

17.18 Outer Bar Reach (29°51'N., 48°45'E.) is the outer dredged channel used by deep-draft ships in their approach from Khawr al Amaya to the Shatt al Arab. The charted depths in the channel range from 2.4m to 4.1m. The lighted range beacons marking the channel are either reported destroyed or are no longer charted. The channel is reported to be marked by buoys.

Pile Beacon (29°50'N., 48°43'E.), an old disused semaphore station, stands on the coastal bank. Several wrecks and obstructions, some marked by buoys and beacons, are charted on the shoals N and S of the Outer Bar Reach. Rooka Lighted Buoy (29°48'N., 48°48'E.), when aligned with Pile Beacon, marks the S limit of an area in which ships are warned not to anchor; it also marks the limit of inward navigation for ships awaiting channel clearance.

17.19 Inner Bar Reach (29°55'N., 48°38'E.) extends from the inner end of Outer Bar Reach to a position about 2 miles ENE of **South Mast Beacon** (29°56'N., 48°34'E.). The axis of the dredged channel was marked by sets of range beacons, but these are no longer charted.

Ranges, buoys, and beacons are always difficult to see during the summer, due to the prevailing dusty haze.

Regulations.—The following regulations are mostly for ships approaching Outer Bar Reach:

1. Outbound ships have priority and inbound ships shall wait until the former clear the dredged channel.

2. Permission to enter Outer Bar Reach must be obtained through the pilot vessel from the Channel Control Station (Al Faw).

3. An inbound vessel must not enter Outer Bar Reach later than 4 hours before HW; when so excluded, the vessel must wait until outbound vessels are clear. A vessel having received permission to enter and being unable to do so at the specified time shall inform the pilot vessel, and apply again for permission to enter when ready, in order that outbound traffic and dredging will not be delayed.

4. Vessels are not allowed to enter the dredged channel on a falling tide unless specific permission to do so has been obtained from the Channel Control Station.

5. A vessel entering from seaward must make the signal prescribed in "Signals" and be guided by the reply.

6. Vessels engaged in surveying display a red cone; vessels underway should make an effort to keep clear of them.

7. Vessels employed in lifting weights or moorings, or from which a diver is working, display a blue square flag; passing vessels should slow to the lowest safe speed and give such a vessel as wide a berth as possible. This rule also applies to small craft engaged in dredging, grabbing, or pile driving. Vessels should regulate their speed so as not to approach a vessel ahead closer than 1 mile. This applies to both inbound and outbound vessels.

The Health Declaration should be completed as usual and surrendered to the quarantine official at the ships destination. This pratique does not clear ships for Iranian ports, which can be obtained on arrival at the port.

Signals.—The Channel Control Station at **Al Faw** (29°58'N., 48°29'E.), from which traffic signals are displayed, is equipped with radio. The traffic signals, and also tidal signals, are shown from masts on a large square building, as follows:

Al Faw Channel Control Station Signals		
Day	Night	Meaning
Two black balls, vertically disposed	One green light over one white light	The channel is closed to all outbound vessels
Three black balls, vertically disposed	Two green lights, one at each yardarm of the mast	The channel is closed to outbound vessels of 8.5m draft and over

Al Faw Channel Control Station Signals		
Day	Night	Meaning
A black cone, point up, or the International Code of Signals Flag N	See note below	No vessel is to pass the Channel Control Station
Note. —At night, the station communicates by flashing light; the leading vessel is to acknowledge the signal and repeat it to the next vessel astern until answered.		

Signals indicating the rise of the tide on the bar above chart datum are shown by day and at night at Al Faw, as follows:

Al Faw Tidal Rise Signals		
Day	Night	Meaning
A cone, point up	One white light	A rise of 0.3 or 2.1m
A cone, point down	One red light	A rise of 0.6 or 2.4m
Two cones, points up	Two red lights, vertically disposed	A rise of 0.9 or 2.7m
Two cones, points down	One red light over one white light	A rise of 1.2 or 3.0m
Two cones, point to point	One white light over one red light	A rise of 1.5 or 3.4m
Two cones, base to base	—	A rise of 1.8 or 3.7m
—	Two white lights, vertically disposed	A rise of 1.8
—	One green light	A rise of 3.7m
Additional signals:		
1. By day—A square shape displayed from the opposite yardarm indicates an additional rise of 0.15m.		
2. By night—One green light shown under any of the above signals, with the exception of the one indicating 3.7m, indicates an additional 0.15m.		

When the channel is closed to all outbound vessels, no tidal signals will be shown at Al Faw, but when the channel is closed only to vessels of 8.5m draft and over, they will be shown.

A dredge engaged in dredging operations will show the following signals:

1. By day, a dredge displays three black balls in the form of a triangle, one at the masthead and one at each yardarm.

2. When necessary, a red flag will be displayed at the yardarm, instead of the black ball, on that side on which the channel is not available for navigation.

3. At night, a dredge exhibits three white lights in the form of a triangle, one at the masthead and one at each yardarm. When necessary, a red light at the yardarm, instead of the white light, on that side on which the channel is not available for navigation.

4. When a dredge is working in Outer Bar Reach, inbound vessels arriving at Rooka Lighted Buoy must sound a prolonged blast on the whistle or siren and must not enter the channel until the dredge replies with four prolonged blasts or four long flashes with the blinker light; these signals indicate the dredge is keeping clear of the channel, or that while the dredge remains in the channel, vessels may pass it, in which case the above-mentioned dredging signals will be shown.

5. These signals are also to be used in all dredged channels, whenever a vessel wishes the dredge to leave the channel clear.

A vessel grounding between the outer lighted buoys and the inner bar should immediately display the following signals:

1. The International Code signal AT by day, or at night two red lights displayed vertically; in addition, if blocking the channel, the letter U should be sounded in Morse Code on the whistle or siren until answered by a tug or any following vessel repeating the signal.

2. Passing signals can be given by the grounded vessel, as follows:

a. The signal U shall be followed by one short blast to indicate that the vessel is aground on the starboard side of the channel and that following vessels may pass on the port side.

b. The signal U followed by two short blasts is to indicate that the vessel is aground on the port side of the channel and that following vessels may pass on the starboard side.

c. **Note.**—These signals shall be repeated by the following vessel to indicate that the intention is to attempt to pass.

A vessel requiring the assistance of the Channel Control Station should display flag T of the International Code of Signals where it can best be seen.

Caution.—When a strong shamal is blowing, a considerable amount of sand in the air sometimes makes it difficult to distinguish whether a red light is above or below a white light.

Great care should be taken, therefore, when any signal is shown which consists of both red and white lights.

17.20 Al Faw Reach extends from Inner Bar Reach to Al Faw, a distance of about 6 miles. The axis of the dredged channel is marked by lighted ranges, best seen on the appropriate chart.

Pilotage.—Pilotage is compulsory for commercial ships in the Shatt al Arab, the approach channels thereto, and to the harbors within its entrance.

The Iranian pilot vessel cruises on station in the vicinity of the **Rooka Lighted Buoy** (29°48'N., 48°48'E.).

If the pilot vessel is off station temporarily, the ship requiring a pilot should anchor and communicate with the Channel Control Station (YIS) at Al Faw. Pilotage of ships bound for Iranian ports will be carried out by Iranian pilots.

The Iraqi pilot vessel is stationed 3.5 miles WSW of Mina al Bakr Terminal. Vessels bound for Iraqi ports should signal their ETA at the Outer Bar 24 hours in advance via Bashar radio station.

If bound for Abadan and other Iranian ports, the vessel's ETA should be sent 48 hours in advance to Abadan and Al Faw Control via Abadan Coast Radio Station.

17.21 Al Faw (Fao) (29°58'N., 48°29'E.) (World Port Index No. 48385) is mainly important in its proximity to the Iraqi Ports Administration Control Center and to its radio station. There are four T-headed oil-loading piers at the oil terminal. Tankers up to 206m long can load at the piers to a maximum draft of 10.6m, depending on tide and wind conditions and the depth over the bar.

Al Faw is a repair and stores depot for the dredges working in the Shatt al Arab. It also is the buoy depot for the port of Al Basrah and adjacent Persian Gulf waters.

Tide and traffic signals, described in paragraph 17.19, are shown from conspicuous masts atop a building at the head of Al Faw Harbor.

The mean tidal rise is about 2.7m; the maximum current velocity is 2.5 knots. Southeast and NW winds raise and lower the water level, respectively. Notice boards, painted black, with the word "slow" in white letters, are situated on the SW bank of the river above and below Al Faw. Mooring buoys, painted white, are laid near the sides of the channel in the vicinity of the harbor.

There is a coast radio station and a port radio station at Al Faw. The latter is utilized for traffic control in the Shatt al Arab and as a reporting station for ETA at the pilot station. Radio masts and towers in town are conspicuous.

Pilots, on being given 24-hour advance notice of arrival, will board ships in the vicinity of Rooka Lighted Buoy. Pratique can be requested from the Control Center 12 hours before arrival. A Berthing Master relieves the pilot off Al Faw harbor and berths and unberths the ship, while the river pilot remains aboard.

Anchorage is prohibited in an area charted between both banks of the river from the front light of the inner range of Al Faw Reach to a position off the piers 1.5 miles SE.

It has been reported (1993) that vessels with a maximum draft of 5m can transit the Shatt al Arab above Al Faw.

Qosbeh Reach extends from a bend in the river at **Ras Qosbeh** (30°00'N., 48°28'E.) to North House, a mud structure 3.5 miles N of the point. A conspicuous, square fort stands 1.5 miles S of North House.

The channel skirts the E bank of the river. The axis of the channel is indicated by two lights, in range 178°. The front light is situated on the SW side of the river about 0.5 mile SW of Ras Qosbeh; the rear light is situated about 0.2 mile S of the front light.

On the W side of the river, about 1 mile above the front range light for Qosbeh Reach, is the first pair of four sets of anchoring beacons for deep-draft vessels waiting to cross the bar. The front beacon on each set is lighted and has a triangular daymark; the unlighted rear beacons each carry a daymark consisting of a St. Georges Cross.

These pairs of beacons are lettered A, B, C, and D, in white on a black background, consecutively from seaward. The berths indicated by the beacons are about 410m apart. A small

vessel dolphin berth with two lighted mooring buoys is situated on the W side of the river near Beacon B. A floating pipeline extends between the W shore and this berth and therefore no vessel should attempt to pass W of the dolphins. North House Beacon, 14m high, stands close W of North House.

A lighted buoy is moored about 0.2 mile W of North House Beacon. Vessels proceeding upriver, after passing the masonry pillar in Qosbeh Reach, should steer to pass between North House Beacon and the lighted buoy. Deep-draft vessels should avoid arriving off North House at LW, as the depth in the channel there is not more than 7.8m. A sunken wreck on the W side of the channel abreast North House is marked by a lighted buoy, which may be missing, close off its N side.

About 1.5 miles above **North House** (30°04'N., 48°27'E.), the channel closes the W bank. Two lighted buoys and a can buoy are charted up to 2 miles NW of North House Beacon.

Deep-draft ships should pass NE of these three buoys and avoid the charted sunken wrecks between North House, **Chellabi Point** (30°08'N., 48°24'E.), and **Brick Kiln** (30°08'N., 48°23'E.). The channel, marked by buoys, closes the E bank above Chellabi Point.

The village of **Khusrowabad** (World Port Index No. 48155) (30°10'N., 48°25'E.) is situated near an oil terminal, which is connected to Abadan by a pipeline used to avoid congestion at that harbor. At least three T-headed oil piers, each about 46m long, can accommodate vessels 152m long at the oil terminal.

Kabda Reach (30°12'N., 48°24'E.) lies between **Kabda Point** (30°11'N., 48°25'E.) and Al Khast, a point about 12 miles NW. For the first 9 miles, the channel follows the SW bank of the river, the opposite bank being bordered by a chain of islands and flats, of which **Jazireh-ye Moaviyeh** (30°13'N., 48°24'E.) and Jazireh-ye Dawasir are the largest islands.

This stretch of the channel is marked by ranges best seen on the chart. Lighted buoys and wrecks in the channel may also best be seen on the chart.

17.22 Abadan (30°20'N., 48°17'E.) (World Port Index No. 48430) is situated on the E bank of the Shatt al Arab, about 42 miles from Outer Bar Reach. Dry cargo ships call for bunkers, load bitumen, or discharge cargo consigned to the oil company. Refined oil products are now loaded at the Bandar-e Mahshahr Terminal, described in paragraph 17.12..

Winds—Weather.—The NW shamal and the SE kaus are the principal winds affecting this area. From June through mid-August, a maximum shade temperature of 52°C and a maximum sun temperature of 74°C can be expected.

Because of the extreme heat, general cargo operations are usually suspended in the afternoon during this period.

Otherwise, weather conditions in general do not adversely affect port operations, although high winds may require special precautions during loading and discharging. The winters are damp and raw, and temperatures as low as 4°C. have been recorded. Thunderstorms are quite common from February through April.

Tides—Currents.—At Abadan during the river flood season, the flood tidal current will not have any appreciable effect when the tide is less than 2.4 or 2.7m on the outer bar.

At the height of the flood season, the flood tidal current may be entirely overcome; at this time the ebb current may attain a velocity of 5 knots.

Under ordinary conditions, the flood tidal current commences at Abadan about the time of HW on the outer bar, but the time of the commencement of the ebb current varies greatly. The average velocity of the flood current is 1.5 knots while the ebb can attain a rate of 3 knots.

A strong kaus will accelerate the time of HW and raise the water level 0.6 or 0.9m. A strong shamal will retard the time of HW and lower the water level so much that the tide may fall below the zero of the tide gauge.

In the river, the highest water level occurs between May and July; the lowest levels occur in October and November.

Depths—Limitations.—Central depths in the river harbor fronting the area are 9.1 to 15.2m; depths alongside the principal berths range from 2.1 to 9.8m, mean low fresh water. In the three tidal basins in the vicinity, the depths are about 2.1m.

The main channel in the vicinity of the port occupies the E half of the river, with the 10m curve in the center and depths of 5.5m and less on the W side. A dangerous wreck lies sunk about 0.4 mile SE of the harbormasters office. The harbor area has no clearly defined natural limits, but “slow” notice boards just S of Bavardeh and W of Bairaim, the area on the N side of the river abreast Al Kast Point, mark the official harbor limits.

The harbor consists of the river fronting the tank farms, the refinery area, and the residential district. It is approximately 4 miles long and 0.5 mile wide, with all facilities situated along the NE and N side of the river; Central Stores Creek, Berey Creek, and Drum Creek are three improved tidal basins which extend a short distance inland on the same side. Vessels up to 183m long can safely enter the port. The width of the river in the pier areas is the limiting factor. Under special conditions, vessels exceeding this length may be accommodated.

17.23 Abadan and Bavardeh (30°19'N., 48°19'E.) consists of 28 berths, some of which can accommodate ocean-going ships. However, since oil shipments have been reduced, the only working piers are Nos. 3, 4, 7, 9, 11, 16, 22, and 26. These piers are used for bunkering and dry cargo operations. There are numerous mooring buoys on the W side of the river within the port area.

Depths—Limitations.—Vessel size is controlled by the depths in Outer Bar Reach (see paragraph 17.18). Vessels up to 3,500 dwt, with a maximum draft of 4.2m can use the port.

The maximum depth at the river anchorage berths is 9.1m. It is reported that several of the buoys are missing and vessels anchor in their previous positions.

Pier No. 7, with a length of 510m, contains three berths, which have alongside depths of 8.5 to 9.1m.

Limitations for the bunkering jetties are, as follows:

Pier	Depth alongside
No. 3	9.4m
No. 9	8.5m
No. 16	6.4m
No. 22	7.6m

All drafts are for fresh water. The harbor master boards vessels at the harbor limits and berths them as necessary.

The port is open for day and night navigation, with arrival and departure being controlled by the tide. Vessels normally enter The Bar 4 hours before HW at The Bar or 2 hours after HW at The Bar.

Those entering 4 hours before arrive at Bavardeh Anchorage generally during flood tide, so they must anchor for 6 hours awaiting the ebb. Those entering 2 hours after HW arrive at Bavardeh during the ebb tide and berth on arrival, providing a berth is available, weather conditions permit, and outward movements do not delay.

Vessels berth starboard side-to, stemming the ebb current and without using tugs. Vessels depart Abadan 4 to 6 hours before HW at The Bar.

Pilotage.—Pilotage is compulsory for all ships, except Government ships of Iran and Iraq, entering, departing, or navigating the river. The pilot is boarded in the vicinity of Rooka Lighted Buoy. The Iraqi Ports Administration requires a 24-hour prior notice before supplying a pilot.

Regulations.—There is a port radio station at Abadan situated at **Al Wasiliyah** (30°18'N., 40°18'E.), SW of No. 26 Berth.

Ships approaching Abadan shall give their ETA at Shatt al Arab Outer Bar 48 hours before arrival.

A standard quarantine message should be transmitted to the Port Health Officer at Al Faw 24 hours prior to arrival at the Outer Bar. The Iraqi Port Health Officer will grant pratique before ships can proceed up the river. This does not clear vessels for Iran, and after the vessels are anchored or berthed at Abadan, boarding will take place to grant pratique for Iran.

The Iraqi National Flag should be displayed until the ship comes within the port limits of Abadan, when the Iranian National Flag is displayed.

The entire harbor area of Abadan is a Danger Zone and special regulations are in force therein. No anchoring, except in the designated anchorages, is allowed. Vessels must proceed at slow speed. As shipping is underway day and night, it is necessary that mooring lines be taut to prevent surging at the piers. Ships proceeding in the same direction are not permitted to overtake or pass each other between Moaviyeh Spit and Outer Western Lighted Buoy.

Vessels in Abadan Reach should never sound their sirens except in an emergency, as the "fire alarm" at Abadan and Bavardeh is given by siren.

Fire aboard ship is indicated by a continuous ringing of the ships bell, together with a succession of long blasts on the whistle.

Anchorage.—In transit of the Shatt al Arab, the recognized anchorages are the Oosbeh Anchorage (Kasba Anchorage), situated about 2 miles above Al Faw, with a maximum depth of 10.7m (fresh water), and the Bavardeh Anchorage, situated about 2 miles above Abadan, with a maximum depth of 9.4m (fresh water).

Vessels with a draft too great to allow departing the Shatt al Arab on one tide are required to anchor at Qosbeh. Below and opposite Bavardeh, there are five anchoring berths, lettered A to E, with the limits of each berth marked by transit beacons on the SW bank of the river. Depths at these berths range from 9.1 to 10.6m, but a maximum draft of only 9.1m is permitted.

All ships, whether awaiting a berth or loaded, must anchor below the lowest pier at Bavardeh; no ship bound for Abadan or Bavardeh may ascend the river above the pier until a harbor master is aboard.

17.24 Al Khast Reach extends from **Al Kast** (30°20'N., 48°16'E.) for about 8 miles to 0.5 mile above **Harteh Point** (Hartah Point) (30°22'N., 48°11'E.). North of Al Kast, the deep channel is on the N side of the river. but it then crosses to the S side, SE and S of Jazireh-ye Minu (Jazireh-ye Menu). It then skirts the W side of that island, passing E of Jazirat al Qitah (Lazirat Qatah) and Jazirat Abu Dawad (Jazirat Abu Daud) and the banks extending N from the latter.

A prohibited anchorage area, indicated on the chart, lies in the river between Abadan No. 1 Pier and a notice board on the N bank about 2 miles W. The channel NE and E of Jazireh-ye Minu is only available to boats.

With a strong outgoing tidal current, an eddy, which must be guarded against, is formed in the S part of the river S of Jazirat-ye Minu.

A lighted buoy, moored on the W side of the channel about 0.5 mile SW of Harteh Point, marks the E edge of the bank extending N from Jazirat Abu Dawud. Anchorage is prohibited in the river about 2 miles N of Jazirat Abu Dawud, where a pipeline area is marked by notice boards ashore.

Anchorage for five vessels awaiting the tide can be taken, in a depth of about 8.5m, fresh water, in the vicinity of Harteh Point.

17.25 Karun Bar (30°23'N., 48°11'E.) extends from about 0.5 mile above Harteh Point to just below the junction of Haffar Channel with the Shatt al Arab, about 3 miles farther N. The track across the bar varies considerably, especially at the beginning of the flood season in March or April, when very rapid changes in the channel can be expected. Such changes prevent the establishing of permanent range marks; lighted buoys are moved as necessary to indicate the channel.

During times the bar is in an unsettled condition, a surveying vessel is stationed there to check the depths and, when necessary, a special pilot boards inbound vessels in the vicinity of Harteh Point to conduct them across the bar. Except in the flood season, the least depth over the bar is 5.8m. The channel depth over the bar is normally maintained at 7.0m; the maximum fresh water draft that can be taken over is 8.5m at springs and 8m at neap.

Vessels arriving with deeper draft are required to lighten; barges for this purpose can be sent down either from Al Basrah or Khorramshahr, depending on the vessel's destination.

This is a seasonal bar formed by the freshets from **Ras-e Karun** (30°26'N., 48°11'E.) bringing down silt into the Shatt al Arab before the latter river is sufficiently in flood to keep the silt moving. Since the bar is constantly changing, the latest information on depths and navigational aids should be obtained from the Port Officer.

Under normal conditions, HW on this bar occurs about 3 hours after HW on the outer bar; the rise is approximately 2.2m at springs and 1.6m at neaps, except during the flood season, when it may be as much as 3.5m. Lower LW generally does not fall below a rise of 0.7m on the bar.

Numerous surveying markers are maintained on each bank of the river in the vicinity of the bar; those bearing even

numbers stand on the E bank, with the odd-numbered markers on the W bank. Lighted buoys, moored 1 mile and 1.5 miles above Harteh Point, mark the W side of the channel.

Two lights are shown near the SE end of **Umm Ar Rasas** (30°25'N., 48°10'E.). Dabbah Spit Lighted Buoy marks the extremity of a spit, on the W side of the bar, extending SE from Umm Ar Rasas.

Haffar Channel (30°25'N., 48°10'E.) is the outer part of the Ras-e Karun between the Shatt al Arab and Khorramshahr. There is a drying pier on the N side of the entrance. There are several T-headed piers, with depths up to 4.9m alongside, on the S bank of the river opposite Khorramshahr. There are several mooring buoys in the river. Four sets of uncharted anchoring beacons, lettered A to D, mark anchoring berths E of No. 5 Pier.

17.26 Khorramshahr (30°26'N., 48°11'E.) (World Port Index No. 48420) lies at the junction of the Shatt al Arab and Rud-e Karun, and was once considered the principal commercial port of Iran before there was extensive damage in the conflict with Iraq; reconstruction is underway. The city extends about 2 miles along the N shore of the river within the entrance of Rud-e Karun.

Winds—Weather.—The NW shamal and the SE kaus are the principal winds which affect the port by their influence on the time and height of the tide; climatic conditions have little effect on port operations.

From March through September, daytime shade temperatures may reach 49°C; sun temperatures in July sometimes approach 74°C. In winter, temperatures of -1°C have been recorded. The mean daily minimum temperature for January is 8°C.

December and January are considered the wettest months for rainfall. Relative humidity varies from near zero in August to 77 per cent in January.

Tides—Currents.—The tidal rise at Khorramshahr is about 2.1m at springs and 1.7m at neaps. The maximum velocity of the flood current is 1.5 knots. The maximum velocity of the ebb current is 3 knots.

The tides vary according to the season, with the highest tides occur during May to June and the lowest in October. Both time and height of tide are greatly affected by the prevailing wind. A strong kaus will raise the water level 0.6 to 0.9m; a strong shamal will retard the time of HW and lower its level, causing the water level to fall below the zero of the tide gage.

Winter floods cause a maximum rise of 3.5m in the water level.

Depths—Limitations.—Depths vary from 8.2 to 8.5m off and above Harteh Point and its anchorage. Sentab Jetty runs parallel to the river and adjacent to the N entrance point of Haffar Channel; berth information is given in the accompanying table.

Khorramshahr—Berth Information		
Berth	Length	Depth alongside
No. 1	150m	8.2m
No. 2	150m	8.2m
No. 3	150m	8.2m

Khorramshahr—Berth Information		
Berth	Length	Depth alongside
No. 4	150m	7.9m
No. 5	150m	7.9m
No. 6	150m	6.5m
No. 7	150m	6.5m
No. 8	150m	8.8m
No. 9	150m	9.2m
No. 10	Berth not in use.	
No. 11	180m	7.7m
No. 12	180m	8.0m
No. 13	180m	6.7m

A temporary berth, used for container traffic, is 110m long, with a depth of 8.0m alongside.

Vessels up to 2,000 tons, with a maximum length of 66.9m and a maximum draft 4.3m can be accommodated.

Due to congestion in port, both at the berths and anchorage, ships should have their mooring lines taut, especially during tidal changes, and their main engines ready to use.

Pilotage.—Pilotage is compulsory. The pilot boards at the entrance to Outer Bar Reach, in the vicinity of Kafka Lighted Buoy (29°50.2'N., 48°46.5'E.).

The pilotage ends at the harbor limits of Khorramshahr or its anchorage, from where a Berthing Master takes over and will either anchor the ship or take it alongside, if a berth is available.

Regulations.—Berthing is usually done during daylight hours only.

The port authorities require 24 hours notice of arrival before ordering a pilot. The vessel's ETA at Rooka Lighted Buoy should be sent 24 hours before arrival and should include the following information:

1. Length overall.
2. Fresh water draft.
3. Details of cargo (vessels carrying explosives are not allowed to berth).
4. Other requirements, as requested.

Vessels should contact Khorramshahr Coast Radio Station on VHF channel 16 upon arrival at the pilot boarding position to obtain berthing information.

Ship's speed shall not exceed 3.5 knots for vessels with more than a 6.1m draft and 5 knots for all other vessels over 100 grt, on passing wharfs, piers, etc.

The Iraqi Port Health Officer at Al Faw will grant pratique before the ship proceeds upriver, on receipt of the standard quarantine message sent 24 hours prior to arrival at the Outer Bar. This pratique does not clear vessels for Iran. After ships are anchored or berthed at Khorramshahr the medical officer will board to grant pratique.

The National Flag of Iraq must be displayed until the ship has entered the port limits of Khorramshahr. The Iranian National Flag is then displayed.

Anchorage.—Ships with a draft up to 8.2m anchor in the river NW of the entrance of Haffar Channel and discharge cargo into lighters if a berth is unavailable. There are five or more mooring buoys along the NE side of the river above Sentab Jetty.

Anchorage is taken all along the river sides, clear of the main channel, as far as **Umm al Khasasif** (30°26'N., 48°08'E.), but the entire area is very congested with ships.

Mooring buoys on the E side of the river below Haffar Channel are used by light-draft naval vessels.

Caution.—A wreck, dangerous to navigation and marked by a lighted buoy, lies 1 mile NW of Haffar Channel entrance.

17.27 On the S side of the main channel between the entrance of Haffar Channel and Al Basrah are the islands of Umm al Khasasif, Umm al Libabi, Jazirat Rumaylah, and Jazirat al Baljaniyah; on the N side are the islands of Jazirat ash Shamshamiyah, Jazirat Umm at Tuwaylah, and Jazirat Ujayrawiyah.

The channel follows the N bank of the river to the W end of Umm al Khasasif, where it passes through Satans Gap, between Umm al Khasasif and Jazirat ash Shamshamiyah.

It then skirts the S sides of Jazirat ash Shamshamiyah and Jazirat Umm at Tuwaylah until about 2 miles above the W end of Jazirat Ujayrawiyah, when it follows the S bank of the river.

White pillars, marking the boundary between Iran and Iraq, are situated on each side of the mouth of **Khayyen Canal** (30°27'N., 48°07'E.).

Satan's Gap (30°27'N., 48°06'E.) is a narrow passage; the channel is marked on its N side by a lighted buoy and on its S side by a can buoy.

Ships running with the current have the right of way through Satans Gap.

A stranded wreck lies on the N side of Satans Gap; another wreck lies sunk, in a depth of 8.5m, near the middle of Satans Gap, causing a major compass deflection.

A 7m patch, marked by a lighted buoy close off its W side, lies about 0.2 mile NNW of the W extremity of **Jazirat al Baljaniyah** (30°27'N., 48°03'E.).

Mooring buoys for ocean-going ships are situated on the N side of the channel, about 6 miles from Jazirat al Baljaniyah.

17.28 Al Basrah (30°30'N., 47°49'E.) (World Port Index No. 48400), before the conflict with Iran, was the principal commercial port of Iraq. The city and old town are situated about 2 miles within the **Nahr al Ashshar** (30°31'N., 47°51'E.), an inlet leading from the port area on the Shatt al Arab.

Al Ma'qil (30°33'N., 47°48'E.), the main port area, contains almost all the port installations, wharves, and warehouses. Al Ashshar, the principal mercantile section of the town, is situated along the river on either side of Nahr al Ashshar.

Winds—Weather.—Strong winds are rare in Al Basrah, the average force being 3 knots. The summer months are usually dry and hot, with prevailing winds from N.

South winds, which are fairly frequent during April, May, August, and September, usually cause a sharp increase in humidity. From June through the middle of August, the average temperature is well over 32°C, and maximums of over 88°C have been recorded.

During the winter months, from November through April, the climate is damp and raw. Temperatures may occasionally drop below freezing. Rainfall mostly occurs during the winter months in short heavy downpours.

Tides—Currents.—Tides in the Shatt al Arab are considerably affected by wind conditions and by seasonal variations in the river level. A strong SE wind will raise the level of the river by 0.6 or 0.9m and will also accelerate the time of HW. A strong NW wind will cause the level of the river to drop below zero on the tide gauge and will retard the time of HW.

The mean rise at HHW on the outer bar is 3m; at Al Basrah it is 2.1m. Seasonal variations in the level of the river are small at the outer bar, but at Al Basrah they are as much as 0.6m in June and 0.2m in October.

In the river, the highest levels occur in May, June, and July, when the Shatt al Arab is discharging the combined flood waters of the Tigris River and the Euphrates River.

Tidal currents vary considerably throughout the Shatt al Arab; at Al Basrah, the velocity of the tidal currents varies with the seasons. During the flood season, the outgoing current may attain a rate of 4 knots.

During the dry season, the currents vary from 1 to 2 knots. The time of turning of tidal currents does not coincide with the times of HW and LW.

At Al Basrah, the flood current begins 3 hours 30 minutes before the time of HW; and the ebb current begins about 1 hour 45 minutes after the time of HW.

Depths—Limitations.—The maximum draft for a ship proceeding to Al Basrah is determined by the depth of water on Karun Bar. If lightering into barges is necessary, this operation can be carried out at Harteh Anchorage. Final loading may also have to be expedited at this anchorage.

At Al Maqil, there is a continuous wharf 2,000m long, which has 14 berths, although only 12 vessels can berth simultaneously. There are depths of 8.2 to 9.1m alongside the wharf. A vessel with a maximum length of 171m can be accommodated.

The grain wharf, situated S of the entrance to **Nahr al Kibasi** (30°33'N., 47°49'E.), is 213m long. It can accommodate a vessel with a maximum length of 183m and a maximum draft of 8.8m.

Muftiyah Oil Depot, below the grain silo, is 175m long and will accommodate ships about 158m long with a draft of 6.7m, subject to silting, although caution is necessary as the status of the facility is not known due to obstructions off the berth..

The fertilizer wharf at **Abu Flus** (30°27'N., 48°02'E.) is 100m long and will accommodate a vessel with a maximum length of 182m and a maximum draft of 8.8m. Three steel jetties N of the fertilizer berth can accommodate vessels up to 171m long, with a maximum draft of 8.8m.

There are numerous mooring buoys in the river, which are mainly used by ships loading export cargo. Vessels may load and discharge cargo at the wharves, but on completion of the latter, must move to the moorings or anchorage to complete loading. Ships are often moored in double rows in the river and off-loaded to many lighters, which is a cause of congestion.

Berthing is allowed only during daylight hours and is dependent on tidal conditions.

Pilotage.—Pilotage is compulsory. The pilot vessel cruises on station in the vicinity of Rooka Lighted Buoy. An Iraqi pilot will conduct the ship within the harbor limits of Al Basrah,

where the harbor master will take the ship to a berth or an anchorage.

A 48-hour radio notice of ETA is required before pilot will board. Radio contact should be maintained with Basrah Radio (YIR) and on VHF channels 14 and 12. Pilots will get ships underway day and night if the tide is favorable.

Transit of the Shatt al Arab cannot be accomplished on one tide and the ship must anchor at one of the recognized anchorages on the river.

A ship bound for the principal wharves at Al Maqil will be boarded by a harbor master off the grain wharf. A ball displayed at the signal station indicates the harbor master is on his way to the ship; a cone displayed indicates the vessel should anchor and await his arrival.

While within Iraqi territorial waters, ships underway will maintain a listening watch on channel 16 for instructions by control authorities. Ships bound for Al Basrah should advise the Iraq Maritime Transport Company, via Basrah Radio (YIR), of their ETA at Shatt al Arab Outer Bar 48 hours prior to arrival.

Masters should also advise their ETA at least 24 hours before arrival in Iraqi waters to the Control Officer, Basrah Control (YIR).

Regulations.—There are coast and port radio stations at Al Maqil and a port radio station at Al Makinah.

A message should be directed to Fao Radio (YIS) requesting free pratique from the Medical Officer, Al Faw, and giving state of health of crew and the arrival time at the pilot station. The ship is boarded at Al Faw and pratique is usually granted by the Medical Officer prior to arrival at Al Basrah.

Special regulations that apply are in force at the port of Al Basrah. Vessels should obtain a copy of these regulations on arrival in port.

Anchorage.—Anchorage can be taken at the numerous mooring buoys in the river off the port, as indicated on the charts. Ships secure bow and stern to the buoys.

There are recognized anchorages off **Nahr al Khawrah** (Khora Anchorage) (30°30'N., 47°51'E.), in a depth of 8.8m (fresh water). Ships can also anchor, in similar depths, at Jubaylah Anchorage, situated off the grain wharf and silo.

Vessels anchor with two bow anchors ranged to four shots of chain parallel to the river.

At Abu Flus, about 12 miles above Harteh Point, there is anchorage, in a depth of 8.8m. However, the area is constricted, the current strong, and the bottom is shifting sand, so the vessel may drag anchor.

17.29 The Shatt al Arab is navigable as far as Al Qurnah, about 40 miles above Al Basrah, by vessels with a draft of 4.6m. The deeper channel is NE of Jazirat al Waqf al Muhammadiyah and North Island, about 0.5 mile farther NW; the bottom everywhere is mud.

Hawr al Hammar (Hammar Lake) discharges through Qarmat Ali Channel into the Shatt al Arab abreast the gap between Jazirat al Waqf al Muhammadiyah and North Island.

Overhead telegraph wires, with about 21.3m clearance, span the mouth of Qarmat Ali Channel. The W bank of the Shatt al Arab, above and below Qarmat Ali Channel, is bordered with brick kilns.

Nahr Kutayban (Kutaiban Canal) (30°41'N., 47°46'E.) enters the E side of the Shatt al Arab about 5 miles N of North Island and is reported to connect with Rud-e Karun.

The E bank of the Shatt al Arab, between Al Basrah and the canal, is bordered with date groves; N of the canal is an open, sandy desert.

The W bank of the river in this vicinity has a thin fringe of date palms, beyond which is desert that is sometimes flooded.

About 2 miles N of the entrance of Nahr Kutayban, the river turns NW, with general depths of 7.3m near its NE bank.

Near the SW bank, it is shoal for the first 2 miles, after which it is steep-to on that side; there are greater depths close to a prominent point, above which vessels should keep to the SW side of the river.

Nahr Umar is on the SW bank of the river, about 6 miles above the mouth of Nahr Kutayban. For the next 17 miles, there are no navigational difficulties.

Ash Shafi Creek, with some brick kilns at its entrance, is easily identified where it enters the river about 10 miles above Nahr Umar; the W bank N of the creek is backed by an open plain.

About 1.5 miles N of Ash Shafi Creek, there are depths of less than 3.6m, but farther N depths increase to 6.4m.

About 3 miles N of the creek, the river narrows; the W bank, which is thickly bordered with date palms, is steep-to, with a depth of 7.3m close alongside.

About 8 miles above Ash Shafi Creek, Nahr Shuwayyib (Shuwaiyib River) flows in on the E side, where the Shatt al Arab is narrowest.

17.30 Odin Point (30°59'N., 47°29'E.) is on the W bank, close N of Nahr Shuwayyib, where the Shatt al Arab widens into Qurnah Reach, and the bar of the combined Tigris River and Euphrates River is formed.

The greatest depth is close along the NE bank, where the channel is very narrow and has a least depth of 2.1m in the fairway. After passing the bar, the Shatt al Arab narrows again and the depth increases to about 11m at the junction of the rivers.

Al Qurnah (31°00'N., 47°26'E.) is a small town situated on the point at the confluence of the Tigris River and the Euphrates River. It is connected with the general telegraph system.

From Al Qurnah to **Amara** (31°43'N., 47°06'E.), the general depth is about 4.0m at high river and 1.8m at low river.

Between Al Qurnah and **Al Azair** (31°19'N., 47°25'E.), the river is marked by black posts and white posts; these posts denote the course of the river when the banks are covered during floods.

For the first 10 miles, there are depths of 3.6 to 7.5m; the current is strong.

Caution.—Some bad bends will be found between Al Qurnah and Amara; some reaches are extremely difficult during the low river season because of the narrow and tortuous course of the channel, combined with a very strong current.

Great care must be taken to avoid grounding on the spits, which extend a considerable distance at the worst bends.

The river level is much affected by the regulated flow to a number of canals leading off the river, which carry off the water, a resulting in a drop of 0.3 to 0.5m in the water level at times.

Arabic

ARABIC	English	ARABIC	English
A			
ab, abu	father, chief	asfal	lower
abar, abyar, abiar	wells	asfar	yellow
abiadh, abyadh, abiad	white	asfel	low
abrahill,	rock	ash	the
adel, aleb,	sloping hill	asharet-dabab	fog signal
aegsand	dune	ashtum	channel
aezraq, azraq	blue	asif	river
aghbar	gray	asifa, asifah	gale, storm
aghbas	dark (color)	asraq	blue
ahal	black	assaka	settlement
ahmar, ahmer	red	aswad	black
aich, aik	hard bank	atama	beacon
ain, oyun (pl)	well, fountain	atha	ruins, monument
air	fortress	atiq	old
ajaj	sandstorm	atlal	ruins
ajfar	well	atta	bank
akaba, acol	wilderness	atta metawel	bar
akbar	bigger, biggest, older (of two)	auwil	first, beginning
akhal	black	awama zat nur	light buoy
akhdhar, akhdar, akdar	green	awama zat sofara	whistle buoy
al	the	awamet-garas	bell buoy
ala	height, higher	awari	shoal
ala wara	astern	awawa	buoy
alam	hill, cairn	ayn	well
alama	beacon	azraq, azreq	blue
alama bi shaki jaras	bell buoy	B	
alama noor	light buoy	bab	strait, entrance
alama sabaya	buoy	baboor, babur	steam vessel
alawi	islands	badiyat	desert
alou	height	baghala	dhow
amama	head	bahat	well
amara	building	bahr	channel, river, lake, sea, bay
ameeq, amik, amiq	deep	bahr ali	high water
amin	village	bahr shaban	deep water
amir	prince	bahr wati	low water
amshi deladel	slow	bahrat	wadi, watercourse
amwaj	breakers	bahraya	pool, lake, pond
amwaj kubra	breakers	bahri	south
anak	cliff	bahri-bahri-gharbi	southsouthwest
aqabar	wilderness	bahri-gahri-sharqi	southsoutheast
aqaba	hill	bahri-gharbi	southwest
ar	the	bahri-sharqi	southeast
ara al bahr	low water	baida	desert
arab	arabs	baidha	white
araja	sand dune	bakhira	steam vessel
arbi	arab	balad	country, region, town
ard	land, earth, ground	balam	boat
areg	sand dune	band	dike
ari	shoal, shallow	bandar	bay, port, harbor, open roadstead, chief town
arich	boundary	bandera	flag
arq	sand dune hills	barq	hill
asar	ruins, mountains	barr	headland, earth, sandbar, bank, shore
		barr ramleh	sandbank

ARABIC	English	ARABIC	English
barusi, barrosi	anchor	dahl	bank
basta	tower	dahl tin	mudbank
batbit	whirlpool	dahra	north
bati	slow	daig, daiq, daiyaq	narrow
baura	anchor	dakka	wharf, pier, quay, jetty
bawara	heavy anchor used in Kuwait	dala-dala	slow
bayda	white	dar	house, settlement
behr neksan	half tide	darba	squall
behr seneh	high water	dau	light
behr yari	ebb	dawamir dakhil el behr	rock (sunken)
beida	white	dawamir kherej el behr	rock (above-water)
beit, bait	house	dawhat	bay, cove, port
beiyat	shoal that dries	debab	fog
bejir	desert	dekeh el amwal	quay
beros	anchor	dekhil, dekhul, dekhla	entrance, passage
berriyah	desert	dekka hak el mal	wharf
bheira	lake	dekka hak en nazul	pier
bid	well	dekka saghir	jetty
bidat	canal	derbeh ghefeh	squall
bilad	town, country	deym	village
bir, biar	well	dhabab	fog
birba, baraby	ancient temple	dhayyeg	narrow
birka, birkah	pool, pond, small lake	dihr	coast
bofa abu nur	light buoy	dira	compass
boghaz	strait, entrance channel	disha	hill
boja	buoy	diyik	narrow
boja abu jeras	bell buoy	djal	small hill
boja musaffira	whistle buoy	djebel	hill, mountain
borg, bordj, burj	fort, tower, castle	djenub	south
boya	buoy	djezira	island
boya abu nakus	bell buoy	djouf	dry
boya en nur	light buoy	dohat, doha, duhat, dawhat	bay, cove, port
boya es siti	whistle buoy	duar	encampment
bu	chief	dulay	hill
bughaz	gulf, strait		
buhaira	lake	E	
bukah et tin	mudbank	egeidet	sand hill
bum	large dhow	el	the
bura, buroosi	anchor	el nedd	tide
burayq	hills	erg	sand dune
burg, burj, burt	tower	ezba	village
busla, brussala	compass		
but	boat	F	
butaira	small dhow	faluka, feluka, filuka	boat
buy	fort, tower	fanar	lighthouse, beacon
buz	cape	fanus nur	light
		faregh	broad, level, wide
C		farsh	plain (noun)
casbah	citadel, fortress	fasht	reef, shoal, islet
chegag	ruin	fisa	fast
chemal	south	fosma	channel, passage, entrance
cherk	east	fulk	small boat
		G	
dabab	fog	gaan baded	arm of the sea
dahal raml	sandbank	gala	castle, tower, fort
dahar	peak	galawa	basin

ARABIC	English	ARABIC	English
gamb yamin	starboard side	hajari	stony
gamb yasar	port side	hajira	town
gami	mosque	hajiz	mole
ganub	south	hajr	rock (above-water or sunken)
ganub-ganub-gharb.....	southsouthwest	halat, hala	sandbank, islet
ganub-ganub-sharq	southsoutheast	hamra.....	red
ganub-gharb	southwest	hanouck	low
ganub-sharq	southeast	haram, ahram (plural).....	pyramid
gar	small flat hill	hasa, hasba	gravel
gara, garrat.....	lake	hassar, hissar	rock
garar al bahr	bottom	haswa	gravel
garf	cliff	haudh.....	basin
garib	boat	hawa	wind
gazr	ebb	heb	coast
gedid	new	helkat	circular
gezfret.....	island	hesah hesah	gravel
ghalah	deep	hilla	village
ghamiq.....	deep	hiqab	cliff
gharb, gharba, gharbi	west	hirab	abeam
gharb el jinub el gharbi	westsouthwest	hisar	fort, castle
gharb-ganub-gharb	westsouthwest	hisn	fort
gharb-shamal-gharb.....	westnorthwest	hiza	abeam
gharbi-bahri-gharbi	westsouthwest	hod	basin, pool, small lake
gharbijanoob-gharbi	westsouthwest	hor	creek, shallow marsh
gharbi-qibli-gharbi	westnorthwest	houd.....	basin
gharig.....	deep	hubub	sandstorm
ghauba	sandstorm	humra	red
ghazir.....	deep	husen, husun.....	tower, castle
ghobar.....	fog		
ghubbat.....	gulf, bay	I	
ghubra.....	sandstorm	ibn	son, descendent
ghurmac	peak	ilwat, ilwet.....	region
gidan	bank, sandbank	imarah	seat of governor
giddam	ahead	imi	hill
gisr, gusur (plural)	bank	irq	dune
gizan	dune	iswid	black
gour	small flat hill	izbit, izbet	village
goz, gowaz (plural).....	high sand hill		
gubba	dome	J	
guddam.....	ahead	jabal, jebel, jibal.....	mountain, hill
guebli	south	jadwal	canal, stream
guennar	peak	jam, jamia	mosque
gumruk	customhouse	janoob, janub.....	south
gunn	bay	janoobjanoob-gharbi	southsouthwest
		janoobjanoob-sharqi	southsoutheast
H		janoob-sharqi	southeast
habba	squall	jazair.....	islands
habia	peak	jazirat	island, islet
habub	sandstorm	jazr	ebb
hadd	boundary, limit, sandspit, reef	jebel el hejer	cliff
hadjara, hagar, hajar	stone, rubble	jebel kayem	peak
haggag	long projecting ridge	jejirah saghjr.....	islet
hagiz	bar, mole	jenub-gharbi	southwest
hair.....	pearl bank	jenub-sherqi	southeast
hait	wall	jezr	ebb
hajar balyin	rock (above-water)	jilf	cliff
hajar mugatta	rock (sunken)	jinub	south

ARABIC	English	ARABIC	English
jinub el gharbi	southwest	khul	spring tide, flood
jinub el jinub el gharbi	southsouthwest	khul kebir	flood tide
jinub el jinub esh shargi	southsoutheast	kibli	south
jinub esh shargi	southeast	kidan	bank, sandbank
jisr, jusur (plural)	bridge	kidif nes	dune
jorf	cliff	kidwa	small mound
jubayl	mountain	kimmat	peak
junub	south	kinar	boundary, border, limit
jurf	cliff	kinisa, kinis	church
K			
kabat	rocky shoal, group of rocks	kinisat, kinizat	sandbank
kabir	large	kita	rocky shoal, group of rocks
kad	shoal, spit	kitif en nes	sandbank
kafab	cliff	kola	hill
kafr, kufur (plural), kefr	village	kom	mound
kalah	fort	kom en nes	dune
kalat	castle	kothon	port, anchorage
kalig	canals	kubbah	dome
kanisa, kenisa, keniseh, kineesa	church	kubbat	deep bay, inlet
karm	artificial mound	kubbeh	beacon
karn	summit, peaked hill, point	kubry, kabary (plural)	bridge
kasar	shoal	kuddam	ahead
kasba	citadel, fortified town	kudiat	small hill
kasim	territory, political division	kuh	hill, mountain
kasr bahr	breakers	kusbat, kut	citadel, fortified town
kassar	rock (above or below-water), rocky islet	L	
kassara	breakers	liman	port, anchorage
katah, katat	rocky shoal, group of rocks, sunken rock	lisan	head, headland
kateh el behr	bottom	M	
kathib	dune	ma hali	fresh water
katib	paint	ma mutawasid	half tide
kaud	dune	madd	current, flood
kebar, kebir	large	madd galeel	half tide
kef, kaf	mountain, rocky point, coast	madd kabir	spring tide
keruky	sketch, plan	madd kamel	high water
keryah	village	madd qawi	spring tide
keshem	watercourse	madina	town
khadra	green	madiq	strait
khala	country	madkhal	inlet, entrance
khaleej	gulf	mael behr	salt water
khalfa	sandstorm	maftul	tower
khalij	gulf, bay	maghreb	west
khaltj	gulf, bay, estuary, canal	mahal nuzul	landing place
khan	inn, hotel, bazaar	mahatta	station (railway)
kharium	sandspit	mahgar	stone quarry
khashm	mouth of river	majaz	pass, marine channel
khatar	danger	majra	canal, channel
khawr	inlet, channel	makalla	channel
khelij	gulf	makan ara	shoal
kheter	danger	makan en naze	landing place
khijem	encampment (tents)	makhila	fog signal, storm
khirs	barren land	makhraj	canal
khod	shallow, ford	mal, malih	salt, brackish
khor	river channel, cove, bay, estuary, inlet, ravine	malka	stream confluence
khuba	mudbank	mamarr	passage
khudra	green	manara	lighthouse

ARABIC	English	ARABIC	English
manfad, manafid	pass (defile)	moya azb	fresh water
mantakat	zone	muaskar	military camp
manzal	settlement, landing place	mudawwar	circular
maqam	tomb	muhasan	fortified
marabut	monument or tomb	mukhaijan	encampment
marakat	soft bottom shoal	mukhtqa	anchor
marfaa	harbor	murjan, murgan	coral
marjan	coral	murshid	pilot
markab shera	sailing vessel, ship	mustanqa	marsh
markeb, markib shiraa	sailing vessel, ship	muzik	strait
marσα, marza	anchorage, roadstead, bay, cove, port, harbor, gulf	N	
marso	harbor	nadd wafi	spring tide
marso keshef	roadstead	nahiyah	district
marso saghir	basin	nahr, anhar (plural)	river
masab	mouth of river	najwa	shoal, spit
masafa, masafah	range	nakhl, nakhil, nikhl	palm tree, date grove
mashriq	east	naliya	compass
masjid, maskid, masjid	mosque	natur	tower
maskan	house	nebi	tomb
masura	pipe	neis	sand
maten	plateau	nes hesah	gravel
matla	east	niwat	steep-to shoal, coral reef
matmor	silos	noor	light
mauj, mauja	wave	noww	squall
mayah hilwa	fresh water	nuksan el behr	low water
mayeh	current	nuqta	point
medauwar	circular	nur	light
medina	city, town	nusf madd	half tide
medkhal, medkhal	passage, entrance	O	
meena	port (harbor)	ouarour	steep mountain
megjrib	west	oued	river
menarah	lighthouse	Q	
mengar	nose, head, point	qa	bottom
mensla	channel	qa al bahar	bottom
mersa	roadstead, anchorage	qabr	tomb
mesjid	mosque	qad	reef
mina	port, harbor, mole	qadim, qadima	old
mina kharga	roadstead	qafa	astern
minar, manar	minaret, tower	qala, qalaa	fort, prominent peak, castle
minara	lighthouse	qaleel al ghur	shallow
minqar	nose, head, point, headland	qanaya	rivulet
miqra	channel	qantara	bridge
mirjan	coral	qara	small dark hill
mirsa	port	qaranasla	peak
miyah	water	qarn	point
moga	wave	qarya	village
moghreb	west	qasar	above-water rock, rocky islet
moiya	shoal, shallow	qasr, qusur (plural)	port, large house
moiya aria	low water	qibli	north
moiya hilwa	fresh water	qibli-gharbi	northwest
moiya kebir	high water	qibli-qibli-gharbi	northnorthwest
moj	wave	qibli-qibli-sharqi	northnortheast
morgan	coral		
mosque	mohammedan church		
mowyah hali	fresh water		
mowyahel behr	salt water		

ARABIC	English	ARABIC	English
qibli-sharqi	northeast	seil	watercourse
qubba	dome	serih	speed
quddam	ahead	sfer	yellow
qur	hills	shaab	coral
quwayrat	hill, mountain	shab	rocky shoal, reef
R			
rabban	pilot	shabura	fog
rais, reis	captain of a vessel	shakhis	stake, pole
rais el marsa	captain of the port	shamal	north
rakat	shoal, hard bank	shamal-gharb	northwest
raml, ramla	sand	shamal-shamal-gharb	northnorthwest
ras	cape, point, head, hill, peak	shamal-sharq	northeast
ras el jebel	peak	shamal-shamal-sharq	northnortheast
ras fel	mole	shamandura	buoy
raseef	jetty, wharf, quay	shamandura bi fanus	light buoy
raseef al mina	pier	shamandura bi suffara	whistle buoy
rasif, rasyf	pier, quay, wharf	sharg el jinub esh shargi	eastsoutheast
reeh	wind	sharg esh shamal esh shargi	eastnortheast
rif	coast	shargi, shargi	east
rig	shallow bank, reef, shoal, flat	sharm	inlet
rih	wind	sharq-bahri-sharqi	eastsoutheast
rod	small watercourse	sharq-ganub-sharq	eastsoutheast
rooma	bar	sharqjanoob-sharqi	eastsoutheast
rubban	pilot	sharq-qibli-sharqi	eastnortheast
rud	river	sharq-shimal-sharq	eastnortheast
rujm	cairn, hill	shatt	river, river bank, coast
ruqq	reef, shoal	shatt ramli	sandbank
S			
saaina bakhur ya	steam vessel	sheb, shib	reef
sadd	bar, obstruction, barrier, dam	sheikh, shaikh, shaykh	chief elder
sadd min at tin	mudbank	sherm	cove, creek
safina shara iya	sailing vessel	shimal	north
safra	yellow	shimal el garbi	northwest
sagal	gravel	shimal esh shargi	northeast
sagala	port (side)	shimal esh shimal el garbi	northnorthwest
sahah, sahara, sahary	desert, plain	shimal esh shimal esh shargi	northnortheast
sahel, sahil	beach, coast, shore	shur	low clay hill
sakh, sakhr	rock	sidi, sedi	tomb
sakhra	rock (above-water)	sif, sifa	coast, sandy beach
sakhra fog alma	rock (above-water)	sifi	low
sakhra taht al ma	rock (sunken)	sigala	mole, jetty, landing place
sambuk	sailing vessel	sikha	road
sanjak	starboard side	soda	black
sanjaq	flag	suffara ad dabab	fog signal
saqya, saqiye, saqyat	canal	suffara sabayya	whistle buoy
sar, sareea, sari	fast	sura	speed
satah	shallow	surkh, sorkh	red
sawa sawa	abeam	T	
sawahil	coast guard	tabb	dune
sawiyah	point	tabia, tabya	fort, tower, castle
sedd	mole	tabr	canal
sedjaa	muddy	taht	under, below, beneath
seghir	little	tall, tell, tulul (plural)	hill
		taraf	point
		tarf	cape
		tarsana	arsenal
		taufan	storm

ARABIC	English	ARABIC	English
tawil	long	war	rock (sunken)
tayyar	current	wara	astern
thaghr.....	port (harbor)	wast	middle, center
tiligraf.....	telegraph	wed	river
tm	mud	werayi	astern
tira	channel	wust el madd	half tide
tiyar	current	Y	
touffik	hamlet	yameen al markib	starboard side
tufan.....	storm	yamin.....	starboard side
tufan en nes	sandstorm	yasar al karkib	port side
turab.....	mud	yemin el merkeb.....	starboard side
turah.....	canal, channel	yesar el merkeb	port side
turiq	road	yisar	port side
U			
uad	river, stream	Z	
udd	bank, sandbank	zab	oasis
ust	middle, center	zaimah	boat
W			
wad, wadi	mouth of river, channel, watercourse	zarqa	blue
wahl	mud	zawia, zawiya	house, monastery
		zerga	blue
		zoba ah ghetleh	squall
		zoubaa	storm

French

FRENCH	English	FRENCH	English
A			
abri, abrite	shelter, sheltered	chemin de fer.....	railroad
aiguille.....	needle	cheminee	chimney
aimante, -e	magnetic	chenal	channel
amer.....	landmark, beacon	clocher.....	steeple
anse.....	bay, creek	coffre	mooring buoy
appontement	wharf, pier, quay	colline	hill
argile	clay	compas	compass
arnerer port	outer port	coquilles	shells
atterrissage.....	making land, landfall	cote	coast
aval	downstream, seaward	courant	current, stream
avant port.....	outer port	courant de flot	flood tidal stream
azur	blue	courant de jusant	ebb tidal stream
B			
babord.....	port	crique.....	creek
baie	bay, gulf	crue	freshet or flood
balisage.....	beaconage	D	
balise	beacon	darse	basin
banc	bank, sandbank	detroit	strait, narrow
barre.....	bar	digue	breakwater, mole
basse	shoal	douane	customhouse
basse mer.....	low water	droit	right (side)
bassin	basin, dock	due d'albe	dolphin
bassin a flot.....	wet basin or dock	E	
bassin d'echouage	tidal basin where vessels ground	echelle	scale
bateau de sauvetag.....	lifeboat	echelle de maree	tide gauge
blanc, -he	white	ecluse.....	lock of a canal or basin
bleu, bleue	blue	ecueil	rock, breaker
bois	wood	eglise	church
bouche	mouth of a river	encablure	cable's length
bouee	buoy	entree.....	entrance, mouth of a river
bouee a cloche	bell buoy	epave	wreck
bouee a sifflet	whistle buoy	epi	small jetty, groin
bouee lumineuse.....	light buoy	escarpe, -e	bluff
boussole	compass	est	east
brisants	breakers	etale	slack
brise-lames	breakwater	etang	lake
brouillard.....	fog, mist	etiage	low water mark of a river
brume.....	fog	etier	a creek which can receive small vessels
C			
caboteur	coaster	F	
cale de radoub	marine railway	falaise	cliff
canal	channel, canal	fanal.....	harbor lighthouse
cap	cape, headland	feu	light
champ-de-tir	firing range	feu permanent ...	a light constantly burning and unwatched
chapelle	chapel	fin, -e	fine
charbon.....	coal	fleche	spire
chasse	a rapid discharge of water from reservoir in order to clear out a channel	fleuve.....	river, stream
chateau	castle	flot	flood
chaussee	bank, causeway	foc	jib (sail)
		fond	bottom
		forme de radoub	drydock
		fosse	ditch, a deep

FRENCH	English	FRENCH	English
G		N	
galets	shingle	niveau	level
gare	station	noeud	knot
gauche	left (side)	noir, noire	black
golfe	gulf	nord	north
goulet	narrow entrance	nouveau, nouvel	new
grand, -e	great	O	
gravier	gravel	occidental, -e	western
greve	sandy beach	onde	wave
gril de carenage	gridiron	oriental, -e	eastern
gris	gray	ouest	west
gros	coarse	P	
guet	house	passee	pass, fairway, channel
H		patente de sante	bill of health
haut-fond	a shoal	pertuis	opening or strait
haute mer	high water	petit, -e	small
havre	harbor	phare	lighthouse
houle	swell	pic	peak
I		pierre	stone
ile	island, isle	pignon	gable
ilot	islet	pin	pine or fir tree
J		pilote	pilot
jaune	yellow	piton	peak
jetee	jetty	plage	shore, beach
jusant	ebb	plateau	tableland, or flat below water
L		pointe	point
lac	lake	pont	bridge, deck
large	broad, wide	port	port, harbor
M		presqu'île	peninsula
madrague	tunny net	Q	
marais	swamp, marsh	quai	quay, wharf
maree	tide	R	
maree descendante	falling tide	rade	road, roadstead
maree montante	rising tide	rafale	squall
massif	main group of mountains	raz (bas breton)	a name given to a violent tidal stream in a narrow passage
mat	mast	recif	reef
mer	sea	redoute	fort
meridional, -e	southern	riviere	river
mole	mole, pier	roche	rock
molle	soft	rocher	rock
mont, montagne	mountain	rond	round
morne	hill	rouge	red
mortes eaux	neap tides	ruisseau	rivulet
mouillage	anchorage	S	
moulin	mill	sable	sand
musoir	pierhead	salines	salt water lagoons, salt works
		seche	dry shelf, flat
		septentrional, -e	northern
		seuil	sill (of a dock)

Hebrew

HEBREW	English	HEBREW	English
A		K	
agam	lake	kefar	village
B		kenesiyya.....	church
be'er	well	M	
bet	house	ma'arava.....	west
biza	marsh	ma'gana	anchorage
D		ma'yano	springs (of water)
daram.....	south	mezah	jetty, mole
daram-ma'arava	southwest	mezuda	fort
daram-mizrah	southeast	mifraz	bay
E		migdal	tower
even	stone	migdallor	lighthouse
ez	tree	misgad	mosque
G		mizrah	east
gadol	great	N	
giv'at	hill	nahal	river, stream, watercourse
H		nemal.....	harbor, port
har	mountain	Q	
hazaz	gravel	qatan	small
hof	coast	R	
hol.....	sand	rosh.....	cape, headland
huresha	wood (trees)	Y	
I		ya'ar	forest
i.....	island	yam.....	sea
ir	town, city	Z	
		zafon.....	north
		zafon-ma'arava	northwest
		zafon-mizrah	northeast
		zuqe	cliff

Iranian (Persian)

IRANIAN (PERSIAN)	English	IRANIAN (PERSIAN)	English
A			
ab	river	kal	stream
—abad	inhabited place	kalat	castle on a mountain
abrah	watercourse, aqueduct	kalleh	summit
ala	height	kamar	mountain, hill
anbar	tank	khak	dust, earth
B			
badgir	tower	khaliy	gulf, bay, estuary
bahr	sea	khaneh	house
band	dike, embankment, barrier	kharabeh	ruins
bandar	harbor, sheltered anchorage, landing place, bay	khowr	arm of the sea, bay, inlet, channel, bight
batlaq	marsh	kuh	hill, mountain peak
berkeh	water tank	kut	fort, town
biaban	desert	L	
bisim	radio	lut	desert
borj, burj	tower, fort	M	
C			
cham	stream, gorge	masjid	mosque
chega, chiga	hill	menar	tower, minaret, lighthouse
D			
dagh	mountain, hill	meydan tayyarat	airfield
dar	passage, channel	minar	tower, minaret
darband	gorge	N	
darya	sea, river	nahr	stream
dasht	desert, plain	P	
deh	village	pol, pul	bridge
dehan	river mouth	poshteh	hill, mountain
dezh, diz	fort	Q	
E			
emamzadeh	mosque, tomb, shrine	qabr	tomb
—estan	place of	qaleh	castle, fort
F			
fanus	lighthouse	qaryeh	village
forudgah	airfield	qolleh	peak, hill, mountain
G			
gadik	pass	quileh	summit, hilltop
gel, gil	mud, clay	R	
gharb	west	ramlat	sandy area
gharbi	western	ras	cape, point, head
H			
had, hadd	sandspit, boundary	reshteh	mountain range
howz	tank	rig	sand, gravel
I			
ishan	hill	rud	river
J			
jabal	mountain, hill	rudkhaneh	river
janubi	southern	rusta	village
jazireh, jazirat	island, peninsula	S	
K			
kad	shoal	sabz	green
L			
M			
N			
P			
Q			
R			
S			
L			
M			
N			
P			
Q			
R			
S			
L			
M			
N			
P			
Q			
R			
S			
L			
M			
N			
P			
Q			
R			
S			

IRANIAN (PERSIAN)	English	IRANIAN (PERSIAN)	English
—stan	place of	tangeh	strait, isthmus
sorkh	red	torbat, turba	tomb
sur	wall, rampart	Z	
	T	zahir	conspicuous
tang	gorge, stream	zir	under, below

Pakistani

PAKISTANI	English	PAKISTANI	English
A			
ab	spring	kalat	fort
an	pass	kandao	pass
B			
bandar	harbor	kaur	stream, river
bil	swamp, lake	khal	river
bundar	mud dike, embankment	khand	pass
C			
chah	spring, well	khori, khori	stream, river mouth, inlet
chakul	spring	koh	mountain, mountain range
char	island	kot	fort
chara	stream	kotal	pass
chauki	customhouse	kuh	hill, mountain
D			
dar	stream	L	
dasht	desert, plain	lak	pass
dhand	swamp	lora	stream
dhar	mountain range	N—P	
dhor	stream	nadi	stream
dimi	east	nai	stream
doab	plain between rivers	nala	stream
G—H			
gang	stream	narai	pass
ghar	mountain, mountain range	nawar, nawar	lake
goth	town, village	nullah	intermittent stream, gully
hamun	salt lake, salt waste	padi	west
haor	lake	R—S	
hor	swamp, fresh or brackish marsh	ras	cape, point
J			
jabal	hill, mountain, island	rud	river, stream
jezirat	island	sar	peak, summit
K			
T			
W—Z			
L			
N—P			
R—S			
T			
W—Z			

Somali

SOMALI	English	SOMALI	English
A		H	
aradi	peak	har	mountain range
aro	peak	I	
B		illin	entrance
biyogal	lake	J	
bur yar	hill	jar	cliff
but	mountain	jori	bay
byo galen	lake	K	
D		kur	hill
deked	wharf, harbor	kurum	hill
doh	channel	M	
dud	forest, mound, embankment	masajid	mosque
brise-lames	breakwater	R	
G		rasi	cape
gashirad	island	rubad	marsh
gumbur	hillock		

Swahili

SWAHILI	English	SWAHILI	English
B		M	
bandar, bender	port, harbor	mlango.....	channel, entrance
D		mlima	mountain
daw	dhow	mnara.....	tower
F		mto	river
fungu	bank, shoal	mwamba	shoal
G		N	
geneza	castle	ngome.....	castle
J		P	
jiwe mwamba	rock	pwani	coast
K		R	
kazika	half tide rock	ras	cape, point
khor	creek	S	
kilima	hill	shaka	islet
kisiwa	island	U	
		uadi	river
		upulu	channel
		W	
		wadi	river

How to use the Index—Gazetteer

Geographic names of navigational features are generally those used by the nation having sovereignty and are listed alphabetically. Diacritical marks, such as accents, cedillas, and circumflexes, which are related to specific letters in certain foreign languages, are not used in the interest of typographical simplicity.

Geographic names or their spellings do not necessarily reflect recognition of the political status of an area by the United States Government. Positions are approximate and are intended merely as locators to facilitate reference to the charts.

To use as a Gazetteer note the position and Sector number of the feature and refer to the Chart Information diagram for the Sector. Plot the approximate position of the feature on this diagram and note the approximate chart number.

To use as an Index of features described in the text note the paragraph number at the right. To locate this feature on the best scale chart use the Gazetteer procedure above.

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ABU ALI CHANNEL	14	04 N	42	48 E	3.9	AL HASANI	24	58 N	37	03 E	6.23
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ABU DHABI LIGHTED FLOAT	24	40 N	54	14 E	15.18	AL HAYRAH	25	23 N	55	24 E	15.11
ABU EL COSU	15	18 N	40	34 E	5.19	AL HUDAYDAH	14	50 N	42	56 E	7.57
ABU EL KIZAN	24	56 N	35	52 E	3.3	AL IKHWAN	12	08 N	53	10 E	10.49
ABU FLUS	30	27 N	48	02 E	17.28	AL IRQAH	13	39 N	47	21 E	9.4
ABU GOSHA	20	57 N	37	13 E	4.28	AL JAWHARI	16	29 N	52	27 E	9.18
ABU HULAYFAH	29	07 N	48	08 E	16.37, 16.38	AL JAZIRAH AL ALIYAH	25	24 N	51	34 E	15.45
ABU MAHIR FORT	26	14 N	50	37 E	16.7	AL JAZIRAH AS SAFILIYAH	25	21 N	51	35 E	15.45
ABU MARINAH	18	26 N	38	31 E	4.48	AL JINNAH	27	22 N	49	19 E	16.21
ABU RAJI	16	52 N	42	16 E	7.38	AL JUBAYL	27	05 N	49	40 E	16.18
ABU SHAWK	20	52 N	39	18 E	7.5	AL JUBAYLAH	17	30 N	56	20 E	9.26
ABU SHUQAR ISLET	16	56 N	42	15 E	7.38	AL JURAYD	27	12 N	49	57 E	16.17
ABU ZABY	24	30 N	54	20 E	15.18	AL KAST	30	20 N	48	16 E	17.24
ABU ZANIMAH	29	02 N	33	07 E	2.21	AL KAST	30	20 N	48	16 E	17.24
ABULAD ISLETS	16	48 N	42	09 E	7.13	AL KHABURAH	24	00 N	57	06 E	11.17
AD DAWHAH	25	17 N	51	32 E	15.46	AL KHAN	25	20 N	55	21 E	15.13
AD DAWHAH LIGHT FLOAT	25	17 N	54	42 E	15.46	AL KHAWKHAH	13	38 N	43	15 E	7.60
AD DISSAN	16	55 N	41	39 E	7.12	AL KHAWTAMAH	15	40 N	42	18 E	7.42
ADABIYA BAY	29	52 N	32	28 E	1.14	AL KHUBAR	26	17 N	50	13 E	16.10
ADAN AS SUGHRA	12	45 N	44	52 E	8.6	AL KUMRAH	28	21 N	48	54 E	16.24
ADEN HARBOR	12	47 N	44	57 E	8.9	AL KUMWAYT	29	23 N	47	58 E	16.41
ADEN PENINSULA	12	46 N	45	01 E	8.7	AL LITH	20	09 N	40	16 E	7.1, 7.6
AHMADI LIGHT FLOAT	28	56 N	48	53 E	16.37	AL LUHAYYAH	15	42 N	42	42 E	7.44
AHWAR	13	28 N	46	40 E	9.3, 9.5	AL MANAMAH	26	14 N	50	35 E	16.7
AIBAT ISLAND	11	30 N	43	28 E	10.19	AL MASIRAH	20	26 N	58	48 E	9.35
AIN SUKHNA	29	35 N	32	22 E	2.4	AL MUHARRAQ	26	15 N	50	37 E	16.5
AIN SUKHNA NORTH LIGHT FLOAT	29	35 N	32	33 E	1.5	AL MUKALLA	14	30 N	49	09 E	9.10
AJMAN	25	25 N	55	26 E	15.11	AL MUKHA	13	19 N	43	15 E	7.52, 7.61
AKBAR UQAYLI	16	37 N	41	53 E	7.15	AL MURK	15	38 N	42	36 E	7.43
AKHTAR	27	42 N	52	14 E	14.13	AL MUWAYLIH	27	40 N	35	29 E	6.16
AL AHMADI	14	50 N	42	56 E	7.57	AL QAD AL WUSTANI	20	02 N	40	08 E	7.24
AL AQABAH	29	31 N	35	00 E	6.13	AL QADIMAH	22	21 N	39	05 E	6.32
AL ARABIYAH	27	47 N	50	11 E	16.20	AL QAFFAY	24	35 N	51	43 E	15.39
AL ASHKARAH	21	52 N	59	35 E	9.44	AL QATIF	26	33 N	50	00 E	16.13
AL AZAIR	31	19 N	47	25 E	17.30	AL QIRAN	27	43 N	49	50 E	16.21
AL AZIZIYAH	26	11 N	50	13 E	16.10	AL QUNFUDHAH	19	08 N	41	04 E	7.27
AL BADI	15	30 N	42	30 E	7.45	AL QURAYYAT	23	16 N	58	55 E	11.6
AL BAGHLAH	16	57 N	41	21 E	7.11	AL QUSAYR	26	06 N	34	17 E	4.12
AL BAHRAYN	26	05 N	50	33 E	16.2, 16.4	AL SHAHEEN OIL FIELD	25	35 N	52	00 E	15.51
AL BASRA OIL TERMINAL	29	41 N	48	49 E	17.17	AL SUWAYH	22	06 N	59	42 E	9.44
AL BASRAH	30	30 N	47	49 E	17.28	AL UQBAN	15	30 N	42	23 E	7.42
AL BAWDI	15	30 N	42	30 E	7.45	AL WAKRAH	25	10 N	51	37 E	15.44
AL BUNDUQ OIL FIELD	25	06 N	52	37 E	15.36	AL WASILIYAH	30	18 N	40	18 E	17.23
AL FAW	29	58 N	48	29 E	17.14, 17.19, 17.21	ALBAKR TERMINAL	29	41 N	48	49 E	17.17
AL FUHAYHIL	29	05 N	48	09 E	16.37	AMARIYEH	27	08 N	52	57 E	14.10
						AN NABQIYAH	27	44 N	36	01 E	6.19
						AN NUMAN	27	06 N	35	45 E	6.19
						ANDEBA YE MIDIR ZERF CHAF	15	02 N	40	32 E	5.19
						ANFILE BAY	14	45 N	40	50 E	5.20
						ANGHAR	12	23 N	43	21 E	10.3
						ANKHOR PEAK	10	32 N	46	11 E	10.26
						ANSE AMBADU	11	36 N	43	01 E	10.12

	Position			Sec. Para		Position			Sec. Para		
	°	'	°	'		°	'	°	'		
ANSE REISSALE	11	46 N	42	56 E	10.6	BANDAR HASIK	17	24 N	55	20 E	9.27
AQIQ	18	14 N	38	14 E	4.58	BANDAR HISN AL GHURAB	14	01 N	48	21 E	9.6
AQRAB	18	26 N	38	31 E	4.48	BANDAR IMRAN	12	45 N	44	35 E	8.5
AR RAS AL ASWAD	21	22 N	39	08 E	7.4	BANDAR ITAB	15	18 N	51	33 E	9.15
ARAB SHOAL	11	40 N	43	40 E	7.50, 10.3	BANDAR JAZIRAH	18	57 N	57	47 E	9.30
ARAFALI	15	05 N	39	45 E	5.15	BANDAR JISSAH	23	33 N	58	39 E	11.8
ARDESHIR OIL FIELD	29	15 N	49	35 E	17.9	BANDAR KHONEYNI	30	26 N	49	05 E	17.11
AS SALAMAH	26	30 N	56	30 E	13.6	BANDAR MATUQ	24	33 N	51	28 E	15.40
AS SALAMAH WA BANATUHA	26	30 N	56	32 E	13.6	BANDAR MISHAB	28	07 N	48	38 E	16.23
AS SALIF	15	18 N	42	40 E	7.48	BANDAR MURCAAYO	11	41 N	50	28 E	10.39
AS SAWDA	17	29 N	55	51 E	9.25	BANDAR NAWA	17	15 N	55	19 E	9.27
AS SAYHA	26	29 N	50	02 E	16.13	BANDAR NAY BAND	27	26 N	52	37 E	14.10
AS SIB	23	41 N	58	10 E	11.14	BANDAR QINQARI	17	00 N	55	00 E	9.24
AS SUHAR	24	23 N	56	45 E	11.18, 11.20	BANDAR RUWAYNI	14	32 N	49	10 E	9.11
AS SUWAIQ	23	51 N	57	27 E	11.17	BANDAR SALIH	12	10 N	52	13 E	10.48
AS SUWAYQ	23	51 N	57	27 E	11.17	BANDAR SHAHID REJAIE	27	06 N	56	04 E	13.29
AS SUWAYS	29	58 N	32	33 E	1.13	BANDAR SHAYKH	12	44 N	44	53 E	8.6
ASALUYEH	27	29 N	52	36 E	14.11	BANDAR TAHERI OFFSHORE TERM.	27	39 N	52	21 E	14.13
ASH SHAM	26	02 N	56	05 E	15.2	BANDAR XARSHOW	11	10 N	47	24 E	10.32
ASH SHARIQAH	25	21 N	55	23 E	15.13	BANDAR-E BISCOE	26	55 N	55	52 E	13.30
ASH SHARMAH	27	56 N	35	15 E	6.15	BANDAR-E DEYLAM	30	04 N	50	09 E	17.8
ASH SHIHR	14	45 N	49	34 E	9.11	BANDAR-E HAMIRAN	26	41 N	55	06 E	13.33
ASH SHIHR OIL TERMINAL	14	42 N	49	29 E	9.12	BANDAR-E HASINEH	26	39 N	54	22 E	14.3
ASH SHINAS	24	46 N	56	29 E	11.19	BANDAR-E HOMEYRAN	26	41 N	55	06 E	13.33
ASH SHUAYBAH	29	02 N	48	10 E	16.36	BANDARE KHOWR	29	34 N	50	31 E	17.6
ASH SHUHAIR	14	39 N	49	22 E	9.11	BANDAR-E KONG	26	35 N	54	56 E	13.33
ASH SHUWAYKH	29	21 N	47	56 E	16.41	BANDAR-E KORZEH	26	45 N	53	58 E	14.4
ASHIQ BANK	16	25 N	42	38 E	7.40	BANDAR-E LENGHEH	26	33 N	54	53 E	13.34
ASSAB	13	00 N	42	45 E	5.31	BANDAR-E MAHSHAHR	30	28 N	49	11 E	17.12
ASSAB BAHIR SELATE	13	00 N	42	45 E	5.30	BANDAR-E MAQAM	26	58 N	53	29 E	14.9
ASTOLA ISLAND	25	06 N	63	50 E	12.8	BANDAR-E MOGHUYEH	26	36 N	54	30 E	14.3
ATHAN SHOAL	29	44 N	48	35 E	16.44	BANDAR-E NAKHILU	26	54 N	53	30 E	14.9
ATLASSI SHOAL	29	54 N	48	21 E	16.44	BANDAR-E PARS	27	32 N	52	32 E	14.12
AT-TUR BANK	28	15 N	33	23 E	2.26	BANDAR-E RIG	29	29 N	50	38 E	17.6
ATWAQ	16	19 N	42	41 E	7.40	BANDAR-E SHIU	27	05 N	53	09 E	14.9
AVOCET ROCK	14	22 N	42	42 E	3.7	BANDAR-E SIRIK	26	29 N	57	05 E	13.26
AWHAH	29	23 N	48	27 E	16.40	BANDER CASSIM	11	17 N	49	11 E	10.36
AWQAD	17	00 N	54	03 E	9.22	BARASSOLI BAY	13	40 N	42	10 E	5.27
AYANAT	27	44 N	52	11 E	14.13	BARGAAL	11	17 N	51	04 E	10.44
AZ ZABBUT	24	08 N	52	26 E	15.38	BARIM	12	40 N	43	25 E	5.34, 7.63
AZ ZAHAIR	15	53 N	42	41 E	7.41	BARIM HARBOR	12	39 N	43	25 E	7.63
AZ ZAHARAN	26	18 N	50	08 E	16.10	BARKA	23	42 N	57	54 E	11.16
AZ ZALLAQ	26	03 N	50	29 E	16.9	BARKAN OIL LOADING TERMINAL	29	44 N	50	10 E	17.7
AZ ZARQA PETROLEUM PORT	25	01 N	53	00 E	15.30	BARR AL HIKMAN	20	30 N	58	24 E	9.34
AZ ZUKUM OIL FIELD	24	51 N	53	39 E	15.23	BARRA MUSA SAGHIR	19	03 N	38	12 E	4.48
AZ ZUQUR	14	00 N	42	45 E	3.10	BARRAQAH	13	59 N	48	28 E	9.7
						BARROW ROCKS	13	17 N	45	38 E	9.2
						BARTON ISLET	18	23 N	41	16 E	7.32
						BAY OF ASEB	13	00 N	42	45 E	5.30
						BAYAD BIN JUWAYSIM	20	37 N	58	47 E	9.41
						BEACON SHOAL	26	38 N	55	14 E	13.32
						BEAUCHAMP REEF	24	50 N	66	35 E	12.2
						BERAESOLI BAHIR SELATE	13	40 N	42	10 E	5.27
						BERBERA	10	26 N	45	01 E	10.3
						BERBERA	10	27 N	45	01 E	10.24
						BEREEDA	11	52 N	51	03 E	10.41
						BERRI OIL FIELD	27	12 N	49	42 E	16.19
						BEYZEH KHAN	27	28 N	52	39 E	14.10
						BID KHUN	27	28 N	52	39 E	14.10
						BINDAR DIBNI	12	41 N	54	10 E	10.55
						BINDAR DI-IRISAL	12	31 N	54	29 E	10.58
						BINDAR FIKHAH	12	33 N	54	29 E	10.57
						BLACK HILL	13	46 N	46	59 E	9.1
						BLACK PEAK	10	38 N	45	35 E	10.26
						BOOSAASO	11	17 N	49	11 E	10.36
						BOSANQUET SHOAL	13	05 N	42	48 E	5.29
						BOSTANU	27	05 N	56	01 E	13.31
						BOSTANU EAST BANK	27	04 N	56	05 E	13.31
						BOSTANU SHIPYARD	27	03 N	55	58 E	13.29
						BRANDON ROCK	20	45 N	37	12 E	4.32
						BRICK KILN	30	08 N	48	23 E	17.21
						BROOK SHOAL	18	42 N	41	05 E	7.30
						BU OL KHEYR	28	32 N	51	05 E	14.17
						BU RASHID	26	24 N	56	29 E	13.5
						BU SANIA	24	24 N	52	36 E	15.27
						BU SEYF	30	01 N	48	55 E	17.13
						BUBIYAN	29	43 N	48	16 E	16.33
						BUHEIRET EL-TIMSAH	30	35 N	32	18 E	1.9
						BUKHA	26	09 N	56	09 E	13.11
						BUKHA OIL FIELD	26	15 N	56	03 E	13.11
						BULHAR	10	24 N	44	24 E	10.23
B											
BACAAD	11	21 N	49	27 E	10.37						
BACCHUS BANK	12	14 N	52	26 E	10.48						
BAHR EL QULZUM	29	54 N	32	32 E	1.12						
BAHRAIN LIGHT FLOAT	26	33 N	51	04 E	16.6						
BAIA D'ANFILE	14	45 N	40	50 E	5.20						
BAIA DI ED	13	56 N	41	43 E	5.24						
BAIA DI EDD	13	56 N	41	43 E	5.24						
BAIA DI MELITA	15	15 N	39	49 E	5.15						
BAIE BLONDEAU	11	34 N	42	36 E	10.10						
BAIE DALWAKTEAK	11	29 N	43	16 E	10.16						
BAIE DE L'ETOILE	11	34 N	42	39 E	10.9						
BAIE DU LAC SALE	11	34 N	42	33 E	10.10						
BAKLANG	25	17 N	60	13 E	12.15						
BALANGESTAN	28	18 N	51	15 E	14.16						
BANC ARABE	11	40 N	43	40 E	10.3						
BANC DE L'ETOILE	11	38 N	43	05 E	10.13						
BANC DE LA CURIEUSE	11	39 N	43	11 E	10.4						
BANC DES SALINES	11	36 N	43	07 E	10.14						
BANC DU DANKALI	11	43 N	43	20 E	10.4						
BANC DU PINGOUIN	11	38 N	43	07 E	10.13						
BANC EL HADJ	11	38 N	43	04 E	10.13						
BANC SOMALI	11	38 N	43	21 E	10.4						
BANDAR ABBAS	27	09 N	56	12 E	13.28						
BANDAR ABBAS NEW PORT	27	06 N	56	04 E	13.29						
BANDAR AL KHAYRAN	23	31 N	58	44 E	11.8						
BANDAR BARUM	14	20 N	48	57 E	9.9						
BANDAR BURUM	14	20 N	48	57 E	9.9						
BANDAR FAKA	12	33 N	54	29 E	10.57						
BANDAR FUQUM	12	45 N	44	46 E	8.5						
BANDAR GANZ	25	05 N	61	53 E	12.11						

	Position			Sec. Para		Position			Sec. Para
F									
FAIRWAY LIGHTED BUOY	24	39 N	54 14 E	15.18	GHUBBAT AL MAHASIN	19	45 N	40 43 E	7.25
FALSE RAS GHARIB	28	29 N	33 00 E	2.7	GHUBBAT AL QAMAR	16	20 N	53 00 E	9.17
FANAKU	26	30 N	56 31 E	13.6	GHUBBAT AL QINA	19	04 N	41 09 E	7.28
FANARA QUAY	30	17 N	32 21 E	1.10	GHUBBAT AQABAH	25	55 N	56 24 E	13.3
FAO	29	58 N	48 29 E	17.21	GHUBBAT ASH SHABUS	26	10 N	56 28 E	13.4
FARA ISLANDS	19	20 N	40 50 E	7.26	GHUBBAT AZ ZAYT	27	47 N	33 31 E	2.13
FARASAN AL KABIR	16	42 N	42 00 E	7.12	GHUBBAT BINTAWT	20	22 N	58 02 E	9.33
FARRAJIN ISLAND	18	14 N	38 21 E	4.60	GHUBBAT BINTUT	20	22 N	58 02 E	9.33
FASHT ABU SAAFAH	26	58 N	50 23 E	16.14	GHUBBAT DI-NET	12	25 N	53 27 E	10.58
FASHT AL ARIF	24	57 N	51 40 E	15.42	GHUBBAT HASHISH	20	30 N	58 10 E	9.34
FASHT AL AYK	29	45 N	48 30 E	16.44	GHUBBAT NAYT	12	25 N	53 27 E	10.58
FASHT AL BAZM	24	17 N	53 23 E	15.25	GHUBBAT QULANSIYAH	12	41 N	53 28 E	10.52
FASHT AL DIBAL	26	16 N	50 57 E	16.6	GHUBBAT QURMAH	12	40 N	53 48 E	10.53
FASHT AL HADIBAH	29	24 N	47 57 E	16.41	GHUBBAT QUWAYRAT	19	41 N	57 44 E	9.33
FASHT AL JARIM	26	24 N	50 30 E	16.7	GHUBBAT SAILAN	12	55 N	45 13 E	9.2
FASHT AL KASHSH	27	30 N	49 30 E	16.22	GHUBBAT SAWQIRAH	18	35 N	57 16 E	9.29
FASHT AL UDAYD	24	50 N	51 47 E	15.42	GHUBBAT SAYLAN	12	55 N	45 13 E	9.2
FASHT BULDANI	28	00 N	49 06 E	16.22	GHUBBAT SHUAB	12	35 N	53 22 E	10.51
FASHT GHARIBAH	27	00 N	50 13 E	16.11, 16.14	GHUBBAT KALWEYN	11	09 N	47 42 E	10.32
					GHURAB	16	10 N	42 40 E	7.40
FASHT OL MOVA	30	04 N	49 10 E	17.9	GHURAB	19	30 N	40 53 E	7.26
FASHT UMM JANNAH	24	34 N	51 33 E	15.41	GIFATIN ISLANDS	27	13 N	33 56 E	4.2
FATEH OIL TERMINAL	25	35 N	54 25 E	15.22	GIZAN	16	54 N	42 31 E	7.37
FATMA DESET	13	02 N	42 52 E	5.30	GOLFE DE TADJOURA	11	43 N	43 12 E	10.4
FAWN REEF	16	59 N	39 35 E	5.6	GORDON PATCHES	19	55 N	40 27 E	7.21
FAWN SHOAL	15	23 N	40 10 E	5.17	GORDON REEF	27	59 N	34 27 E	6.5
FELIX JONES PATCHES	28	04 N	33 36 E	2.26	GRANDE LLE DU DIABLE	11	32 N	42 32 E	10.11
FIERAMOSCA SHOAL	13	08 N	42 51 E	5.29	GREAT PEARL BANK	25	18 N	54 53 E	15.20
FIRAN	17	11 N	42 10 E	7.35	GREAT QUOIN	26	30 N	56 30 E	13.6
FORT DE SAGALLOU	11	40 N	42 44 E	10.7	GREEN REEF	18	56 N	37 44 E	4.53
FORUR SHOAL	26	26 N	54 32 E	13.21, 14.2	GRUBB'S NOTCH	26	50 N	55 00 E	13.33
					GUBBET MUS NEFIT	15	41 N	40 00 E	5.18
FOUR PEAKED ROCK	17	29 N	56 20 E	9.26	GUBED BINNA	11	14 N	51 08 E	10.43
FRAAS ELUG	11	56 N	50 38 E	10.40	GUBED CANQOR	10	49 N	46 01 E	10.29
FRANKEN POINT	27	14 N	33 51 E	2.10, 4.3	GUBED RUGGUUDA	10	47 N	46 36 E	10.29
					GUH KUH	26	06 N	58 25 E	12.16
FUJAYRAH HARBOR	25	10 N	56 20 E	11.21	GUINNI KOMA	11	32 N	42 32 E	10.11
FUNNEL HILL	18	32 N	56 29 E	9.29	GULF OF AQABA	27	59 N	34 27 E	6.3
FUNNEL HILL	27	52 N	51 36 E	14.14	GUMRI	26	38 N	55 21 E	13.32
					GUNET EL-ADABIYA	29	52 N	32 28 E	1.14
					GURAN	26	43 N	55 37 E	13.31, 13.32
G									
GABEL ABU TIYUR	25	44 N	34 17 E	4.13	GURANGATTI	25	36 N	65 15 E	12.5
GACANKA XAAFUUN WAG	10	36 N	51 20 E	10.45	GUTTA TELLA OUSAL	11	32 N	43 14 E	10.16
GAHHA SHOAL	25	42 N	57 29 E	12.19	GUZUR ASHRAFI	27	47 N	33 42 E	2.16
GANAWEH	29	33 N	50 31 E	17.6	GWADAR	25	08 N	62 18 E	12.10
GANNET BANK	16	59 N	39 13 E	5.6	GWADAR EAST BAY	25	10 N	62 23 E	12.10
GAP ISLET	26	30 N	56 31 E	13.6	GWADAR WEST BAY	25	10 N	62 16 E	12.11
GAVATER	25	09 N	61 30 E	12.12	GWADAFUY	11	50 N	51 18 E	10.28, 10.42
GAZAIR GIFTUN	27	13 N	33 56 E	4.2	GWATAR BAY	25	05 N	61 35 E	12.12
GAZAIR GIFTUN	27	14 N	33 55 E	4.1	H				
GAZIRET SHAKIR	27	30 N	34 00 E	2.17	HAB RIVER	24	55 N	66 40 E	12.2
GEBEL ADUALI	12	57 N	42 26 E	5.23	HABL	16	10 N	42 48 E	7.40
GEBEL FAREYID	23	18 N	35 23 E	4.17	HADD SHABIB	26	14 N	50 14 E	16.10
GEBEL HAMATA	24	12 N	35 00 E	4.15	HAFFAR CHANNEL	30	25 N	48 10 E	17.13, 17.25
GEBEL HAMMAN FARUN	29	11 N	32 59 E	2.20					
GEBEL TACHI	13	03 N	42 39 E	5.24	HAIR DALMA 3	24	31 N	52 26 E	15.37
GEBEL USH	27	30 N	33 33 E	2.15, 4.4	HALAT AL ALAQ	24	14 N	52 41 E	15.28
					HALAT AL MUBARRAZ	24	28 N	53 22 E	15.24
GENABA BAY	16	40 N	42 03 E	7.13	HALAT DALMA	24	47 N	52 00 E	15.42
GEZIRET FIRON	29	28 N	34 52 E	6.11	HAMI	14	47 N	49 49 E	9.13
GEZIRET GHANIM	27	46 N	33 36 E	2.15	HAMRAWAIN	26	15 N	34 12 E	4.11
GEZIRET MUKAWWA	23	50 N	35 49 E	4.17	HANDELLAI	16	37 N	39 10 E	5.9
GEZIRET MUREIR	23	11 N	35 44 E	4.19	HANISH AL KABIR	13	44 N	42 44 E	3.13
GEZIRET SAFAGA	26	45 N	33 59 E	4.7	HANISH AS SAGHIR	13	52 N	42 47 E	3.12
GEZIRET ZABARGAD	23	37 N	36 12 E	4.17	HARGIGO BAHIR SELATE	15	33 N	39 30 E	5.13
GHARB MIYUN	18	30 N	38 51 E	4.48	HARKAT	20	20 N	39 46 E	7.5
GHASHA LIGHTED BUOY	24	26 N	52 35 E	15.27	HARO RANGE	25	30 N	66 05 E	12.2
GHASHSHAH	24	25 N	52 39 E	15.27	HARO RANGE	25	40 N	66 10 E	12.4
GHELJOGA	11	06 N	48 52 E	10.27	HARQUS	27	56 N	49 41 E	16.20
GHINNIBAD	12	47 N	43 05 E	5.32	HARTAH POINT	30	22 N	48 11 E	17.24
GHOUBBET KHARAB	11	33 N	42 41 E	10.8	HARTEH POINT	30	22 N	48 11 E	17.24
GHUBB DIQNAH	15	16 N	42 38 E	7.47	HASMET	17	44 N	38 44 E	5.3
GHUBBAT AD DAWM	17	30 N	55 20 E	9.28	HASR	18	09 N	41 29 E	7.34
GHUBBAT AGABAH	25	55 N	56 24 E	13.3	HASSA LAGOON	22	59 N	35 42 E	4.19
GHUBBAT AL AYN	13	59 N	48 00 E	9.5	HAYCOCK	21	19 N	37 02 E	4.26
GHUBBAT AL FADAYIH	16	49 N	53 51 E	9.20	HAYCOCK ISLAND	13	47 N	42 47 E	3.14
GHUBBAT AL GHAZIRAH	26	07 N	56 26 E	13.4	HAYCOCK ISLAND	15	10 N	42 07 E	3.6
GHUBBAT AL HAYKAH	12	39 N	43 45 E	8.2					

	Position			Sec. Para		Position			Sec. Para
	°	'	"			°	'	"	
HAYR ABU SUBAYTI	26	54 N	50 14 E	16.14	JABAL AD DUKHAN	26	02 N	50 33 E	16.4,
HAYR AL BUHAYM	26	52 N	50 10 E	16.14					16.6,
HAYR AL WASIAH	26	48 N	50 12 E	16.14					16.7
HAYR AS KHUSHAYNAH	26	57 N	50 18 E	16.14	JABAL AL ASWADAIN	20	09 N	40 50 E	7.3
HAYR AS SAFRA	26	53 N	50 08 E	16.14	JABAL AL JABBARA	20	18 N	40 30 E	7.3
HAYR AS SARAH	26	32 N	50 24 E	16.8	JABAL AL MUWAYLIH	27	37 N	35 45 E	6.1
HAYR KHAWRAH	26	40 N	50 18 E	16.14	JABAL AL MUZALQAM	12	45 N	44 52 E	8.6
HAYR SHUTAYA	26	35 N	50 48 E	16.6	JABAL ALI	25	02 N	55 07 E	15.15
HAYYOU	11	58 N	43 18 E	10.5	JABAL AMUDAH	28	10 N	48 36 E	16.23
HD3	24	31 N	52 26 E	15.37	JABAL ASH SHABATAYN	20	18 N	57 43 E	9.33
HEIS	10	53 N	46 54 E	10.30	JABAL ASH SHUBATAYN	20	18 N	57 43 E	9.33
HENDIJAN	30	15 N	49 43 E	17.9	JABAL ASOTERIBA	21	52 N	36 30 E	4.21
HENGAM SOUND	26	41 N	55 54 E	13.14	JABAL ATTAIR	15	33 N	41 50 E	3.5
HIBAR ISLAND	16	54 N	42 22 E	7.38	JABAL AZ ZANNAH	24	10 N	53 06 E	15.32
HILLANIYAH	13	59 N	48 19 E	9.6, 9.7	JABAL AZ ZANNAH	24	10 N	53 36 E	15.25
HINDI GIDER	19	23 N	37 55 E	4.46	JABAL BANI SAD	20	37 N	40 38 E	7.2
HOROD LE RHALE	12	27 N	43 26 E	10.2	JABAL BANI SALIM	19	53 N	40 58 E	7.3
HOWAKIL BAY	15	10 N	40 15 E	5.19	JABAL BARAKAH	24	00 N	52 20 E	15.38
HULAYLAH OIL TERMINAL	25	59 N	55 24 E	13.18,	JABAL BARDAH	23	35 N	58 36 E	11.9
				15.4	JABAL BISCOE	26	49 N	55 54 E	13.12
HUMAYDAH	29	13 N	34 54 E	6.10	JABAL BUWAYRIDAH	24	18 N	52 38 E	15.26
HURA BARGHA	24	17 N	56 33 E	11.19	JABAL DABBAH	27	50 N	35 45 E	6.1
HURGHADA	27	13 N	33 51 E	4.4	JABAL DAUQA	19	50 N	41 18 E	7.2
HYNDMAN REEFS	26	39 N	34 03 E	4.9	JABAL DUBAAH	13	01 N	43 29 E	7.52
					JABAL ERBA	20	50 N	36 52 E	4.27
					JABAL GASH AMIR	22	16 N	36 14 E	4.20
					JABAL GHURAYN	24	09 N	53 08 E	15.25
					JABAL GUMADERIBA	20	05 N	36 43 E	4.34
					JABAL HAB	25	20 N	65 27 E	12.4
I					JABAL HADARBA	22	01 N	36 40 E	4.21
IBN ABBAS	15	23 N	42 48 E	7.50	JABAL HAJRA	20	14 N	41 12 E	7.2
IBN ABBAS ISLAND	18	13 N	38 19 E	4.60	JABAL HAMATAH	24	12 N	35 00 E	4.15
ILE BAB	11	33 N	42 41 E	10.8	JABAL HILF	20	39 N	58 53 E	9.42
ILE BASSE	12	28 N	43 25 E	10.2	JABAL HINGLAJ	25	30 N	65 25 E	12.5
ILE DE L'EST	12	27 N	43 26 E	10.2	JABAL HORTON	26	59 N	56 06 E	13.31
ILE DE L'OUEST	12	28 N	43 22 E	10.2	JABAL JALAN	22	11 N	59 22 E	9.43
ILE DOUBLE	12	28 N	43 23 E	10.2	JABAL JIFAN	21	46 N	59 24 E	9.43
ILE MAIT	11	13 N	47 13 E	10.28	JABAL KHIRAN	20	22 N	58 41 E	9.39
ILE MASKALI	11	43 N	43 09 E	10.4	JABAL KUIREH	12	21 N	53 32 E	10.58
ILE TOLKA	12	28 N	43 25 E	10.2	JABAL MADRUB	20	33 N	58 53 E	9.35
ILE WARAMOS	11	33 N	43 11 E	10.16	JABAL MAHASIN	15	18 N	42 41 E	7.49
ILES MUSHA	11	44 N	43 12 E	10.4	JABAL MAKANATI	13	53 N	47 40 E	9.4
INNER BAR REACH	29	55 N	48 38 E	17.19	JABAL MARSA	12	40 N	44 25 E	8.5
INNER CHANNEL	27	50 N	33 53 E	2.31	JABAL MUSA	13	40 N	43 25 E	7.60
ISA BAY	15	05 N	42 43 E	7.54	JABAL NADESH	19	58 N	41 10 E	7.3
ISLAND REEF	20	42 N	58 53 E	9.42	JABAL NAWS	17	14 N	55 17 E	9.24
ISMAILIA	30	35 N	32 17 E	1.10	JABAL NUSS	17	14 N	55 17 E	9.24
ISOLA ADBARA CHEBIR	16	00 N	39 50 E	5.8	JABAL QAHM	18	01 N	41 36 E	7.32
ISOLA ASBAB	16	26 N	40 05 E	5.7	JABAL QINQARI	17	02 N	55 01 E	9.24
ISOLA CORDUMIAT	14	06 N	41 40 E	5.25	JABAL RADWA	24	36 N	38 16 E	6.1,
ISOLA DEHALAK DESET	15	37 N	39 58 E	5.17					6.26
ISOLA DELEMME	15	30 N	39 54 E	5.17	JABAL SADIYA	20	45 N	40 06 E	7.1
ISOLA DIFNEIN	16	37 N	39 20 E	5.6	JABAL SAFAIQ	20	28 N	58 48 E	9.40
ISOLA DISSEI	15	28 N	39 45 E	5.13	JABAL SAFFAN	22	24 N	59 49 E	9.45
ISOLA DOUMEIRA	12	43 N	43 09 E	5.33	JABAL SAMHAN	17	04 N	54 38 E	9.20
ISOLA DUR GAAM	15	47 N	39 45 E	5.8	JABAL SAMRA	28	59 N	33 16 E	2.20
ISOLA ENTAENTOR	16	20 N	40 14 E	5.5, 5.7	JABAL SHIFA	20	35 N	40 56 E	7.2
ISOLA ENTA-IDELL	16	08 N	39 51 E	5.8	JABAL SIRBAL	28	39 N	33 39 E	2.24
ISOLA ENTESILE	16	30 N	39 19 E	5.7	JABAL SIRI	27	49 N	52 13 E	14.11
ISOLA FATUMAH	13	02 N	42 52 E	5.30	JABAL SIR-I-YALFAL	27	33 N	52 37 E	14.11
ISOLA HARAT	16	05 N	39 28 E	5.4	JABAL SIYH	21	54 N	59 24 E	9.43
ISOLA HARAT	16	06 N	39 28 E	5.10	JABAL SUBH	23	18 N	39 01 E	6.27
ISOLA HARMIL	16	31 N	40 10 E	5.6	JABAL SUHAR	24	17 N	56 33 E	11.19
ISOLA HUCALE	16	20 N	40 05 E	5.8	JABAL SUR	25	13 N	62 29 E	12.10
ISOLA ISRATU	16	20 N	39 53 E	5.8	JABAL TULLAH	24	24 N	51 19 E	15.40
ISOLA MIDIR	14	52 N	40 45 E	5.20	JABAL UMM KURHA	20	28 N	40 46 E	7.3
ISOLA OTA	15	30 N	39 49 E	5.14	JABAL WASM	18	01 N	41 36 E	7.32
ISOLA RACHMAT	13	40 N	42 13 E	5.27	JABAL WIDAN	17	54 N	41 48 E	7.32
ISOLA SANAH BOR	13	05 N	42 43 E	5.29	JABAL ZARAIN	25	12 N	63 30 E	12.9
ISOLA SCIUMMA	15	32 N	40 00 E	5.4	JABAL ZUBAYR	15	04 N	42 10 E	3.7
ISOLA SEIL ADASI	16	20 N	39 56 E	5.8	JABAL ZUQAR	14	00 N	42 45 E	3.10
ISOLA SHUMMA	15	32 N	40 00 E	5.16	JABAL-I-MEHDI	25	13 N	62 25 E	12.10
ISOLE MOHABBACAH	13	24 N	42 36 E	3.18	JABALKHARAZ	12	44 N	44 09 E	8.1
ISOLOTTI ASSARKA	15	32 N	39 55 E	5.16	JABBARA	19	26 N	40 04 E	7.9
ISOLOTTI CURDUMIAT	14	04 N	41 39 E	5.25	JABRIN	27	52 N	51 26 E	14.16
ISOLOTTI KORDUMUIT	14	04 N	41 39 E	5.25	JADAM	26	22 N	50 30 E	16.7
ISOLOTTO MADOTE	15	35 N	39 46 E	5.16	JADHIB	16	37 N	52 58 E	9.18
ITAB	15	20 N	51 28 E	9.15	JADIB	16	37 N	52 58 E	9.18
					JAFREH	28	58 N	50 49 E	17.3
					JALAJIL	19	54 N	40 32 E	7.21
J					JANA	27	22 N	49 54 E	16.17
JABAL ABU SHAWK	20	55 N	39 29 E	7.1	JANABAH BAY	16	40 N	42 03 E	7.13

	Position				Sec. Para		Position				Sec. Para
	°	'	°	'			°	'	°	'	
KHALIJ-E NAY BAND	27	26 N	52	37 E	14.10	KUH-E MOBARAK	25	51 N	57	19 E	13.26
KHALIJ-E SHARQI-YE JASK	25	39 N	57	54 E	12.17	KUH-E NAMAKI	26	40 N	54	26 E	14.3
KHARG ISLAND	29	14 N	50	19 E	17.4	KUH-E PUSHT	25	06 N	61	23 E	12.12
KHARG ISLAND OIL TERMINAL	29	14 N	50	20 E	17.5	KUH-E SEHTANJ	28	29 N	51	11 E	14.17
KHAWR ABD ALLAH	29	53 N	48	20 E	16.44	KUH-E ZANGIAK	26	12 N	57	33 E	13.26
KHAWR AL AMAYA	29	35 N	48	55 E	16.44, 17.15	KUHESTAK	26	47 N	57	02 E	13.26
KHAWR AL BAB	26	24 N	50	25 E	16.8	KUMH	16	38 N	42	00 E	7.15
KHAWR AL BIGHAL	24	30 N	54	27 E	15.18	KUNAR SIAH	26	40 N	55	25 E	13.32
KHAWR AL BIRK	18	14 N	41	30 E	7.33	KURIA MURIA BAY	17	39 N	55	53 E	9.27
KHAWR AL GHALAFIQA	14	32 N	43	00 E	7.59	KUSI	15	44 N	42	30 E	7.43
KHAWR AL HAJAR	22	32 N	59	46 E	11.3	KUTAIBAN CANAL	30	41 N	47	46 E	17.29
KHAWR AL JARAMAH	22	32 N	59	44 E	11.3	KUTAMAH	15	40 N	42	18 E	7.42
KHAWR AL KAFKA	29	35 N	48	53 E	17.15	KUTUMBUL	17	54 N	41	38 E	7.34
KHAWR AL KALBA	25	02 N	56	22 E	11.19	KUWAIT	29	23 N	47	58 E	16.41
KHAWR AL MAKRA	17	48 N	41	51 E	7.35	KUWAIT HARBOR	29	25 N	47	55 E	16.39
KHAWR AL MASIRAH	20	30 N	58	40 E	9.38						
KHAWR AL MUFATTAH	28	39 N	48	23 E	16.27						
KHAWR AL QULAYAH	26	13 N	50	38 E	16.6	L					
KHAWR AL QUWAY	26	21 N	56	22 E	13.9	LAASQORAY	11	10 N	48	12 E	10.33
KHAWR AL UDAYD	24	36 N	51	20 E	15.41	LAFT	26	54 N	55	46 E	13.31
KHAWR AL WAHLAH	16	44 N	42	40 E	7.38	LAFT QADIM	26	57 N	55	46 E	13.31
KHAWR AL ZUBAIR	30	11 N	47	54 E	16.46	LAKFEH SANDS	29	01 N	50	49 E	17.3
KHAWR AMIQ	18	28 N	41	26 E	7.32	LANSDOWN SHOAL	15	31 N	42	36 E	7.45
KHAWR BUSTAN	26	19 N	56	22 E	13.9	LAZARETTO SHOAL	15	26 N	42	42 E	7.46
KHAWR DASAH	24	16 N	52	37 E	15.26	LIGHTED FLOAT	29	37 N	49	35 E	17.11
KHAWR DUWAYHIN	24	20 N	51	20 E	15.40	LILY SHOAL	14	51 N	42	45 E	7.56
KHAWR FAKKAN	25	21 N	56	23 E	11.22	LIMAH	25	56 N	56	26 E	13.3
KHAWR GHADIR	12	44 N	44	54 E	8.6	LITTLE ADEN PENINSULA	12	45 N	44	52 E	8.6
KHAWR GHANADAH	24	50 N	54	45 E	15.17	LITTLE BITTER LAKE	34	15 S	32	33 E	1.10
KHAWR GHUBB ALI	26	17 N	56	21 E	13.9	LIVERPOOL POINT	12	38 N	43	25 E	7.63
KHAWR HABALAYN	26	07 N	56	26 E	13.4	LOBAN ISLAND	15	53 N	42	17 E	7.18
KHAWR HANAH	26	14 N	56	13 E	13.11	LOGAN REEF	19	22 N	37	50 E	4.47
KHAWR ITWAD	17	34 N	42	08 E	7.35	LONG REEF	24	14 N	52	37 E	15.28
KHAWR KATHIB	14	54 N	42	55 E	7.56	LUBWAN	15	53 N	42	17 E	7.18
KHAWR KATIB	14	54 N	42	55 E	7.56	LUGHAYE	10	40 N	43	57 E	10.22
KHAWR KHASAB	26	12 N	56	15 E	13.10	LULU OIL FIELD	28	38 N	49	25 E	16.30
KHAWR KUMZAR	26	20 N	56	25 E	13.6	LUMAH ZERF CHAF	13	02 N	42	45 E	5.29
KHAWR NUHUD	18	17 N	41	28 E	7.33	LUNKA CHANNEL	20	09 N	40	07 E	7.20
KHAWR SAJID	16	50 N	41	57 E	7.13						
KHAWR SHETANA	30	02 N	48	03 E	16.43						
KHAWR SHINAB	21	21 N	37	03 E	4.26	M					
KHAYSAYH	15	37 N	52	15 E	9.16	MADIQ GUBAL	27	40 N	34	00 E	2.32
KHAYYEN CANAL	30	27 N	48	07 E	17.14, 17.27	MAFSUBBER ISLAND	18	14 N	40	53 E	7.10
KHOR AL ZUBAIR	30	11 N	47	54 E	16.46	MAGHABIYAH	18	15 N	40	45 E	7.9
KHOR ANGAR	12	23 N	43	21 E	10.3	MAIT	10	58 N	47	04 E	10.31
KHOR EL MAROB	21	50 N	36	50 E	4.24	MAIT ISLAND	11	13 N	47	13 E	10.28
KHOR KALMAT	25	20 N	64	04 E	12.7	MAJIS	24	28 N	56	40 E	11.17, 11.19
KHOR MADUJI	11	07 N	43	35 E	10.21	MAKRAM	20	25 N	39	40 E	7.5
KHOR NOWARAT	18	15 N	38	20 E	4.59	MALIHAIH	25	00 N	37	07 E	6.25
KHOR RABCH	25	27 N	59	15 E	12.16	MALIK FAHD CAUSEWAY	26	10 N	50	22 E	16.9
KHOR RAPCH	25	27 N	59	15 E	12.16	MANDAIRA REEF BEACON	28	56 N	48	46 E	16.28
KHORA ANCHORAGE	30	30 N	47	51 E	17.28	MANGADAFI	11	36 N	43	04 E	10.12
KHOWR-DEYREH	29	01 N	50	48 E	17.3	MANNA HILLS	11	07 N	48	26 E	10.34
KHOWR-E BAHMANSHIR	30	08 N	48	34 E	17.13	MARESCAUX ROCK	13	46 N	42	42 E	3.14
KHOWR-E GURAN	26	53 N	55	43 E	13.31	MARID	25	48 N	55	58 E	15.6
KHOWR-E JAFARI	26	44 N	55	34 E	13.32	MARINER SHOAL	26	22 N	55	12 E	13.17
KHOWR-E KHAN	27	48 N	51	39 E	14.15	MARMAR	19	50 N	39	56 E	7.8
KHOWR-E MINAB	27	08 N	56	49 E	13.26	MARRAK	16	24 N	41	51 E	7.11
KHOWR-E MUSA	30	05 N	49	14 E	17.9	MARSA ABU ASAL	21	43 N	36	52 E	4.24
KHOWR-E MUSA LIGHTED FLOAT	29	37 N	49	34 E	17.9	MARSA ABU DABBAB	25	20 N	34	45 E	4.13
KHOWR-E PUDAR	28	58 N	50	52 E	17.3	MARSA ABU IMAMAH	21	30 N	36	57 E	4.25
KHOWR-E QAZLAN	30	08 N	49	07 E	17.9	MARSA ABU MAKHADIQ	27	02 N	33	54 E	4.6
KHOWR-E SOLTANI	28	59 N	50	51 E	17.3	MARSA AL MARUB	21	50 N	36	50 E	4.24
KHOWR-E VOSTA	30	23 N	48	55 E	17.10	MARSA AMID	19	25 N	37	18 E	4.44
KHOWR-E ZIARAT	28	10 N	51	19 E	14.16	MARSA ARUS	20	00 N	37	11 E	4.37
KHUSROWABAD	30	10 N	48	25 E	17.21	MARSA ATA	19	17 N	37	19 E	4.44
KINASAT HILF	20	41 N	58	50 E	9.41	MARSA AWEITIR	20	10 N	37	12 E	4.36
KING ABDUL AZIZ NAVAL BASE	26	59 N	49	42 E	16.18	MARSA BAQLAH	16	21 N	42	47 E	7.39
KISH KUH	26	41 N	55	32 E	13.15	MARSA DARUR	19	50 N	37	16 E	4.37
KITF AL MANHALAH	14	49 N	42	55 E	7.58	MARSA FAJRAH	13	36 N	43	17 E	7.60
KNOWR-E MAH SHAHR	30	27 N	49	10 E	17.10	MARSA FIJAB	20	02 N	37	12 E	4.37
KOBBEIN REEF	21	11 N	39	02 E	7.5	MARSA FIJJA	20	02 N	37	12 E	4.37
KONARAK	25	21 N	60	24 E	12.13	MARSA GWILAIB	21	46 N	36	52 E	4.24
KORDUMUIT DESET	14	06 N	41	40 E	5.25	MARSA HALAIB	22	15 N	36	38 E	4.21
KOSSEIR	26	06 N	34	17 E	4.12	MARSA HALAKA	21	25 N	37	00 E	4.26
KUH-E BANG	29	45 N	50	22 E	17.6	MARSA IBRAHIM	20	09 N	40	13 E	7.6
KUH-E BOSTANEH	26	34 N	54	41 E	13.35	MARSA ILUNDABA	25	00 N	34	55 E	4.14
KUH-E DARANG	28	05 N	51	36 E	14.14	MARSA KUWAI	19	13 N	37	20 E	4.44
KUH-E GIKAN	25	50 N	57	43 E	12.17	MARSA KUWAYY	19	13 N	37	20 E	4.44
KUH-E KHURMUJ	28	43 N	51	28 E	14.17						

	Position				Sec. Para		Position				Sec. Para
	°	'	°	'			°	'	°	'	
MARSA MAQDAM	18	43 N	37	42 E	4.54						
MARSA QISHRAN	20	15 N	39	55 E	7.6						
MARSA SALAK	20	27 N	37	11 E	4.33						
MARSA SHAB	22	50 N	35	46 E	4.19						
MARSA SHAYKH IBRAHIM	18	53 N	37	25 E	4.52						
MARSA SHAYKH SAD	18	50 N	37	25 E	4.52						
MARSA THELEMET	29	03 N	32	38 E	2.6						
MARSA TORONBI	25	42 N	34	35 E	4.13						
MARSA UMBEILA	22	00 N	36	50 E	4.24						
MARSA WADI FERAN	28	45 N	33	13 E	2.23						
MARSA ZUBAYDAH	26	52 N	36	01 E	6.19						
MARSAT AL QADI YIHYA	27	55 N	33	54 E	2.30						
MARSO SANEEKHAAL	11	01 N	47	07 E	10.31						
MASAMIRIT	18	50 N	38	46 E	4.48						
MASEN	26	44 N	56	00 E	13.13						
MASHABIH	25	39 N	36	28 E	6.22						
MASHEH	26	33 N	54	02 E	14.5						
MASKAN	29	29 N	48	15 E	16.39						
MASON REEFS	18	51 N	41	02 E	7.29						
MASON SHOAL	25	37 N	57	42 E	12.18						
MASQAT	23	37 N	58	37 E	11.11						
MASSAUA	15	37 N	39	28 E	5.12						
MASSAWA	15	37 N	39	28 E	5.12						
MASSIF DE LA TABLE	12	15 N	43	23 E	10.2						
MATRAHAYN	17	09 N	41	37 E	7.12						
MAUNDRELL SHOAL	26	41 N	55	57 E	13.14						
MAWSHIJ	13	43 N	43	16 E	7.60						
MAYDH	11	13 N	47	13 E	10.32						
MAYDI	16	19 N	42	49 E	7.39						
MAYETIB ISLANDS	20	48 N	37	20 E	4.29						
MEERA REEFS	19	12 N	37	42 E	4.47						
MELAHAT	16	02 N	39	15 E	5.10						
MELITA BAY	15	15 N	39	49 E	5.15						
MERLIN POINT	27	12 N	33	51 E	4.5						
MERSA BERISSE	18	00 N	38	35 E	5.3						
MERSA DUDO	13	52 N	41	54 E	5.26						
MERSA GULBUB	16	25 N	39	11 E	5.10						
MERSA ZARABA	27	50 N	34	00 E	2.30						
MID ISLET	13	39 N	42	45 E	3.16						
MIDDIT	17	47 N	38	36 E	5.2						
MIDDLE REEF	26	43 N	34	00 E	4.8						
MINA ABD ALLAH	29	01 N	48	10 E	16.35						
MINA AL AHMADI	29	04 N	48	10 E	16.37						
MINA AL FAHL	23	39 N	58	32 E	11.13						
MINA AL MALIK FAHD	23	57 N	38	13 E	6.29						
MINA AL QADIMAH	22	21 N	39	05 E	6.32						
MINA AZ ZAWR OIL TERMINAL	28	44 N	48	24 E	16.28						
MINA BARANIS	23	55 N	35	30 E	4.18						
MINA JABAL ALI	25	01 N	55	03 E	15.16						
MINA KHALID	25	21 N	55	23 E	15.13						
MINA QABUS	23	37 N	58	34 E	11.12						
MINA RAYSUT	16	56 N	54	02 E	9.21						
MINA SALMAN	26	12 N	50	38 E	16.6						
MINA SAQR	25	59 N	56	03 E	15.3						
MINA SAUD OIL TERMINAL	28	44 N	48	24 E	16.28						
MIRBAT	16	59 N	54	44 E	9.23						
MISMARI REEF	21	20 N	39	02 E	6.35						
MITSUWA HARBOR	15	37 N	39	28 E	5.12						
MO'AVIYEH, JAZIREH-YE	30	13 N	48	24 E	17.21						
MOIDUBIS KEBIR	11	33 N	43	17 E	10.17						
MOIDUBIS SEGHIR	11	30 N	43	16 E	10.17						
MONTE ABU LULU	12	38 N	42	54 E	5.24						
MONTE GHEDEM	15	25 N	39	33 E	5.13						
MONTE IM IUM	15	43 N	40	02 E	5.17						
MONTE SELLA	13	00 N	42	42 E	5.31						
MOQKEH	28	57 N	50	49 E	14.20						
MORESBY SHOALS	28	10 N	33	27 E	2.26						
MOSHEIKH ISLETS	11	26 N	43	22 E	10.17						
MOUILLAGE DES BOUTRES	11	33 N	42	42 E	10.11						
MOUNT STEWART	24	19 N	52	36 E	15.26						
MUAYRID	25	48 N	55	58 E	15.6						
MUBAREK OIL TERMINAL	25	49 N	55	00 E	13.20						
MUBARRAZ APPROACH BUOY	24	57 N	53	18.7 E	15.24						
MUBARRAZ ENTRY BUOY	24	52.5 N	53	18.7 E	15.24						
MUBARRAZ OIL TERMINAL	24	26 N	53	31 E	15.24						
MUDAYRAH REEF	28	56 N	48	46 E	16.32						
MUHABBACA ISLANDS	13	24 N	42	36 E	3.18						
MUKAWWAR	20	48 N	37	16 E	4.30						
MULAAX BEYLE	10	46 N	46	42 E	10.30						
MUSAYNIAH	15	03 N	50	39 E	9.14						
MUSCAT	23	37 N	58	37 E	11.11						
MUSCAT ISLAND	23	37 N	58	36 E	11.9						
						N					
							30	31 N	47	51 E	17.28
							30	30 N	47	51 E	17.28
							30	33 N	47	49 E	17.28
							30	41 N	47	46 E	17.29
							19	33 N	40	47 E	7.26
							24	18 N	51	48 E	15.39
							26	33 N	50	15 E	16.8
							24	25 N	52	36 E	15.27
							27	49 N	51	28 E	14.15
							24	55 N	51	33 E	15.42
							10	41 N	46	30 E	10.29
							29	15 N	50	20 E	17.5
							29	53 N	32	33 E	1.12
							24	53 N	51	32 E	15.42
							15	49 N	52	12 E	9.17
							15	43 N	39	56 E	5.18
							29	39 N	32	22 E	2.3
							30	04 N	48	27 E	17.21
							19	27 N	37	44 E	4.47
							27	42 N	33	41 E	2.16
							13	43 N	42	47 E	3.15
							19	32 N	37	20 E	4.42
							28	58 N	34	39 E	6.9
						O					
							11	58 N	43	18 E	10.5
							30	59 N	47	29 E	17.30
							18	26 N	41	25 E	7.32
							27	50 N	51	33 E	14.15
							16	22 N	42	46 E	7.39
							25	12 N	64	38 E	12.5
							19	21 N	38	03 E	4.47
						P					
							25	10 N	66	40 E	12.2
							25	14 N	64	32 E	12.7
							14	55 N	50	41 E	9.14
							26	45 N	34	05 E	4.8
							27	05 N	53	12 E	14.9
							25	56 N	57	40 E	12.19
							13	38 N	42	49 E	3.15
							25	15 N	63	28 E	12.9
							13	47 N	42	45 E	3.14
							16	23 N	41	50 E	7.37
							12	40 N	43	25 E	5.34,
											7.63
							12	39 N	43	25 E	7.63
							19	23 N	38	00 E	4.47
							11	32 N	42	32 E	10.11
							18	48 N	41	09 E	7.30
							23	56 N	35	36 E	4.17
							25	25 N	65	55 E	12.4
							13	35 N	41	49 E	5.23
							29	50 N	48	43 E	17.18
							13				

	Position			Sec. Para		Position			Sec. Para		
	°	'	°	'		°	'	°	'		
PUZM, RAS-E	25	20 N	60	17 E	12.15	RAS ABU ALI	27	18 N	49	42 E	16.20
PYRAMID PEAK	10	43 N	47	00 E	10.26	RAS ABU BAKR	28	33 N	32	56 E	2.6
						RAS ABU DARAG	29	23 N	32	34 E	2.5
						RAS ABU DARAH	22	41 N	36	06 E	4.20
Q						RAS ABU DAWUD	23	19 N	58	55 E	11.7
QAD EITWID	19	03 N	37	27 E	4.50	RAS ABU MADD	24	50 N	37	08 E	6.26
QAD EL-MARAKIB	29	56 N	32	34 E	1.11	RAS ABU QALUM	28	38 N	34	34 E	6.8
QADD HUMAYS	20	17 N	39	29 E	7.5	RAS ABU QIYAMAH	12	44 N	44	54 E	8.6
QADIMBAL ISLET	17	54 N	41	38 E	7.34	RAS ABU QUMAYYIS	24	34 N	51	30 E	15.41
QAF	23	42 N	58	05 E	11.14	RAS ABU RASAS	20	10 N	58	39 E	9.36
QALA KEBIRA	29	55 N	32	32 E	1.12	RAS ABU RUDEIS	28	54 N	33	10 E	2.22
QALALI	26	16 N	52	39 E	16.5	RAS ABU SAWMAH	26	51 N	34	00 E	4.7
QALHAT	22	42 N	59	23 E	11.4,	RAS ABU SHAGRAB	21	04 N	37	19 E	4.27
					11.5	RAS ABU SHAJARAH	21	04 N	37	19 E	4.1,
										4.27	4.7
QANAT ABU ALI	14	04 N	42	48 E	3.9	RAS ABU SOMA	26	51 N	34	00 E	4.7
QANDALA	11	28 N	49	52 E	10.38	RAS ABU YABIS	18	07 N	38	32 E	4.62
QARN AL WADA	17	02 N	42	30 E	7.36	RAS ABU ZENIMA	29	03 N	33	06 E	2.21
QARN ZAQQ	24	19 N	52	36 E	15.26	RAS AD DAWABI	15	34 N	42	42 E	7.45
QARNAYN	24	56 N	52	51 E	15.31	RAS AD DAWHAH	29	23 N	47	51 E	16.42
QARZAWIT	17	36 N	56	09 E	9.26	RAS AD DIL	19	06 N	57	50 E	9.33
QASSAR DIWAN	26	11 N	50	40 E	16.4	RAS ADABIYA	29	52 N	32	30 E	2.2
QASSAR KHUSAYFAH	26	17 N	50	37 E	16.4,	RAS AJUZAH	29	23 N	48	00 E	16.40
					16.7	RAS AKAB	15	14 N	51	19 E	9.15
QATIF OIL FIELD	26	53 N	49	58 E	16.17	RAS AL ABYAD	23	32 N	38	33 E	6.30
QAYSUM ASH SHAMALIYAH	27	42 N	33	41 E	2.16	RAS AL ABYAD	23	39 N	58	30 E	11.14
QESHM	26	33 N	55	45 E	13.12	RAS AL ARAH	12	36 N	43	55 E	8.3
QESHM	26	44 N	55	40 E	13.12	RAS AL ARD	29	21 N	48	06 E	16.38
QESHM	26	58 N	56	17 E	13.12	RAS AL BAB	26	22 N	56	30 E	13.5
QISHN	15	26 N	51	41 E	9.16	RAS AL BARR	25	48 N	50	34 E	16.9
QISHN BAY	15	25 N	51	47 E	9.15	RAS AL BARSHAH	29	35 N	48	13 E	16.43
QIT AT ABU TALIH	29	24 N	47	48 E	16.42	RAS AL BATIN	24	27 N	54	19 E	15.18
QIT AT URAYFIJAN	29	00 N	48	16 E	16.34	RAS AL BAYAD	15	15 N	42	36 E	7.47
QITA AL AUWAL	19	50 N	40	32 E	7.22	RAS AL BISHAH	29	55 N	48	34 E	17.14
QITA EL BANNA	20	41 N	37	24 E	4.31	RAS AL GHAF	23	42 N	58	05 E	11.14
QITA TERONBO	18	39 N	37	48 E	4.57	RAS AL GHAR	26	52 N	49	52 E	16.17
QOLLEH-E SIRI	27	33 N	52	37 E	14.11	RAS AL GHAR	26	54 N	49	52 E	16.17
QOOR FELUG	11	51 N	50	32 E	10.39	RAS AL GHAR	27	28 N	49	18 E	16.22
QOORIGA HURDIYO	10	30 N	51	10 E	10.45	RAS AL HADD	22	33 N	59	48 E	9.45,
QOOW	11	15 N	48	59 E	10.35					11.2	
QUEI REEFS	26	24 N	34	11 E	4.5	RAS AL HAMRA	23	39 N	58	29 E	11.14
QUEI REEFS	26	24 N	34	12 E	4.11	RAS AL HASAH AL HAMRA	14	12 N	48	52 E	9.8
QUMMAH	16	38 N	42	00 E	7.15	RAS AL HASAN	19	38 N	40	46 E	7.25
QUOIN HILL	11	00 N	47	23 E	10.27	RAS AL HAZRA	24	23 N	51	36 E	15.39
QUOIN HILL	18	08 N	38	16 E	4.56	RAS AL HUMARA	19	48 N	40	37 E	7.23
QUOIN ISLET	15	12 N	42	04 E	3.6	RAS AL JARI	26	13 N	56	11 E	13.11
QURAYN ATUT	28	09 N	33	52 E	2.28	RAS AL JAZIRAH	20	34 N	58	57 E	9.37
QURMA	27	50 N	51	33 E	14.15	RAS AL JIRRI	26	13 N	56	11 E	13.11
QUSAYIR	14	56 N	50	17 E	9.14	RAS AL JUAYMAH	26	49 N	50	00 E	16.15
QUSEIR	26	06 N	34	17 E	4.12	RAS AL JUFAYR	26	12 N	50	36 E	16.6
QUSUR	15	44 N	42	30 E	7.43	RAS AL JUNAYZ	22	27 N	59	50 E	9.45
						RAS AL KANADA	23	37 N	58	37 E	11.9
						RAS AL KEEDAN	21	00 N	37	15 E	4.28
R						RAS AL KHAFJI	28	24 N	48	32 E	16.24
RAAS AXMAR	11	20 N	49	18 E	10.37	RAS AL KHAFJI OIL TERMINAL	28	26 N	48	35 E	16.25
RAAS BINNA	11	08 N	51	11 E	10.44	RAS AL KHAYMAH	25	48 N	55	57 E	15.5
RAAS CALUULA	11	59 N	50	47 E	10.41	RAS AL KHAYRAN	23	31 N	58	45 E	11.8
RAAS CASEYR	11	50 N	51	18 E	10.42	RAS AL KUH	25	48 N	56	17 E	14.1
RAAS DHOFTILLE	11	19 N	48	32 E	10.34	RAS AL KUH	25	48 N	57	18 E	12.18,
RAAS GACAAN	11	17 N	48	22 E	10.34					13.25	
RAAS GORAGII	11	29 N	49	42 E	10.38	RAS AL LAKK	24	24 N	37	25 E	6.28
RAAS JILBO	10	56 N	46	59 E	10.31	RAS AL LLAQ	25	01 N	51	38 E	15.42
RAAS KHANSIIR	10	52 N	45	49 E	10.26	RAS AL MADRAKAH	19	00 N	57	51 E	9.30
RAAS LAAS MACAAN	11	12 N	48	14 E	10.34	RAS AL MARG	29	02 N	50	48 E	17.3
RAAS MASKAN	11	12 N	43	33 E	10.21	RAS AL MATBAKH	25	40 N	51	34 E	15.49
RAAS SHANNAGIIF	11	41 N	51	15 E	10.43	RAS AL MISHAB	28	11 N	48	38 E	16.22,
RAAS XAAFUUN	10	27 N	51	24 E	10.28,					16.24	
					10.42,	RAS AL MISHAYU	20	21 N	58	27 E	9.39
					10.45	RAS AL QAYD	29	46 N	48	22 E	16.44
RAAS XAMRA	10	48 N	45	43 E	10.25	RAS AL QILA	24	09 N	52	59 E	15.26
RAAS XATIB	11	03 N	47	08 E	10.31	RAS AL QULAYAH	26	51 N	49	57 E	16.17
RAAS XUMBAYS	11	07 N	47	16 E	10.31	RAS AL QULAYAH	28	53 N	48	17 E	16.33
RABIGH	22	44 N	38	59 E	6.30	RAS AL UDAYD	24	38 N	51	24 E	15.41
RAIDA	15	01 N	50	26 E	9.14	RAS AL YA	20	31 N	58	59 E	9.37
RAKA SHOALS	20	00 N	40	25 E	7.20	RAS AL YAHY	29	24 N	48	28 E	16.40
RAMBLER KNOLL	12	32 N	44	10 E	8.1	RAS AMAS	15	32 N	39	35 E	5.13
RAMS	25	53 N	56	03 E	15.5	RAS AN NISAH	25	17 N	51	33 E	15.45
RAQ AT AL ALI	29	02 N	50	46 E	17.3	RAS ANDADDA	15	02 N	40	32 E	5.19
RAS ABID	18	09 N	38	30 E	4.62	RAS ANFILE	14	43 N	40	53 E	5.21
RAS ABU ABBUD	25	17 N	51	34 E	15.45	RAS ANRATA	14	42 N	40	57 E	5.21
RAS ABU AL MUSHUT	25	16 N	51	37 E	15.45	RAS AR KHABBAH	22	14 N	59	48 E	9.44
						RAS AR RUAYS	20	59 N	58	50 E	9.43

	Position			Sec. Para		Position			Sec. Para
	°	'				°	'		
RAS AR RUAYS	22	11 N	59 46 E	9.44	RAS JIWANI	25	01 N	61 43 E	12.12
RAS AR RUJAYMAH	14	08 N	48 48 E	9.8	RAS JUWAYFARIYA	24	20 N	51 24 E	15.40
RAS AR RUWAYS	20	59 N	58 50 E	9.43	RAS KACHARI	25	22 N	65 44 E	12.4
RAS ARB	15	48 N	39 26 E	5.10	RAS KALBAN	20	21 N	58 38 E	9.38
RAS ARB	15	48 N	39 27 E	5.11	RAS KAMAITI	25	06 N	62 16 E	12.11
RAS AS SILA	24	03 N	51 47 E	15.38	RAS KANISAH	27	56 N	33 53 E	2.29
RAS ASH SHAJAR	22	56 N	59 12 E	11.5	RAS KAPPAR	25	13 N	62 47 E	12.10
RAS ASH SHAM	26	04 N	56 05 E	15.2	RAS KARKUMA	25	53 N	36 38 E	6.21
RAS ASH SHUWAYMIYAH	17	54 N	55 54 E	9.28	RAS KASAR	18	02 N	38 35 E	4.62, 5.2
RAS ASIR	11	50 N	51 18 E	10.42	RAS KAWAKIB	26	22 N	50 13 E	16.10
RAS ASIS	18	25 N	38 09 E	4.58	RAS KAYDAH	20	17 N	58 47 E	9.36
RAS AT TANAQIB	27	50 N	48 53 E	16.22	RAS KEKENIB	15	00 N	42 53 E	7.55
RAS AT TARFA	17	02 N	42 20 E	7.36	RAS KHARABAH	26	09 N	36 28 E	6.21
RAS AZ ZAWR	27	25 N	49 19 E	16.21	RAS KHASAT AN NAWM	12	14 N	52 04 E	10.47
RAS AZ ZAWR	28	45 N	48 24 E	16.27	RAS KHAYSAN	26	15 N	56 30 E	13.5
RAS BA GHASWAH	14	50 N	50 05 E	9.13	RAS KHUDEIRIYAH	24	16 N	52 36 E	15.26
RAS BAB AL MANDEB	12	31 N	43 30 E	5.34	RAS KHUSAYFAH SPIT	26	19 N	50 35 E	16.7
RAS BAB AL MANDEB	12	41 N	43 28 E	8.2	RAS KHUSHAYYIM	18	57 N	57 45 E	9.30
RAS BADRAN OIL TERMINAL	28	57 N	33 10 E	2.22	RAS KORALI	11	35 N	42 48 E	10.11
RAS BANAS	23	54 N	35 47 E	4.16	RAS KUBA	16	20 N	39 12 E	5.10
RAS BARD HALQ	28	29 N	48 30 E	16.26	RAS LAFFAN	25	55 N	51 35 E	15.50
RAS BARIDI	24	16 N	37 33 E	6.29	RAS LOMA ZERF CHAF	13	02 N	42 45 E	5.29
RAS BARIDI	24	17 N	37 30 E	6.26	RAS MAHAR	24	43 N	37 11 E	6.27
RAS BARUM	14	19 N	49 00 E	9.8	RAS MAKASIR	18	57 N	41 07 E	7.28
RAS BASHIN	26	12 N	56 29 E	13.4	RAS MAKATO	15	15 N	39 43 E	5.15
RAS BASOL	25	17 N	64 14 E	12.7	RAS MALAB	29	12 N	32 55 E	2.19, 2.25
RAS BIR	11	59 N	43 22 E	10.3, 10.15	RAS MALAN	25	19 N	65 12 E	12.5
RAS BRIS	25	08 N	61 10 E	12.13	RAS MALCATTO	15	15 N	39 43 E	5.15
RAS BUGENI	13	46 N	42 02 E	5.26	RAS MALCOMMA	15	37 N	39 58 E	5.17
RAS BULUL	15	42 N	39 57 E	5.18	RAS MANREC	14	54 N	40 43 E	5.19
RAS BURUM	14	19 N	49 00 E	9.8	RAS MARSA	15	00 N	42 53 E	7.55
RAS CADCADDE	11	20 N	48 40 E	10.35	RAS MARSHAQ	12	45 N	45 03 E	8.8
RAS CALVEYN	10	31 N	45 06 E	10.25	RAS MASQAT	23	38 N	58 37 E	11.11
RAS CASEYR	11	50 N	51 18 E	10.28	RAS MATARMA	29	27 N	32 43 E	2.19
RAS DARISHAH	12	35 N	54 29 E	10.57	RAS MILN	27	00 N	56 10 E	13.30
RAS DARMA	13	14 N	42 33 E	5.28	RAS MILNE	27	00 N	56 10 E	13.29, 13.30
RAS DAWARIN	26	15 N	50 34 E	16.7	RAS MINJI	17	53 N	56 05 E	9.29
RAS DAYDUM	12	35 N	54 25 E	10.57	RAS MIRBAT	16	59 N	54 43 E	9.23
RAS DEHAMMERI	12	40 N	54 12 E	10.55	RAS MISALLA	29	49 N	32 36 E	2.18
RAS DEHANEBA	12	54 N	43 01 E	5.32	RAS MISALLA	29	49 N	32 37 E	1.12
RAS DEHANEBE MIDIR ZERF CHAF	12	54 N	43 01 E	5.32	RAS MUARI	24	50 N	66 40 E	12.2
RAS DIB	28	02 N	33 25 E	2.10	RAS MUHAMMAD	27	44 N	34 15 E	6.2
RAS DIBA	25	36 N	56 22 E	11.23, 13.2	RAS MUHGARA	29	49 N	32 29 E	2.3
RAS DILLAH	26	08 N	56 29 E	13.4	RAS MUKHALIF	26	22 N	56 25 E	13.6
RAS DIRRA	24	53 N	34 58 E	4.14	RAS MUKHAYLIF	26	22 N	56 25 E	13.6
RAS DOGON	15	38 N	39 29 E	5.11	RAS MUNTAJIB	17	39 N	55 24 E	9.28
RAS DUAN	11	49 N	43 03 E	10.6	RAS MUSAGHIB	16	15 N	42 47 E	7.40
RAS DUKHAN	25	31 N	50 47 E	16.3	RAS MUSHAYRIB	24	18 N	51 45 E	15.38
RAS DUMERA YE MIDIR ZERF CHAF	12	43 N	43 08 E	5.32	RAS MUTAYKAF	17	54 N	55 54 E	9.28
RAS EIRO	11	36 N	42 51 E	10.11	RAS MUTAYNAH	13	59 N	43 08 E	7.59
RAS EL-ADABIYA	29	52 N	32 30 E	1.12	RAS NAKHARIR	19	58 N	57 49 E	9.33
RAS EL-ADABIYA	29	52 N	32 31 E	1.14	RAS NAWA	17	15 N	55 19 E	9.24
RAS EL-ADAHIYA	29	52 N	32 30 E	2.2	RAS NUH	25	05 N	62 24 E	12.10
RAS FALANJ	12	29 N	54 27 E	10.58	RAS NUSS	17	15 N	55 19 E	9.24
RAS FARTAK	15	39 N	52 16 E	9.17	RAS ORMARA	25	10 N	64 36 E	12.5
RAS FINTAS	15	48 N	52 14 E	9.17	RAS OSH SHATT	29	06 N	50 42 E	17.3, 17.4, 17.6
RAS GANZ	25	01 N	61 50 E	12.11	RAS OSH SHAVARI	26	39 N	55 04 E	13.33
RAS GHARIB	28	21 N	33 06 E	2.5, 2.7, 2.8	RAS OSH SHIRE	26	01 N	57 12 E	13.26
RAS GURMAL	14	58 N	40 38 E	5.19	RAS PISHUKAN	25	06 N	62 05 E	12.11
RAS HADARIBA	22	04 N	36 52 E	4.23	RAS PUZM	25	17 N	60 28 E	12.13
RAS HAFFAH	25	44 N	56 19 E	13.3	RAS QABBAH	26	19 N	56 21 E	13.9
RAS HALI	18	36 N	41 17 E	7.31	RAS QABR AL HINDI	26	19 N	56 31 E	13.5
RAS HARAM	15	34 N	42 42 E	7.45	RAS QARWAW	17	53 N	56 18 E	9.29
RAS HASIK	17	23 N	55 20 E	9.27	RAS QATANAN	12	21 N	53 32 E	10.58
RAS HATIBAH	22	00 N	38 58 E	6.33	RAS QOSBEH	30	00 N	48 28 E	17.21
RAS HERBE	15	00 N	40 34 E	5.19	RAS QUDUFAH	20	41 N	58 55 E	9.37
RAS HILF	20	41 N	58 52 E	9.42	RAS QUMAYLAH	21	59 N	59 40 E	9.44
RAS HIMAR	16	54 N	53 57 E	9.20	RAS QURQUMAH	25	53 N	36 38 E	6.21
RAS HONKORAB	24	33 N	35 09 E	4.15	RAS QUSAYIR	14	54 N	50 17 E	9.13
RAS HULAF	12	42 N	54 06 E	10.54	RAS RAKAN	26	11 N	51 13 E	16.2
RAS HUNKURAH	24	33 N	35 09 E	4.15	RAS RAYSUT	16	55 N	54 00 E	9.20
RAS ILLAUE	11	59 N	50 47 E	10.28	RAS REHAYTO	12	44 N	43 07 E	5.32
RAS ISA MARINE TERMINAL	15	07 N	42 36 E	7.53	RAS RUAHMI	28	44 N	32 50 E	2.6
RAS ISTAHI	18	16 N	38 19 E	4.60	RAS SADAT TERMINAL	29	46 N	32 27 E	2.3
RAS ITAB	15	17 N	51 26 E	9.15	RAS SADR OIL TERMINAL	29	35 N	32 42 E	2.18
RAS JADDI	25	14 N	63 30 E	12.9	RAS SAFFANIYAH	27	59 N	48 47 E	16.22
RAS JAMSAH	27	38 N	33 35 E	2.15	RAS SAFWAN	13	49 N	47 36 E	9.4
RAS JAZRIYAL	22	17 N	36 35 E	4.21					
RAS JIBSH	21	28 N	59 22 E	9.43					

	Position				Sec. Para		Position				Sec. Para
RAS SAJR	16	45 N	53	35 E	9.20	RHIY DI-MOMI	12	32 N	54	29 E	10.57
RAS SAKANNI	25	13 N	64	26 E	12.7	RING REEF	18	58 N	40	22 E	7.9
RAS SALIB	26	22 N	56	22 E	13.8	RISHAH	15	10 N	42	34 E	7.46
RAS SAMADAI	25	01 N	34	55 E	4.14	ROCHER MOULHELE	12	31 N	43	18 E	5.33
RAS SARAB	24	16 N	51	47 E	15.38	ROCKY ISLANDS	13	38 N	42	47 E	3.16
RAS SARKAN	26	05 N	56	28 E	13.4	RODRIGUES SHOAL	25	11 N	64	45 E	12.6
RAS SAWQIRAH	18	08 N	56	36 E	9.29	ROOKA LIGHTED BUOY	29	48 N	48	48 E	17.20
RAS SAYLAN	13	03 N	45	24 E	9.2	ROSTAMI	28	35 N	51	05 E	14.17
RAS SAYYAH	25	37 N	50	16 E	16.2	RU US AL JIBAL	25	50 N	56	10 E	13.2
RAS SCERAJER	13	46 N	42	02 E	5.26	RUBETINO BOY	13	00 N	42	53 E	5.30
RAS SHAKAL	18	18 N	38	17 E	4.58	RUD-E GABRIG	25	36 N	58	20 E	12.16
RAS SHAKHS	14	38 N	41	12 E	5.21	RUD-E ZOHEREH	30	04 N	49	30 E	17.9
RAS SHAKHS	26	13 N	56	17 E	13.10	RUDKHANEH-YE GAZ	26	26 N	57	04 E	13.26
RAS SHAMAL BANDAR	25	15 N	63	06 E	12.9	RUGGUNDA	10	42 N	46	37 E	10.29
RAS SHARATIB	28	40 N	33	12 E	2.24	RUMAYN	16	24 N	42	14 E	7.17
RAS SHARBITHAT	17	53 N	56	21 E	9.29	RUMMAN	26	14 N	50	35 E	16.7
RAS SHARH	22	34 N	59	39 E	11.4	RUQQ AL JAZIR	18	34 N	56	51 E	9.29
RAS SHAYKH MASUD	26	15 N	56	13 E	13.7, 13.11	RUQQ QURAYNAYN	25	05 N	51	50 E	15.44
RAS SHEKUB	18	18 N	38	17 E	4.58						
RAS SHUAH	12	32 N	53	18 E	10.51	S					
RAS SHUKHAYR	28	08 N	33	17 E	2.9	SAACADA DIIN	11	26 N	43	28 E	10.19
RAS SHUKHEIR	28	08 N	33	17 E	2.9, 2.26	SABA ISLAND	15	05 N	42	09 E	3.6
RAS SHURAYTAH	26	23 N	56	23 E	13.7	SABA WANAK	10	33 N	44	07 E	10.22
RAS SIYAN	12	29 N	43	19 E	10.2	SABAWANAAG	10	33 N	44	07 E	10.22
RAS SIYYAN	12	29 N	43	19 E	10.2	SABUNIYAH	12	38 N	53	09 E	10.51
RAS SUDR	29	36 N	32	41 E	2.18	SADDLE HILL	23	35 N	58	36 E	11.9
RAS SUMAYRAH	24	19 N	51	26 E	15.40	SAFIQ	19	32 N	40	44 E	7.26
RAS SUWADI	23	57 N	57	48 E	11.16	SAJID	16	52 N	41	52 E	7.13
RAS SUWAYHIL AS SAGHIR	28	53 N	34	49 E	6.10	SALALAH	17	01 N	54	06 E	9.22
RAS TANNURAH	26	38 N	50	10 E	16.14	SALEEF	15	18 N	42	40 E	7.48
RAS TERMA	13	14 N	42	33 E	5.1, 5.22	SALEH OIL FIELD	26	10 N	55	42 E	13.18
RAS UMM HASAH	26	06 N	51	21 E	15.52	SALIF	15	18 N	42	40 E	7.48
RAS UMM SID	27	51 N	34	19 E	6.4	SALIMIYAH	29	21 N	48	04 E	16.40
RAS UQAB	15	14 N	51	19 E	9.15	SAMADRISAT	17	36 N	38	49 E	5.3
RAS USHAYRIA	25	59 N	51	00 E	16.3	SAMHAH	12	09 N	53	03 E	10.49
RAS USHAYRIQ	29	23 N	47	51 E	16.42	SAN CARLOS BANKS	19	29 N	58	00 E	9.32
RAS UWAYQIL	25	09 N	50	34 E	16.3	SANA ISLAND	16	07 N	42	15 E	7.18
RAS ZABID	14	07 N	43	05 E	7.59	SANAHOR DESET	13	05 N	42	43 E	5.29
RAS ZAFARANA	29	07 N	32	40 E	2.5	SANAK ISLET	19	43 N	40	38 E	7.23
RAS ZAFARANAT	20	30 N	58	58 E	9.36	SANDY ISLET	22	15 N	36	40 E	4.22
RAS ZURAWEN	26	15 N	50	34 E	16.7	SANDY ISLET	27	43 N	33	43 E	2.16
RAS-E BASA IDU	26	39 N	55	16 E	13.32	SANGANEH REEF	19	45 N	37	27 E	4.38
RAS-E BOSTANEH	26	30 N	54	37 E	13.35, 14.2	SAQR	15	33 N	51	58 E	9.16
RAS-E DASTAKAN	26	32 N	55	18 E	13.16	SAR-E CHIRUYEH	26	42 N	53	44 E	14.4
RAS-E HALILEH	28	49 N	50	58 E	14.18	SASAN OIL FIELD	25	32 N	53	09 E	15.34
RAS-E JAGIN	25	34 N	58	07 E	12.16	SASSAN OIL FIELD	25	32 N	53	09 E	15.34
RAS-E JASK	25	38 N	57	46 E	12.17	SATAH OIL FIELD	24	55 N	52	33 E	15.36
RAS-E KARUN	30	26 N	48	11 E	17.25	SATAN'S GAP	30	27 N	48	06 E	17.27
RAS-E KHAN	28	00 N	51	20 E	14.16	SAUNDERS REEF	17	11 N	39	24 E	5.6
RAS-E KHARGU	26	41 N	55	56 E	13.13	SAWAKIN HARBOR	19	08 N	37	21 E	4.41, 4.45
RAS-E KHARYU	26	31 N	54	51 E	13.34	SAYHAT	26	29 N	50	02 E	16.13
RAS-E KUEVEH	26	57 N	55	59 E	13.31	SAYHUT	15	13 N	51	14 E	9.15
RAS-E LAFT	26	57 N	55	44 E	13.30	SAYLAC	11	22 N	43	28 E	10.18
RAS-E MAKI	25	23 N	59	35 E	12.15	SAYR ABD	17	01 N	42	02 E	7.13
RAS-E MASHEH	26	41 N	55	53 E	13.14	SCENAT	17	31 N	38	46 E	5.2
RAS-E MEYDANI	25	23 N	59	05 E	12.16	SCOGLI HAYCOCKS	13	32 N	42	37 E	3.18
RAS-E NAKHILU	26	51 N	53	29 E	14.4	SCOUT ANCHORAGE	23	26 N	35	34 E	4.19
RAS-E NAY BAND	27	23 N	52	35 E	14.10	SEA GULL SHOAL	11	24 N	43	37 E	10.18
RAS-E PAHEL	26	59 N	55	45 E	13.30	SEA ISLAND TERMINAL	29	07 N	48	17 E	16.37
RAS-E RASHEDI	25	20 N	60	12 E	12.15	SECCA DUO BRACCIA	16	37 N	39	29 E	5.7
RAS-E SADIJ	25	33 N	58	41 E	12.16	SECCA FAWN	16	59 N	39	35 E	5.6
RAS-E SALAKH	26	41 N	55	45 E	13.15	SECCA MUGIUNIA	15	36 N	39	43 E	5.16
RAS-E SHIR	26	01 N	57	12 E	13.26	SECCA MUHAMMAD	15	09 N	40	44 E	5.19
RAS-E TAHUNEH	26	42 N	54	12 E	14.3	SECHE SCILLA	13	01 N	43	03 E	5.29
RAS-E TANB	29	56 N	50	09 E	17.6, 17.8	SEIL ABADHO	17	01 N	42	02 E	7.13
RAS-E TANG	25	20 N	59	52 E	12.15	SEIL SELAFI	13	41 N	42	08 E	5.27
RAS-E TARKUN	26	38 N	55	36 E	13.15	SELLA MONTE	13	00 N	42	42 E	5.31
RAWAYA ANCHORAGE	20	54 N	37	12 E	4.31	SENACCA	11	04 N	47	12 E	10.31
RAYDAT AL ABD AL WADUD	15	01 N	50	26 E	9.14	SENO DE DOLPHIN	15	08 N	39	50 E	5.15
RAYIKHAH	26	10 N	36	22 E	6.21	SHAB ABU RIMATHI	27	08 N	33	57 E	4.3
RECIF AMBOULI	11	37 N	43	07 E	10.14	SHAB ALI	27	50 N	33	50 E	2.30
RECIF DU CHENAL	11	28 N	43	33 E	10.20	SHAB DAMATH	19	14 N	37	20 E	4.44
RECIF DU METEORE	11	39 N	43	06 E	10.13	SHAB EL ERG	27	24 N	33	52 E	2.17
RENNIE SHOALS	27	03 N	50	42 E	16.14	SHAB EL ERQ	27	24 N	33	52 E	2.17
RHIY DI MONI	12	32 N	54	29 E	10.57	SHAB JIBNA	19	27 N	37	44 E	4.47
RHIY DI-BIDOH	12	43 N	53	30 E	10.52	SHAB MADUJI	11	03 N	43	40 E	10.22
RHIY DI-HAMADEROH	12	38 N	54	13 E	10.56	SHAB MUBYAT	19	12 N	37	42 E	4.47
						SHAB MUKOWARAT	27	47 N	33	41 E	2.16
						SHAB SHEAR	26	39 N	34	06 E	4.9

	Position				Sec. Para		Position				Sec. Para
	°	'	°	'			°	'	°	'	
SHAB SHEIKH YAKAB	11	18 N	43	34 E	10.21	SIKHA	13	55 N	48	23 E	9.7
SHAB SUADI	20	10 N	37	17 E	4.36	SIR ABU NU'AYR	25	15 N	54	12 E	15.21
SHAB UL SHUBUK	18	49 N	37	33 E	4.53	SIR BANI YAS	24	20 N	52	36 E	15.26
SHAB UMM USH	27	35 N	33	53 E	2.17	SIR BU NU'AYR	25	15 N	54	12 E	15.21
SHAC SIIGAALÉ	11	24 N	43	37 E	10.18	SIR BU NU'YAR	25	15 N	54	12 E	15.18
SHACAAB GALANGAREET	10	57 N	43	44 E	10.22	SIRAH	12	47 N	45	03 E	8.7, 8.8
SHACAABI SHIIKH YACQUUB	11	18 N	43	34 E	10.21	SIRI AYANAT	27	49 N	52	13 E	14.11
SHADWAN CHANNEL	27	35 N	33	50 E	2.17	SIRRAIN	19	38 N	40	37 E	7.23
SHADWAN ISLAND	27	30 N	34	00 E	2.17	SIRRAYN	19	38 N	40	37 E	7.23
SHAG ROCK	27	46 N	33	53 E	2.31	SIRRI OILFIELD A	25	45 N	54	08 E	13.23
SHAH ABU OL SHAH	30	11 N	50	05 E	17.8	SIRUS OIL TERMINAL	29	01 N	49	29 E	16.31
SHAH ALLUM SHOAL	26	25 N	52	30 E	14.8	SITRAH	26	09 N	50	37 E	16.5
SHAHIN KUH	27	07 N	53	05 E	14.10	SITRAH	26	10 N	50	40 E	16.6
SHAIRAH	17	04 N	42	16 E	7.35	SITRAH ANCHORAGE	26	11 N	50	41 E	16.6
SHAKER ISLAND	18	52 N	40	25 E	7.9	SIYUAN HIMAR	12	31 N	43	18 E	5.33
SHAKER ISLAND	27	30 N	34	00 E	2.17	SOGRA	15	41 N	40	00 E	5.18
SHAKIR	18	52 N	40	25 E	7.9	SOHAR	24	31 N	56	38 E	11.20
SHAMBAYA ISLAND	20	52 N	37	24 E	4.29	SONMIANI BAY	25	12 N	66	38 E	12.2
SHAMM PENINSULA	26	15 N	56	20 E	13.10	SONMIANI HARBOR	25	25 N	66	32 E	12.4
SHARBAIN	18	44 N	40	37 E	7.9	SONO ALI	11	57 N	42	59 E	10.2
SHARJAH	25	21 N	55	23 E	15.13	SOUTH MAST BEACON	29	56 N	48	34 E	17.19
SHARJAH OFFSHORE TERMINAL	25	35 N	55	24 E	15.12	SOUTH SHOAL	29	39 N	32	36 E	2.18
SHARM AL HARR	27	37 N	35	31 E	6.16	SOUTHERN PEAK	23	18 N	35	23 E	4.17
SHARM AL KHAWR	24	17 N	37	40 E	6.28	SOUTHWEST ROCKS	13	39 N	42	36 E	3.17
SHARM AL SHAIKH	27	51 N	34	17 E	6.4	SPIT REEF	26	41 N	33	58 E	4.9
SHARM AL WAJH	26	13 N	36	27 E	6.20	ST. JOHNS ISLAND	23	37 N	36	12 E	4.17
SHARM ANTAR	26	36 N	36	13 E	6.20	STIFFE BANK	26	25 N	53	08 E	14.7
SHARM ASH SHAYKH	27	51 N	34	17 E	6.4	STRAIT OF HORMUZ	26	35 N	56	15 E	13.8
SHARM DUMAYGH	26	39 N	36	11 E	6.20	STRAIT OF JUBAL	27	40 N	34	00 E	2.32
SHARM HABBAN	26	06 N	36	32 E	6.21	STRAIT OF TIRAN	28	00 N	34	27 E	6.5
SHARM HASI	24	39 N	37	18 E	6.28	STRAWBRIDGE STRAIT	16	35 N	42	17 E	7.16
SHARM HASY	24	39 N	37	18 E	6.28	SUEZ BAY	29	54 N	32	32 E	1.12
SHARM JAZZAH	26	57 N	35	57 E	6.19	SUGARLOAF	19	59 N	40	46 E	7.3
SHARM JUBBAH	27	33 N	35	33 E	6.16	SUGARLOAF	24	33 N	37	32 E	6.26
SHARM LULI	24	37 N	35	09 E	4.15	SUHAR	24	23 N	56	45 E	11.18
SHARM YAHAR	27	37 N	35	31 E	6.16	SUMAIMA	21	14 N	39	08 E	7.4
SHARM YANBU	24	10 N	37	55 E	6.28	SUMAYMAH	21	14 N	39	08 E	7.4
SHARMAH BAY	14	48 N	49	56 E	9.13	SUMAYR	16	30 N	42	13 E	7.16
SHATT AL ARAB	29	57 N	48	35 E	17.14	SUMAYR	17	47 N	41	23 E	7.35
SHAYBARA	25	24 N	36	50 E	6.22	SUQUTRA	12	34 N	53	59 E	10.50
SHAYKH MIRBAT	25	54 N	36	35 E	6.22	SUR	22	34 N	59	32 E	11.4
SHAYKH RIYAH	28	09 N	33	40 E	2.28	SUWADI POINT	23	57 N	57	48 E	11.16
SHEIK SAID ISLAND	15	36 N	39	29 E	5.12	SUZA	26	47 N	56	04 E	13.13
SHEIKH HURBA	13	36 N	47	06 E	9.3						
SHENAS	26	31 N	54	50 E	13.34						
SHERM EL SHEIKH	27	51 N	34	17 E	6.4						
SHIB AL ABYADH	24	54 N	37	07 E	6.24						
SHIB AL BAYDA	22	44 N	38	47 E	6.31						
SHIB AL FARKAN	19	39 N	40	34 E	7.21	TACLAI	17	31 N	38	52 E	5.3, 5.9
SHIB AL GHUBAB	20	11 N	58	00 E	9.32	TADJOURA	11	47 N	42	57 E	10.7
SHIB AL GUAK	24	59 N	37	11 E	6.25	TAGI TERARA	13	03 N	42	39 E	5.24
SHIB AL KABIR	21	41 N	38	50 E	6.33	TAHERI	27	40 N	52	21 E	14.12
SHIB ANBAR	19	17 N	37	42 E	4.47	TAMRIDA BAY	12	40 N	54	01 E	10.53
SHIB ANDA	18	51 N	41	09 E	7.29	TARUT	26	34 N	50	04 E	16.13
SHIB ASBAYZENIYAT	24	51 N	36	58 E	6.24	TAWAKKUL	26	24 N	56	29 E	13.5
SHIB ASH SHARM	24	03 N	37	52 E	6.29	TAYLOR ROCK	29	01 N	48	35 E	16.34
SHIB ASH SHUBUK	18	49 N	37	33 E	4.53	TEDKAR ISLAND	18	57 N	40	36 E	7.9
SHIB ATA	19	16 N	37	20 E	4.43	TEKAY DESET	13	40 N	42	13 E	5.27
SHIB BU SAYFAH	19	56 N	58	15 E	9.32	TEPSA	17	26 N	38	47 E	5.2
SHIB FARASAN	16	40 N	41	30 E	7.11	TERMAB	16	39 N	38	40 E	5.9
SHIB GHUFRA	19	47 N	40	23 E	7.24	THE BAR	30	00 N	49	03 E	17.10
SHIB JANAB	19	55 N	39	56 E	7.24	THE BROTHERS	12	08 N	53	10 E	10.49
SHIB KADUN	19	29 N	58	00 E	9.32	THE BROTHERS	26	19 N	34	51 E	3.2
SHIB KHADRA	19	45 N	40	32 E	7.24	THE FLAT	26	30 N	55	18 E	13.16
SHIB MATRAH	20	09 N	58	38 E	9.38	THE GUT	26	40 N	55	16 E	13.32
SHIB NAZAR	22	19 N	38	51 E	6.31	THE HAYCOCKS	13	32 N	42	37 E	3.18
SHIB QUBBAYN	21	11 N	39	02 E	7.5	THE HUMMOCKS	26	35 N	55	18 E	13.16
SHIB QUSAYR	19	11 N	37	37 E	4.47	THE NARROWS	15	33 N	39	57 E	5.16
SHIB RUMI	19	56 N	37	25 E	4.36	THE RIDGE	24	24 N	52	38 E	15.27
SHIB SAHABAK	19	54 N	40	00 E	7.8	TIDHKAR	18	57 N	40	36 E	7.9
SHIB SHAJAH	20	21 N	39	34 E	7.5	TIFLAH ISLANDS	20	38 N	37	15 E	4.33
SHIB SUBAIKHA	19	56 N	40	27 E	7.21	TILLY ROCK	17	30 N	56	25 E	9.26
SHIMBER BERRIS	10	44 N	47	15 E	10.26	TOMBAK	27	44 N	52	11 E	14.13
SHINAS	24	46 N	56	29 E	11.19	TOREH-YE KHOWRAN	26	58 N	55	44 E	13.30
SHIP ROCK	13	36 N	42	43 E	3.17	TORLESSE ROCK	25	54 N	55	01 E	13.19
SHIRLEY REEFS	18	41 N	41	08 E	7.30	TOWARTIT ELBOW	19	29 N	37	18 E	4.43
SHUHAYR	14	39 N	49	22 E	9.11	TOWER HILL	18	32 N	56	29 E	9.29
SHULAH	10	46 N	46	42 E	10.30	TOWER HILL	20	26 N	40	00 E	7.2
SHUQRAH	13	21 N	45	42 E	9.2	TRINKITAT HARBOR	18	41 N	37	45 E	4.49, 4.55
SHUTAYA LIGHT FLOAT	26	43 N	50	50 E	16.11	TWIN CONES	20	03 N	40	46 E	7.3

T

	Position				Sec. Para		Position				Sec. Para
	°	'	°	'			°	'	°	'	
U						WEST SPIT	26	17 N	50	31 E	16.7, 16.8
UMM AGAWISH EL-SAGHIR	27	09 N	33	51 E	4.3	WHITE POINT	26	40 N	55	55 E	13.14
UMM AL AYSH	29	01 N	48	35 E	16.34	WICKHAM PATCHES	15	27 N	42	43 E	7.46
UMM AL HATAB	24	13 N	51	52 E	15.39	WIDAN	17	52 N	41	43 E	7.34
UMM AL HUL	25	05 N	51	37 E	15.44	WINGATE REEFS	19	38 N	37	18 E	4.38
UMM AL KHASASIF	30	26 N	48	08 E	17.26	WISHKA	17	01 N	41	36 E	7.12
UMM AL KIMAN	27	50 N	33	35 E	2.10	WUDAM	23	50 N	57	32 E	11.16
UMM AL QAMARI ISLETS	18	58 N	41	04 E	7.29						
UMM ALI	19	31 N	40	45 E	7.26						
UMM AN NAML	29	23 N	47	52 E	16.42	X					
UMM AN NAR	24	27 N	54	29 E	15.19						
UMM AN NASAN	26	09 N	50	24 E	16.9	XIIS	10	53 N	46	54 E	10.30
UMM AR RASAS	30	25 N	48	10 E	17.25	XIIS	10	54 N	46	54 E	10.30
UMM AS SAIFA	19	03 N	41	02 E	7.27						
UMM AS SUQAYM	25	10 N	55	13 E	15.15						
UMM KERKAN SHOAL	18	22 N	41	24 E	7.33	Y					
UMM LAJJ	25	02 N	37	14 E	6.23						
UMM NASAN	26	09 N	50	24 E	16.9	YANBU	24	05 N	38	03 E	6.1, 6.26, 6.29
UMM QASR	30	01 N	47	57 E	16.45						
UMM SAID	24	54 N	51	34 E	15.43	YANBU SOUTH LIGHT	23	28 N	38	26 E	6.29
UMM SIHR	24	57 N	37	09 E	6.25	YASAT ALI	24	14 N	52	01 E	15.38
UQBAN SAGHIR	15	25 N	42	31 E	7.46	YITI	23	33 N	58	42 E	11.8
						YRAS-E ARID	26	35 N	54	26 E	14.2
V											
VICTORIA PEAK	16	52 N	38	32 E	5.9	Z					
						ZAHARI	13	51 N	43	14 E	7.60
W						ZAHRAT DURAKAH	16	52 N	42	16 E	7.38
WADI FEIRAN TERMINAL	28	45 N	33	13 E	2.23	ZAHRAT SUMAYR	16	28 N	42	16 E	7.16
WADI QUEI	26	24 N	34	12 E	4.11	ZEILA	11	22 N	43	28 E	10.18
WAQDDARIYA	11	06 N	47	46 E	10.33	ZEIT BAY LPG TERMINAL	27	48 N	33	34 E	2.14
WASALIYAT ISLETS	17	41 N	40	55 E	7.10	ZEIT BAY TERMINAL	27	50 N	33	36 E	2.11
WEBB ROCK	24	05 N	52	15 E	15.38	ZENOBIYA	29	53 N	32	33 E	1.12
WELL ROCK	17	29 N	56	19 E	9.26	ZIRKUH	24	53 N	53	04 E	15.29
WEMYSS PASSAGE	19	46 N	40	21 E	7.24	ZIRKUH PETROLEUM PORT	25	01 N	53	00 E	15.30
WEST BAY	25	14 N	64	32 E	12.7	ZUFAR	17	02 N	54	10 E	9.20
WEST ISLET	12	28 N	43	22 E	10.2	ZULA BAHIR SELATE	15	30 N	39	40 E	5.13
						ZULUF OILFIELD	28	23 N	49	14 E	16.29
						ZUQAQ	18	04 N	40	48 E	7.10