PUB. 182

SAILING DIRECTIONS (ENROUTE)

★

NORTH AND WEST COASTS OF NORWAY

★

Prepared and published by the
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
Springfield, Virginia

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2015

THIRTEENTH EDITION

Preface

Pub. 182, Sailing Directions (Enroute) North and West Coasts of Norway, Thirteenth Edition, 2015, is issued for use in conjunction with Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean. Companion volumes are Pubs. 181 and 183.

Digital Nautical Charts 21 and 22 provide electronic chart coverage for the area covered by this publication.

This publication has been corrected to 15 August 2015, including Notice to Mariners No. 33 of 2015. Subsequent updates have corrected this publication to 13 February 2016, including Notice to Mariners No. 7 of 2016.

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.

Charts.—Reference to charts made throughout this publication refer to both the paper chart and the Digital Nautical Chart (DNC).

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.—Users should refer corrections, additions, and comments to NGA's Maritime Operations Desk, as follows:

1. Toll free: 1-800-362-6289
2. Commercial: 571-557-5455
3. DSN: 547-5455
4. DNC web site: http://msi.nga.mil/NGAPortal/DNC.portal
5. Maritime Domain web site: http://msi.nga.mil/NGAPortal/MSI.portal
6. E-mail: navsafety@nga.mil
7. Mailing address: Maritime Safety Office
   National Geospatial-Intelligence Agency
   Mail Stop N64-SFH
   7500 Geoint Drive
   Springfield VA 22150-7500

New editions of Sailing Directions are corrected through the date of the publication shown above. Important information to amend material in the publication is available as a Publication Data Update (PDU) from the NGA Maritime Domain web site.

NGA Maritime Domain Website
http://msi.nga.mil/NGAPortal/MSI.portal

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 meridianal 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.

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International Maritime Organization Home Page
http://www.imo.org

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.

Maritime Administration (MARAD) Advisories.—MARAD Advisories rapidly disseminate information on maritime dangers, safety, government policy, and other time-sensitive matters pertaining to U.S.-flag vessel operations. MARAD Advisories are issued by the Office of Security to vessel masters, ship operators, and other U.S. Maritime interests. Advisories are communicated via telex or other message formats and are published on the MARAD web site and in the National Geospatial-Intelligence Agency's Weekly Notice to Mariners.

Maritime Administration (MARAD) Home Page
http://www.marad.dot.gov/newsroom

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 web site.

Time.—Time is normally expressed as local time unless specifically designated as Universal Coordinated Time (UTC).

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 Hydro ic Department Sailing Directions.

Norwegian 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.

Internet Web sites, as follows:

1. Arctic Pictures of Hornsund, Spitsbergen
   (Marek Szymocha: msz@ka.onet.pl)
   http://www.bergheims.com/hornsund
2. Bergen City and Port Guide
   http://www.bergenport.com
3. Le Club de Voyageurs
   (Paul Kerrien: paul.kerrien@laposte.net)
   http://expresscotier.free.fr
4. The Coast Route, Norge
   http://www.rv17.no
5. Eurofishsales Europewide Fishing Port Index
   http://www.eurofishsales.com
6. Haugesund City and Port Guide
   http://www.haugesund.com
7. Haugesund Home Page
   http://www.haugesund.net
8. Haugesund (Norway) Regional Home Page
   http://www.haugalandet.net
9. Instytut Geografii UMK
   (Marek Szymocha: msz@ka.onet.pl)
   http://www.geo.uni.torun.pl
10. Karmsund Havnevesen Informerer (Eirik Hustvedt)
    http://www.karmsund-havn.no
11. Nordic Shipping Agency Homepage
    http://www.ndic.no
12. Port Focus Homepage (Ports/Harbors/Marinas Worldwide)
    http://www.portfocus.com
13. The Svalbard Pages
    (Marek Szymocha: msz@ka.onet.pl)
    http:/www.svalbard.com
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    (Marek Szymocha: msz@ka.onet.pl)
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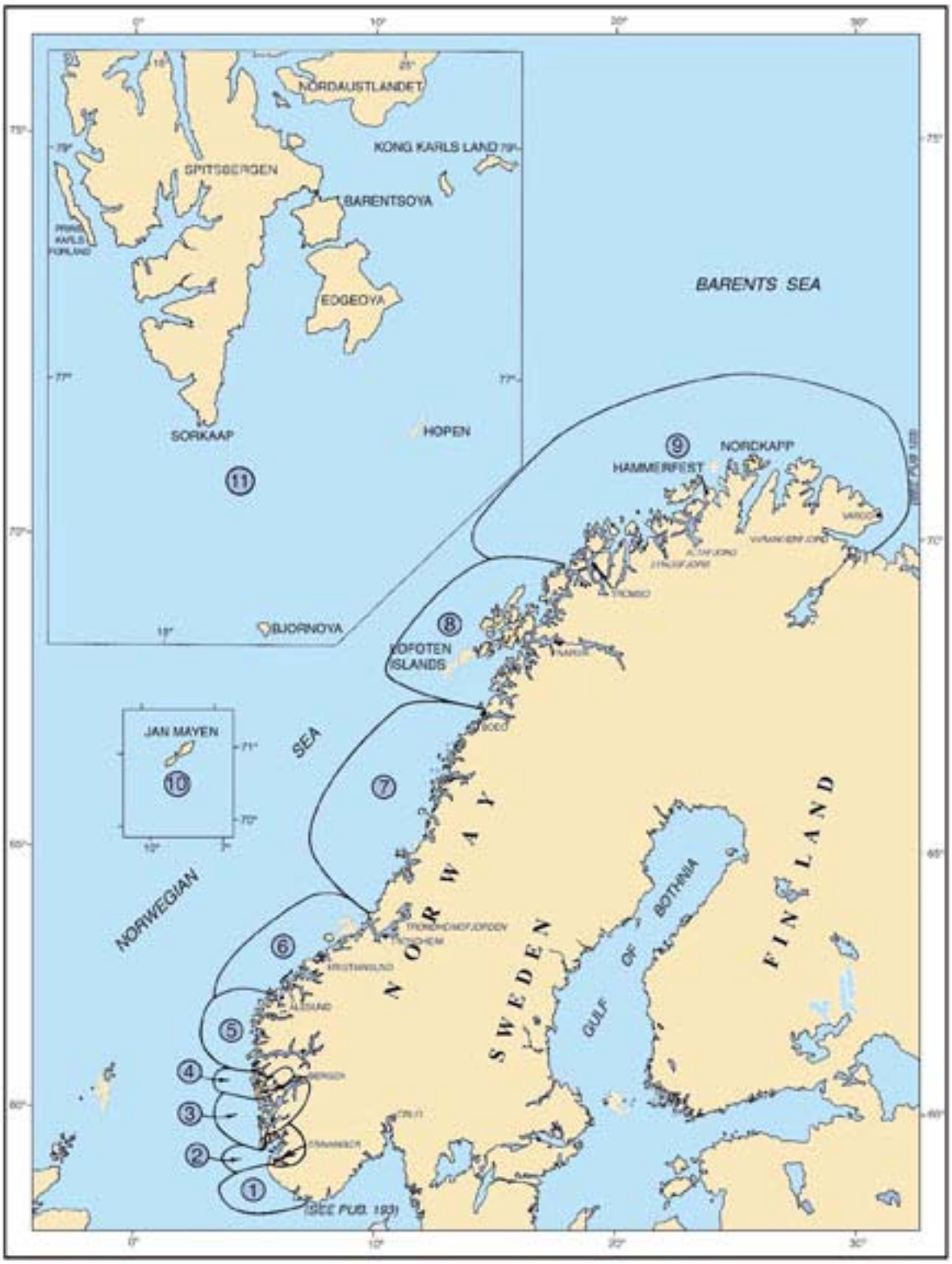

SECTOR LIMITS — PUB. 182

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)
gt	gross 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	VLOC	Very Large Ore Carrier
Lo-Lo	Lift-on Lift-off	FSO	Floating Storage and Offloading Vessels (System)
NGL	Natural Gas Liquids		

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
LWS	low water springs		
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	SBM	Single Buoy Mooring
NAVSAT	Navigation Satellite	SPM	Single Point Mooring
ODAS	Ocean Data Acquisition System	TSS	Traffic Separation Scheme
CBM	Conventional Buoy Mooring System	VTC	Vessel Traffic Center
MBM	Multi-Buoy Mooring SysteM	VTS	Vessel Traffic Service

Miscellaneous

The following abbreviations may be used in the text:

AIS	Automatic Identification System	MMSI	Maritime Mobile Service Identity Code
COLREGS	Collision Regulations	No./Nos.	Number/Numbers
IALA	International Association of Lighthouse Authorities	PA	Position approximate
		PD	Position doubtful
IHO	International Hydrographic Organization	Pub.	Publication
IMO	International Maritime Organization	SOLAS	International Convention for Safety of Life at Sea
IMDG	Intermational Maritime Dangerous Goods (Code)		
LOA	length overall	St./Ste.	Saint/Sainte
UKC	Under keel clearance	ISPS	International Ship and Port facility Security

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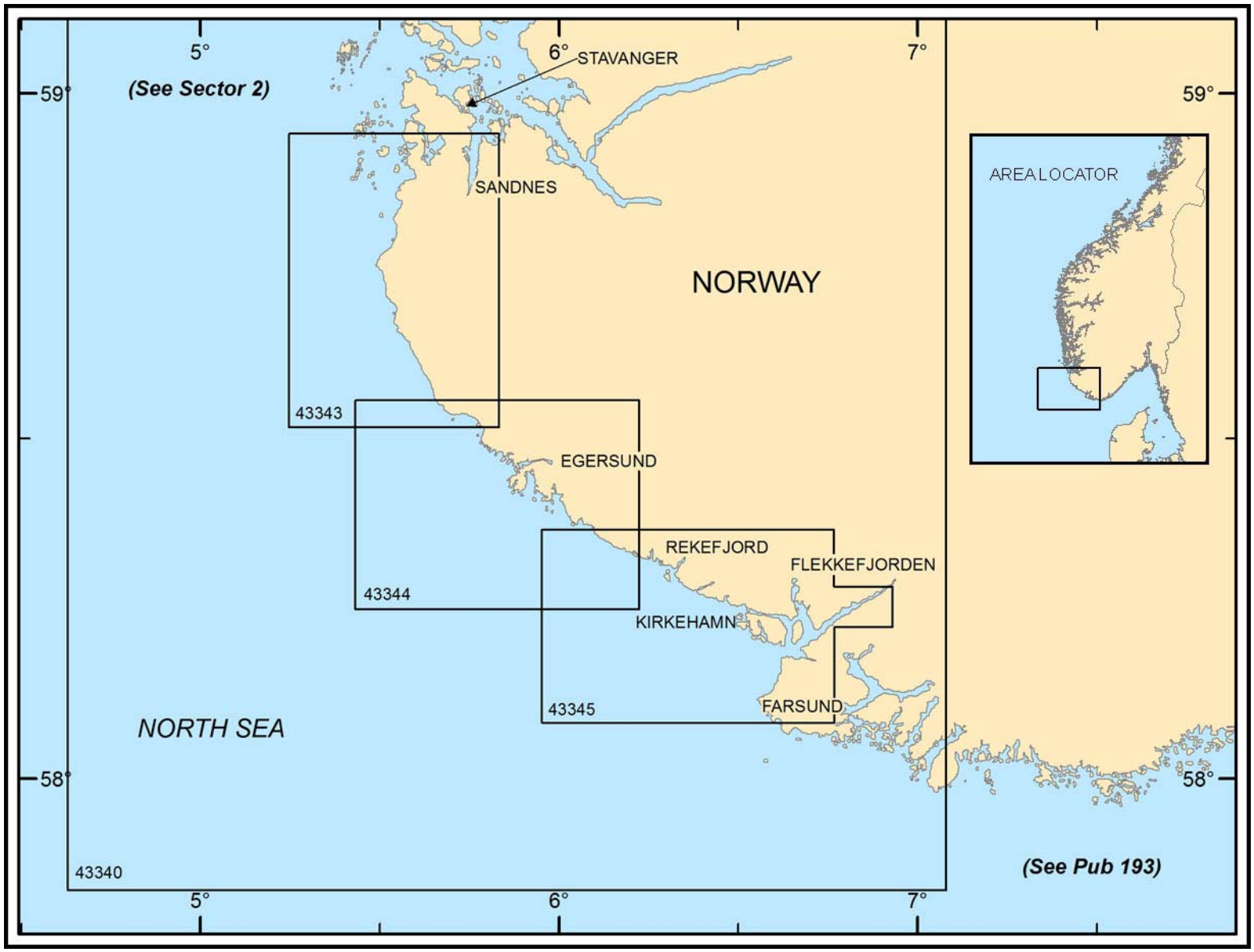
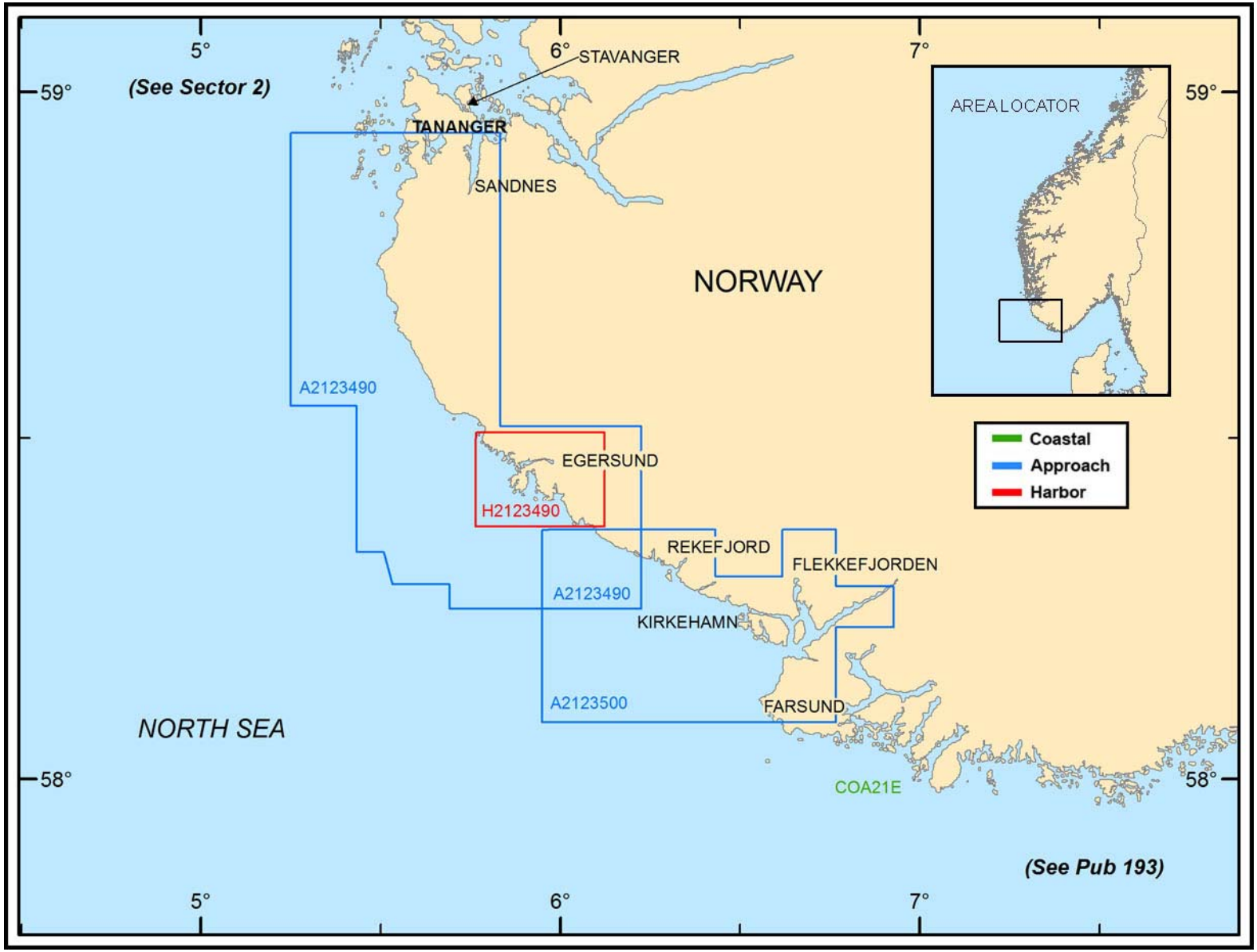


Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **1** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 21 (Limited Distribution) disc within the README\ ICS folder.

SECTOR 1 — DNC LIBRARY INFORMATION

SECTOR 1

NORWAY—LINDESNES TO JAERENS REV

Plan.—This sector describes the SW coast of Norway be tween Lindesnes, the S point on the Norwegian coast and Jaerens Rev, a point approximately 4.6 miles S of Feistein Light.

General Remarks

1.1 General.—The SW coast of Norway between Lin desnes, the S mainland point of the country, and Jaerens Rev trends in a general NW direction for about 68 miles. Several large and numerous small fjords, branching in all directions, indent the coast. Close-lying islands, islets, and rocks front part of this coastal stretch, particularly the section between Lindesnes and Steinodden, the vicinity of Listafjorden, and near Egersund. This part of the coast, although high in places, is predominately lower than the coast to the N.

It includes the two lowland regions of Lista and Jaeren, which are unlike any other part of the Norwegian coast. Steep, high mountains back the coastal hills and plains. Numerous good anchorage and harbors are located in the fjords.

Winds—Weather.—The prevailing winds on the W and S coasts of Norway reflect the average pressure distribution and its seasonal changes. With the shift from high pressure in winter to low pressure in summer, the winds on the W coast change from S in winter to N in summer. However, the pre vailing winds only blow from a N or S direction not more than 40 per cent of the time. The usual situation is one of variable winds induced by passing cyclones.

Because of land and sea breezes, and topographical effects, the wind in the fjords and along the coast is usually different from that in the open sea. Also, because of the mountainous nature of the coast, any wind blowing from a direction between S and WSW is deflected and becomes S wind, and any wind blowing between NW and N is deflected and becomes a N wind.

The speed of the wind increases outward from the coast to a distance of 150 miles at times.

Along the coast, when the winds are fresh or strong, most often there is turbulence; when the coast is swept by violent winds and they penetrate the fjords, they become turbulent.

There are frequent, strong downward currents, usually from the E or SE, close to the coast, in the vicinity of 60° N.

A steep gradient may extend as much as 150 miles seaward from the coast. When a steep gradient develops along the W coast, strong S winds are produced; when deep depressions are on a NE track, moving between the British Isles and Iceland, gale winds frequently occur. Northwest gales occur occasion ally on the W coast when the pressure falls over Scandinavia.

In winter, gales and storms are common on both the S and W coasts. In spring, there are more gales and storms on the W and SW coasts then on the S coast. As summer approaches, the gales decrease in frequency. The strength of the winds de creases in summer, although gales are not unknown, particu larly on the W coast.

Off the coast and in the fjords between Lindesnes and Jaerens Rev, tidal currents are minimal. Small currents are found in the narrow channels of the fjords, such as in Skuden esfjorden, but little is known about these currents.

The highest frequency of sea and swell is from the W quadrant. Observations along the exposed coast during winter, showed that 65 per cent of the sea waves were less than 1.5m in height and 9 per cent of the waves observed were greater than 3.6m in height. However, 20 per cent of the recorded observa tions on swell were recorded to exceed 3.6m in height and at times, the heights reach greater than 7.6m.

During summer, the weakening of the "Icelandic Low" and the decrease in wind velocities causes a decrease in swell, and, most often, a decrease in sea on the S and W coasts of Norway. Only about 6 per cent of the total observations taken along the exposed portions showed a swell wave height in excess of 3.6m; 68 per cent showed a swell wave height of less than 1.8m in height. Observations with regard to sea showed that 83 per cent of the total waves observed were less than 1.5m in height and that 4 per cent were greater than 3.6m in height.

Sea breezes are frequent along the entire coast in summer. Wind speeds increase slightly in autumn and gales become more frequent, especially along the exposed coast.

Fog is the main cause of poor visibility. It is most frequent over the sea in summer and most frequent in the upper fjords and over land in winter. Occasionally, sea fog occurs in winter when air lying over a warm water surface is blown over colder water. However, the most frequent fog in winter is radiation fog. Radiation fog is a nighttime occurrence. It is produced when the land gives up its heat and becomes cooler. The cooler land cools the air immediately above it. This causes a tempera ture inversion to form, the temperature increasing with height. Fog forms. Usually radiation fog occurs at the heads of deep fjords when there is severe frost inland and cold winds blow into the open fjords.

One form of fog, which particularly affects the upper reaches of fjords, is "frost smoke." This occurs during spells of severe frost. It may be expected if the wind is light and from an offshore direction and if skies are clear or nearly so over land.

In spring, fog decreases generally, as radiation fog becomes less likely because of the gradual warming of the land. It in creases only at Skudenes, where sea fog of the warm season in creases in frequency. Poor visibility is least common in sum mer over the land area of this region. However, sea fog is not uncommon during the early part of the summer along and over the coast.

In general, autumn is the season when fog is least common on the coast. Over land its frequency increases towards the approach of winter.

The climate of SW Norway is mild in comparison to regions of equal distance from the Equator. The maritime influence, which is responsible for the warm winters, is responsible for the warm summers as well. The steady run of the warm water of the North Atlantic Drift, by way of the passage between the Shetland Islands, the Faeroe Islands, and the English Channel,

into the North Sea and the Norwegian Sea, results in the water of these seas in January being at least 20°C warmer than in other areas of the same latitude.

During all seasons, migratory low pressure centers, accom panied by repeated intrusions of maritime polar air produce overcast skies, and warm temperatures.

Ice.—Ice in this area offers no hindrance to navigation and is present only in the upper reaches of the fjords along the coast. Floating ice is met in early spring, when small masses may drift out of Oslofjorden and Kattegat, and occasionally from some of the larger fjords to the W and N of Lindesnes.

Tides—Currents.—The tidal current just offshore N from Jaeren to the vicinity of Korsfjorden flood to the N, and begin about 5 to 6 hours after HW at Bergen and ebb to the S, and begin about 30 minutes to 1 hour before HW at Bergen. From the vicinity of Korsfjorden to approximately 60°51'N, the flood begins about 6 hours after HW at Bergen, and sets to the E; the ebb begins about the time of HW at Bergen and sets to the W.

Surface currents in the fjords are predominantly tidal. They set inward on the flood and seaward on the ebb, except during May and June. During these months, increased runoff from melting snow and ice cause the surface currents to flow almost continually seaward. The depths of the surface currents aver age 3.6 to 5.5m, though they may vary from 0.91 to 18.3m at times. Current speeds are strongest at the surface, decreasing with depth. An intermediate current sets into the fjords usually between 9.4 and 18.3m. Generally, the water below 73m either has a very weak seaward set or is stagnant, and is renewed only by a major meteorological disturbance.

Wind may alter the tidal currents in the fjords. Onshore winds may cause a rise in the water level with a corresponding increase in the velocity and duration of incoming currents. When the winds cease, currents flow in the opposite direction until equilibrium is established. Outflowing currents along the sides of the fjords may occur when strong winds blow onshore for a prolonged period. Offshore winds may have an opposite effect on the water level and currents.

The term "tidal current" means the resultant of all water movements; namely, ocean currents, tidal currents, wind-driven currents, and outflow of water from rivers, fjords, and embankments.

The tidal current of this section is subject to great variations. West of Lindesnes, where the constant ocean current is weaker, the wind has more effect, and the current is less regular than on the SE coast between Kristiansand and Oslofjorden.

A tidal current setting W and N is, however, prevalent especially in summer. However, with continuous N and W winds the current may set S and E for perhaps a week continuously. Near the coast the direction of the current may be toward the land. The current setting N off Jaeren may attain a velocity of about 2 knots.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island.

The VTS is designed to promote safe and efficient navigation and to protect the marine environment. The VTS will monitor traffic, exchange information, and interact with vessels and government agencies. It will also coordinate, on a daily basis, tug boat preparations in northern Norway. The VTS also monitors the seaward approaches to Melkoya, Hammerfest Bellsund, and Van Mijenfjord on Svalbard.

NOR VTS cooperates in close coordination with the Norwegian Coastal Administration's Department for Emergency Response; the Norwegian Armed Forces; the Joint Rescue Coordination Center, North Norway and South Norway; and coastal radio stations. All vessels entering and proceeding in the NOR VTS area of operation are strongly urged to follow the recommendations, guidance, and advice provided by NOR VTS.

NOR VTS may be contacted, as follows:

1. Call sign: NOR VTS
2. VHF: VHF channel 16
3. Telephone: 47-78-989-898
4. Facsimile: 47-78-989-899
5. E-mail: nor.vts@kystverket.no

All tankers, all vessels exceeding 5,000 gross tons and all ocean-going tugs in transit outside Norwegian territorial waters (12 miles off the baseline) are requested to report the following information to NOR VTS upon entering the Norwegian Economic Zone (NEZ):

1. Vessel name.
2. IMO Number.
3. Primary telephone number.
4. Primary facsimile number.
5. E-mail address.
6. Primary INMARSAT-C number.
7. Cargo type, including UN reference number(s) (IMDG Code).
8. Amount of cargo (metric tons).
9. Amount of bunker oil (metric tons).
10. Bunker oil (UN reference number).
11. Number of crew.
12. Number of passengers.
13. Departure port.
14. Departure time in UTC (6 digits—ddhhhh).
15. Arrival port.
16. ETA in UTC (6 digits—ddhhhh).

The VTS will forward information of relevance for safe transit through the VTS coverage area. Vessels which are damaged or receive damage that can affect safe navigation must immediately report this information to the VTS.

Communication with the VTS can take place via any Norwegian coast radio station by requesting a VHF connection to NOR VTS.

Caution.—Off the coast of Norway, various types of ships and small craft used in the development of oil and gas fields may be encountered.

An IMO-adopted Traffic Separation Scheme lies in the approach to Risavika SW of Feistein and may best be seen on the chart.

Norwegian authorities recommend that tankers of 40,000 dwt and over, when navigating off the coast of Norway, should keep to seaward of a line joining the following positions:

a. 57°46.2'N, 7°00.0'E, 13 miles from Lindesnes Light.
b. 57°54.3'N, 6°21.5'E.
c. 58°16.1'N, 5°35.7'E.
d. 58°30.8'N, 5°12.2'E.
e. 58°32.9'N, 4°57.1'E.

Ekofisk Oil and Gas Field Complex

f. 59°10.7'N, 4°27.5'E.
g. 60°49.2'N, 4°08.1'E.

By keeping seaward of this line, tankers will maintain a distance of 12 to 20 miles from the shore.

Pilotage Districts.—The entire coast of Norway is divided into three Pilotage Districts; pilotage is controlled from the three VTS Centers, as follows:

1. Horten—Covers the S coast from the Swedish border leading W to Egersund (58°27'N,. 6°00'E.).
2. Kvitsoy—Covers the W coast from Egersund leading N to the parallel of 65°08'N. At Kvitsoy, pilots can be ar ranged to board at the following positions:
   a. Feistein (58°50.5'N., 5°28.0'E.).
   b. Skudenesfjorden West (59°02.0'N., 5°10.0'E.).
   c. Skudenes (59°06.7'N., 5°26.2'E.).
   d. Karmsundet (59°13.1'N., 5°21.0'E.).
3. Lodingen—Covers the W and N coasts of Norway between the parallel of 65°08'N and the Russian border.

The VTS Centers can be contacted 24 hours on VHF channels 18 and 19. For further information, see Regulations in paragraph 2.2.

Off-lying Dangers

1.2 Along the W coast of Norway, there are several sections within which unusually rough seas often prevail. Extreme sea conditions and breaking surf have been observed, often in connection with the currents, in the vicinity of these areas These sections, known as Dangerous Wave Areas, are described below, as follows:

1. Viking Bank (60°35'N., 2°30'E.).
2. Outer part of Sognesjoen—The area between Holmengra (60°50.6”N., 4°39.0'E.) and Kvereknapp, 8.5 miles NNE, contains many shallow areas. When the ebb current from Sognefjorden passes over the area and meets wind and waves from the opposite direction, choppy seas form. Tumbling breakers have also been observed.
3. Buefjorden (61°15'N., 4°42'E.)—Along the route from Gasvaerosen (61°12.0'N., 4°42.5'E.) through Buefjorden to Geita Light (61°16.2'N., 4°48.8'E.), rough seas occur when the winds are from the W or NW. If there is also an ebb current at the same time, a choppy ground swell occurs and tumbling breakers have been observed.

Ekofsik Oil and Gas Field

4. Stattlandett (62°12'N., 5°00'E.)—An exposed and dangerous area where winds from SW to N raise heavy seas. The ebb current, running at a rate of 2 to 4 knots, shortens the swell and causes heavy tumbling seas. The waters around Haugsholmen (62°11'N., 5°23'E.) and Stalrevet (62°13'N., 5°11'E.) are known as particularly rough areas.

Ekofisk Oil and Gas Field (56°33'N., 3°13'E.) is situated about 150 miles SW of Lindesnes Light. A complex of production platforms, gas and oil pipelines, and tanker-loading systems is located in the field. The SPM tanker-loading systems are generally removed when the field-to-shore pipelines are op-

erating normally, but installations remain on the sea bed. Pipelines extend N to the Statpipe System, SE to Germany, and SW to England and may best be seen on the chart.

Eldfisk Field, Edda Field, Tommeliten Field, West Edofisk Field, Albuskjell Field, and Tor Field are located within 11 miles of Ekofisk Oil and Gas Field. They consist of several production platforms, some of which are equipped with an aeronautical radiobeacon and a racon.

Ekofisk Platform

Hod Field, Valhall Field, and Gyda Field lie 23 miles SSE, 17 miles SSE, and 21 miles N, respectively, of Ekofisk Oil and Gas Field.

Varg Field has a well head platform standing in position 58°05'N, 1°54'E; a production and storage vessel is stationed in the vicinity. A restricted area, with a radius of 1.1 mile, is centered on the position above.

Glitne Oil Field consists of a lighted storage tanker sur rounded by a restricted area with a radius of about 0.7 mile centered on the storage tanker. A well head, which is connected to the tanker by a submarine pipeline and cable, is located about 1.5 miles NNW of the storage tanker, in position 58°44.0'N, 1°38.5'E. Another well head, situated in position 58°41.6'N, 1°40.4'E, is connected to the storage tanker by a submarine pipeline.

A wreck is located in position 58°41.2'N, 1°40.1'E.

Ula Gas Field (57°06'N., 2°51'E.) is situated about 36 miles NNW of Ekofisk Oil and Gas Field and consists of three plat forms connected by bridges.

Cod Gas Field lies 14 miles W of Ula Gas Field.

Statpipe Platform No. 1 (58°11'N., 2°28'E.) is situated about 103 miles SW of Feistein and equipped with a racon. Submarine gas pipelines extend N and S to other fields and NE to the coast.

Sleipner Gas Field lies 23 miles NW of the platform.

For oil and gas fields N of the above, see Sector 2.

For oil and gas fields NW of the above, see Pub. 192, Sailing Directions (Enroute) North Sea.

Tamber Oil Field lies 8.5 miles SSE of Ula Field, where a lighted platform is located above the Gyda and Ula gas line.

Lindesnes to Steinodden

1.3 The coast line from Lindesnes to Steinodden measures about 18 miles and runs in a NW direction. Steinodden is on the W extremity of the peninsula of Lista. The coast varies in height, is mostly rocky, and contains trees and several small beaches.

Gronsfjorden, between the peninsula of Spangereid and the mainland W, has steep and rugged shores. A group of rocky islands separates the entrance of the fjord from the entrance of Rosfjorden. The shores of the latter are steep, rising to about 152m. Between the entrance to Rosfjorden and Farsund for about 6 miles WNW, there are many islands. The coast is indented and rocky, but not steep.

The port of Farsund is at the entrance of Lyngdalsfjordenen. This fjord and its branch, Oftefjorden, penetrate deeply inland. Their steep, and generally forested, shores rise to a height of about 183m.

The peninsula of Lista lies W of Farsund. In the SW part, it is low-lying, but in the NE part it rises to heights of about 244m. There are several patches of marshland and extensive areas of farmland in the SW part.

Aspect.—The rounded summit of Homsknipen, 477m high, is located about 11 miles ENE of Steinodden. A conspicuous radio tower stands on Kalaskniben, a hill situated 1.5 miles NNE of Homsknipen.

Caution.—Mackerel fishing, by means of drift nets, purse seines, and trailing lines, flourishes along the S coast of Norway from May to September. The approximate area of greatest activity is from W from Lillesand to Lista.

A restricted area, in which navigation is controlled by regulation, lies up to 1 mile from the coast between Einarsneset and Varnes.

1.4 **Lindesnes** (57°59'N., 7°03'E.) is the S point on the Norwegian peninsula. An important landfall, it extends SW from the mainland and is on the S extremity of the rocky and forested peninsula of the Spangereid peninsula. It is about 40m high and lies on red, rugged, and uneven land. A light is shown from a tower.

Neskletten and Lamekletten, two small banks within 1.5 miles S and 2 miles WSW, respectively, of Lindesnes, have least known depths of 25m. In heavy weather, the sea breaks on Neskletten.

Bispen, a small round above-water rock marked by an iron beacon, is located about 1.3 miles W of Lindesnes and is the southernmost of all the dangers W of Lindesnes. In rough weather, the sea breaks constantly on the shoals N and E of Bispen.

The coast between Lindesnes and Einarsneset, about 10 miles WNW, is indented. From the offing, the land appears to form a large bay studded with islands and islets.

Skarvoy, about 6 miles NW of Lindesnes, and Faeroy, about 0.7 mile E of the S extremity of Einarsneset, can be easily identified. The former has a hill resembling a sugarloaf in its SW part.

1.5 **Gronsfjorden** (58°02'N., 7°02'E.) is about 5 miles long and up to 1 mile wide. It trends in a general NE direction along the NW side of the Spangereid peninsula. Easy of access, it is entered about 2 miles NNW of Lindesnes at the SE end of Raevoy. Gronsfjorden is connected at its inner end with Lenefjorden by Jasundet.

Several islets and numerous rocks and shoals extend about 1 mile W and 2 miles S of Raevoy. Sveinene, two small low

Lindesnes Light

Lindesnes Light

rocks which are almost always marked by breakers, are located about 0.7 mile ENE of Bispen. There are general depths of 146 to 183m, with few islets or dangers.

Jasundet (58°04'N., 7°09'E.), which connects Gronsfjorden with Lenefjorden, is very narrow and has a least fairway depth of 3m; a bridge, with a vertical clearance of 14.9m, spans the narrows. Two 1.8m rocks are located in the passage, one on either side of the channel. Currents in Jasundet attain velocities of 3 or 4 knots.

Lenefjorden has great depths throughout most of its 5.25 miles length, but can only be reached by vessels that can pass through Jasundet.

1.6 Stusvik (58°00'N., 7°02'E.), on the E side of Gronsfjorden, has a harbor for small vessels. The depth between the jetties is 6.9m; farther in, depths from 3.7 to 6.9m are found. The seas in the harbor may become quite rough during S and SW winds.

Hovdebukta (58°04'N., 7°06'E.), on the NW side of the fjord, is a good harbor with depths up to 30m, sand, near its head.

Flatstadbukta (58°05'N., 7°07'E.), on the N shore of the fjord, has anchorage, in 16.9m, mud. Care must be taken to avoid a 2.7m rock that lies in the E side of the bay.

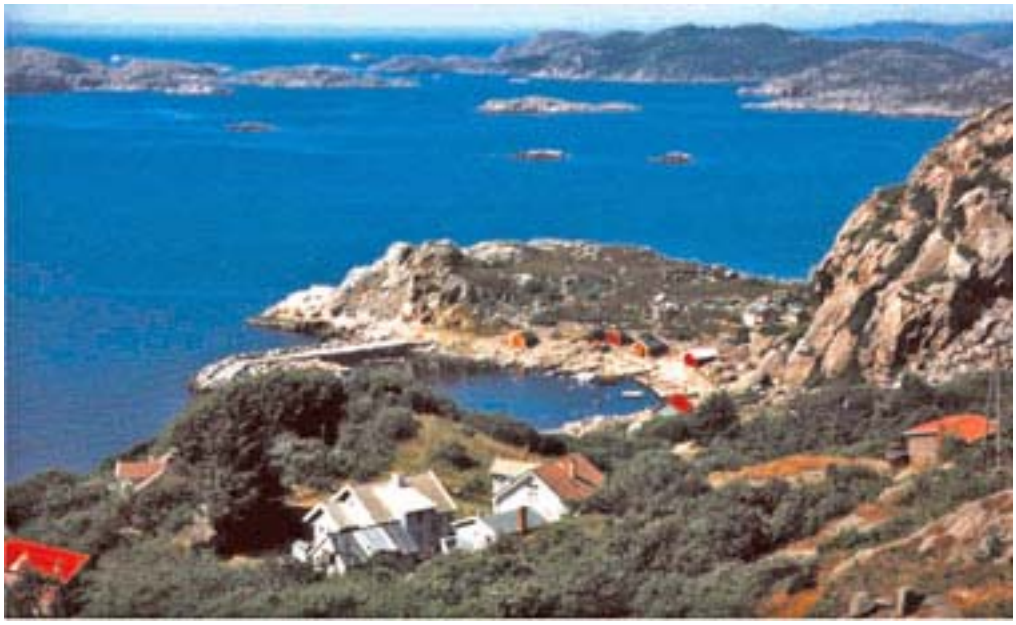
Asevagen, about 0.4 mile E of Flatstadbukta, is a good harbor with anchorage, in 24 to 26m, mud. The best anchorage is near the W part of the bay. The entrance to Asevagen is restricted by an overhead cable with a clearance of about 15.2m.

During good weather, no difficulty should be experienced in entering Gronsfjorden. Strong W winds, a heavy sea, and the backwash from the mainland sometimes combine to make steering difficult.

Anchorage.—Anchorage can be taken in **Raevoysund** (58°02'N., 7°00'E.), the narrow passage between the N end of Raevoy and the mainland, and in Hundalshamn. A light is shown on the NW side of the passage. Vessels with local knowledge can anchor in the W part of Raevoysund, N of the NW extremity of Raevoy, in 29 to 40m, clay. Raevoysund is spanned at its W end by a fixed bridge with a vertical clearance of 20m. A light is shown from the middle of the bridge. Small vessels can anchor, in 20 to 29m, in Hundalshamn.

Numerous above and below-water dangers, some of them marked by iron perches or beacons, lie in the several approaches to Raevoysund.

1.7 Langholm (58°02'N., 6°58'E.), Sutnoy, Kjerringoy, and Haoy are located within 0.75 mile NW of Kjepsoy (58°01'N., 7°00'E.). They are nearly joined together by their fringing shoals. A group of rocks, partly above water, lie about



Stusvik

183m SW of Langholm. A detached 11m patch, about 183m farther SW, is the outermost shoal in this vicinity.

Detached islets, rocks, and shoals extend up to about 0.5 mile from the W side of Marquee and Kjepsoy.

Rosfjorden, which is easily recognized from seaward, lies about 2 miles NW of Gronsfjorden.

From **Hausvigodden** (58°03'N., 6°59'E.), the E entrance point, the fjord trends NNE for about 5 miles and has few dangers. A light is shown from the point. There are some good anchorages on both sides of the fjord. This deep fjord has a maximum width of 1 mile; its narrowest part, with a width of about 0.1 mile, is located about midway through the fjord. General depths in the approaches and inside the fjord are 55 to 146m.

The approach to Rosfjorden lies between **Herreholmen** (58°02'N., 6°58'E.), a moderately-high islet of reddish color located about 0.2 mile NW of Sutnoy, and Ulleroy, an 86m high island nearly 1 mile WNW. A light is shown from a wooden hut on the NW extremity of Herreholmen.

Midtfjordenskjaer, about 0.4 mile WNW of the W extremity of Herreholmen, is marked by a black beacon with a white band. A 7.6m shoal patch lies about 183m N of Midtfjordenskjaer.

Ytre Rosfjordenskjaerene and Indre Rosfjordenskjaerene, two groups of rocks, partly above water, are on the W side of the Rosfjorden approach between Midtfjordenskjaer and the mainland to the N.

Store Kubbesteinen and Lille Kubbesteinen, two above-water rocks, are located on the W side of the approach about 0.5 mile and 0.2 mile, respectively, SSW of the SE extremity of Ulleroy.

Bradsteinen, with less than 1.8m, lies between the two rocks and somewhat to the W. Other rocks lie between Bradsteinen and Ulleroy.

Bjorneskjaer, about 0.1 mile NNW of Langholm, is above water; other above and below-water rocks lie within 137m N of it.

Bjorneskjaerflu, awash, lies about 183m SSW of Bjorneskjaer.

1.8 Grotholm (58°02'N., 6°58'E.) is the larger of two islets that lie about 0.25 mile NE of Herreholmen. Several rocks, with depths of 1.8 to 4.6m, lie within 183m W, NW, and E of Grotholm; two small islets and some rocks lie between the latter and the mainland.

Skonevigflu, with a depth of 4.6m, is located on the E side of Rosfjorden approach about 0.2 mile S of Hausvigodden.

Teroy (58°03'N., 6°56'E.) is located about 0.1 mile N of Ulleroy, from which it is separated by Ulleroysund. A light is shown from the SW extremity of Teroy.

Andreholm lies close off the W entrance point of Rosfjorden, about 0.4 mile WNW of Hausvigodden. Bukkene, about 0.1 mile NE of Andreholm and the outermost danger on this side of the fjord entrance, is awash; it is marked by an iron post.

Other rocks, above and below-water, lie close W and NW of Bukkene. A rock, with a depth of 5.9m, lies about 137m NW of Hausvigodden.

1.9 Eitlandskjaera (58°03'N., 6°59'E.), partly above water, lies on the E side of the fjord about 0.6 mile NE of Hausvigodden. Boroflu, 0.2 mile farther NE is a reef with depths of 2m or less over it.

Boro, the largest island in Rosfjorden, is on the E side of the fjord about 1 mile within the entrance. Shoal water extends about 183m from the W shore of Rosfjorden abreast Boro.

Shoal water also fringes the head of the fjord for a distance of about 183m offshore and several other short sections of the

W shore, particularly in the narrows of the fjord.

An overhead cable, with a clearance of 14m, spans the narrow passage between the mainland and the E extremity of Boro.

A light is shown from Syrhoved, about 2 miles NNE of Boro, on the W side of the fjord.

Anchorage.—Anchorage can be taken in Borobukta, located on the NE side of Boro, in 25m, clay. An 8.7m shoal is located about 91m off the N end of Boro.

Anchorage can also be taken on the W side of the fjord, at Agnefest, in depths of 25 to 35m.

Directions.—Vessels approaching Rosfjorden should pass to NW of Herreholmen and Skonevigflu and SE of Store Kubbesteinen, Midtfjordenskjaer, and Ytre Rosfjordenskjaerene. One white sector of Hausvigodden Light leads clear of all dangers.

Pass Hausvigodden at a safe distance, taking care to avoid the 5.9m rock about 137m NW of it. After passing that point, another white sector of the same light indicates the fairway as far N as Boro. Vessels are then guided by the white sector of the light shown from Syrhoved, and N of Syrhoved by the white sector astern.

1.10 Spindsfjorden (58°05'N., 6°56'E.), the next fjord W of Rosfjorden, trends NNE for about 3 miles from the SE end of Skarvoy. Its approach lies between the mainland, on the E, and Ulleroy, Teroy, and Skarvoy, on the W. Two small bays extend E from its S part. Numerous dangers border the narrow channel and local knowledge is required.

Ystesteinen (58°01'N., 6°53'E.), a cluster of above and below-water rocks, lies about 2 miles SW of Ulleroy. This isolated group is outside all other dangers in the area and will be easily recognized. Ostre Steinsflu, a 16.5m patch, lies about 0.2 mile ESE of the largest rock.

Midfjordenskjaer (58°02'N., 6°54'E.) is located about 1 mile NE of Ystesteinen. A detached 7m rock lies about 0.1 mile NE of Midfjordenskjaer. Store Korken and Lille Korken, above-water rocks, and a detached 1.8m depth, lie between Midfjordenskjaer and the SE extremity of Vikelen, about 0.7 mile NE.

Breiflu, with depths of 3.7 to 7.8m, lies about 0.5 mile S of Vikelen. Several 6.4 to 8.7m depths lie between them.

Roholme (58°02'N., 6°52'E.), about 1 mile W of Vikelen, reddish-colored, and easily identified, is the largest of a group of four islets. A 5m depth lies about 0.2 mile N of Roholme. Nordre Roholmflu a 14.6m depth about 0.2 mile NNW of Roholme.

Odegardsgrunn, with a depth of 16.5m, and Kletten, with a depth of 26m, are located about 1 mile S and 1.25 miles SW, respectively, of Roholme.

Ostre Roholmflu, about 0.4 mile SE of Roholme, has a depth of 4.5m; a 10.1m depth lies between them.

Vestre Bradsteinen (58°02'N., 6°52'E.), marked by an iron perch and almost always marked by breakers, is located about 0.4 mile S of Roholme. Vestre Roholmflu, about 0.5 mile SSW of Roholme, has a depth of 10m.

1.11 Ulleroysund (58°03'N., 6°55'E.), between Ulleroy and Teroy, is a good roadstead where vessels can anchor, in 29 to 35m, sand and clay. The best anchorage is located about 0.1 mile SW of the light on the SW side of Teroy.

Directions.—Of the two principal approaches to this sound, the E is the better and the only one described.

Approaching from the S, steer for the white sector of the light on the E extremity of Ulleroy, which leads W of Bispen and the islets and dangers extending SW from Marquee and then E of Store Kubbesteinen.

After passing Store Kubbesteinen, steer to pass between Lille Kubbesteinen and Midfjordenskjaer, then through Ulleroysund, taking care to avoid a 7.8m depth, marked by a black and red spar buoy, which lies about 0.1 mile NE of Teroy light, and keeping close to Ulleroy when abreast Teroy to avoid the foul ground extending about 91m S from the latter islet.

The green sector of the light shown from the SW extremity of Teroy, bearing between 306 and 319°, leads through the E part of Ulleroysund to within about 0.3 mile of the light.

Skarvoyhamn is on the S side of Skarvoy, the next island N of Teroy. Anchorage can be taken in the outer part of the harbor, in 29 to 40m. Skarvoyflu, a 4m depth, lies about 0.2 mile N of the W extremity of Teroy. A 1m depth, marked by an iron perch, lies about 0.15 mile S of Skarvoyflu.

Sandholmane are two islets that lie on a reef on the W side of Skarvoyhamn and close within the harbor entrance. The reef fringes and extends about 137m from the shore.

1.12 The approach to the port of Farsund lies between Langoy and a number of islets and reefs that extend NE toward that island from **Einarsneset** (58°03'N., 6°47'E.).

Langoy (58°04'N., 6°52'E.) is the largest island in the approach and lies on the NE side of the principal fairway. A light is shown from a position about 0.2 mile NW of the S extremity of Langoy. A light is shown from the W side of Langoy in a position about 1 mile NNW of Bremerodden, the S extremity of Langoy.

Pilot boarding station for Farsund lies 2 miles S of Sondre Katland Light (Sore Katland), (58°03'N., 6°51'E.) when approaching from S. A small inlet lies in the approach to Farsund, about 1 mile E of the SE extremity of Einarsneset.

A light is shown from the S side of Store Haoy, an islet which lies about 0.1 mile NW of the NW extremity of Langoy.

Several islets and some rocks and reefs lie between Store Eigeroy, on the W side of the approach to Farsund and Store Haoy.

A light is shown from the SE extremity of Sandoy, which is located near the mainland about 0.6 mile WNW of Sondre Katland.

1.13 Faeroyflua, a 3.2m depth, marked on its S side by a lighted buoy, lies about 1 mile SSW of Sondre Katland. Villaflua, with a depth of 11.9m, and Austre Mellomflua, with a depth of 5.5m, are located about 0.2 mile NE and 0.25 mile N, respectively, of Faeroyflua.

Gunnarskjaer, awash, and Skarveskjaer, with a depth of 4.6m, lie on the SE edge of the shoal that extends up to 0.3 mile S and SE from Faeroy. Kalveflu, with a depth of 1.8m and marked by a buoy, is on the W edge of the shoal. Breakers usually mark these dangers.

Revoyflu, marked on its N side by a buoy, is located about 1 mile SW of Sondre Katland. Revoyskjaer, marked by an iron beacon, lies near the S end of Revoyskjaergrunn about 1 mile

SW of Sondre Katland.

Revoy (58°03'N., 6°48'E.), about 0.3 mile S of the SE extremity of Einarsneset, lies on foul ground together with a few other smaller islets. A beacon stands on Revoy. A 7.3m rock is located about 0.3 mile WSW of the S extremity of Revoy; a 12m depth lies about 183m farther WSW. Kraka is the southeasternmost islet in the group.

Sjuhausflua, marked by an iron perch, is located about 0.2 mile W of Revoy; a reef extends about 0.1 mile N from it.

Foul ground, on which the islet of Klubben lies, extends nearly 0.3 mile E from the SW end of Einarsneset.

Oddeflua, about 0.1 mile NE of Revoy, has a depth of 2.7m and is marked by a buoy.

1.14 The principal approach channel to Farsund leads between Faeroyflua and the Roholmane group; then between Sondre Katland and Lindholmbaen; then W of Svartskjaer and Brattholme; E of Bukkegrunnane, Futeskjaer, and Risholme; and then between Lille Haoy and Store Haoy and toward the respective parts of the harbor.

Pilotage.—Pilotage is compulsory for merchant vessels and is advisable for all vessels. Pilots should be requested through the pilot stations at Hidra or Oksoy. Pilots board vessels about 1 mile S of Faeroy.

Several dangers lie near this channel, but a least depth of 33m is charted in the fairway as far as the outer anchorage of the port.

A 14m depth is charted about 0.4 mile SSE of Sondre Katland; a depth of 10.1m lies about 0.5 mile ENE from the same islet.

Lindholmbaen, a 4.6m depth, lies on the E side of the fairway about 0.2 mile WNW of the N end of **Lindholmen** (58°03'N., 6°52'E.), a 26m high islet, and is marked by a spar buoy. A 14m depth lies about 0.5 mile W of the same extremity.

1.15 Bukkegrunnane (58°04'N., 6°51'E.), marked on its E side by a spar buoy, is the E edge of an area of reefs and islets which extends from a position about 0.4 mile NE of Sondre Katland to a position 0.5 mile NNW of that islet. A detached 4.8m depth lies about 0.2 mile NE of Sondre Katland.

Lyngholme is located about 0.7 mile NNE of Sondre Katland and about 0.2 mile SE of the S end of Uroy. A rocky patch, with a least depth of 3.2m, extends about 0.2 mile S from Lyngholme, and a detached 5m depth lies 0.2 mile SE of it. A 7m depth lies midway between Lyngholme and Uroy.

Futeskjaera, above water, lies about 0.1 mile E of Lyngholme.

A 3.2m depth lies between Risholme and Uroy.

Sondre Haoyflua, lying between the NW end of Langoy and Store Haoy, has a depth of 4m and is marked on the SW side by a buoy.

Vestre Haoyflua, on the SW side of the fairway 0.1 mile SW of Store Haoy, has a depth of 4.7m over it and is marked by a buoy. Nordre Haoyflua, a 5.3m depth marked by a light, lies on the NE side of the channel about 0.1 mile WNW of Store Haoy.

Lille Haoy and Lamholme lie on the SW side of the channel, about 0.1 mile WSW and 0.3 mile W of Store Haoy.

Engoy and Faroy front the town of Farsund, which is situated about 1 mile NW of Store Haoy. Engoy is the S islet of the two. Skyskjer, about 0.4 mile SE of Engoy, is one of a group of above and below-water rocks and is marked by an iron beacon.

Fisholmflua, on the NW side of Fisholmen about 0.2 mile SE of Engoy, is marked by an iron perch.

1.16 Farsund (58°06'N., 6°49'E.) (World Port Index No. 23520), the inner harbor, lies between Engoy and Faroy on the E, and the mainland on the W. The outer harbor lies between Fisholmen and Sundsodden, a mainland projection about 0.3 mile SSW of Engoy. A causeway extends from the NW end of Faroy to the NE end of the peninsula, on which the town of Farsund stands on the side of a steep hill. Athreespan Bridge, with a maximum clearance of 22m, connects Faroy with the E entrance point of Lyngdalsfjordenen.

Winds—Weather.—The prevailing winds in winter blow from S and SE; in summer nearly half of the time the prevailing winds blow from N or NW. These sea winds are largely responsible for the very mild temperatures in winter and the overall lack of extreme temperatures. Precipitation is high. The harbor is ice free.

Tides—Currents.—The tidal rise is about 0.3m. No local currents are reported in the Farsund approach. Winds have some effect on tides.

Depths—Limitations.—A depth of 33m is available through the approach, but Nordre Haoyflua, a 5.3m depth, lies close to the channel in the narrows between Store Haoy and Lille Haoy. General depths in the outer harbor are 14.6 to 29m; in the inner harbor off the town the depths are 4.5 to 8.8m. Berthing details are shown in the accompanying table titled Farsund—Berthing Information.

Farsund—Berthing Information

Berth Name	Length	Depth
Aluminum Quay	131m	14.2m
Industry Quay 2	100m	7.5-8.5m
Deep Water 10	180m	15.0m
Lundevaal	125m	7.5-10.0m
Inner Harbor	—	9.4m
Outer Harbor	—	4.2-6.3m

Aspect.—A light is shown from the SW side of Faroy in range with a light shown from the SE side of Engoy. Lights are shown from the S side of Faroy and a post in the water close E of the N extremity of Engoy.

Pilotage.—Pilotage is compulsory and requires 24 hours notice. Pilotage should be ordered through SafeSeaNet or alternatively the Horten Pilot Booking Centre. The pilot boards in position 58°01.5'N, 6°50.0'E.

Pilots can be contacted on VHF channels 13 and 16.

Anchorage.—Small vessels can anchor in the inner harbor; the usual anchorage is N of Gulsteinen between the town and Gasholme. Mooring rings and dolphins are located along the shore. Larger vessels can anchor anywhere between Gulsteinen and Skjolnes, the S entrance point of Lundevagen about 0.25 mile SE of Sundsodden.

1.17 Lundevagen, the inlet immediately S of Farsund, extends W a little over 1 mile from its entrance between Sundsodden and Skjolnes and narrows to a width of about 137m in a position about 1 mile from the entrance.

Kraka, an above-water rock, lies about 0.1 mile W of the narrows. A 3m depth, marked by a buoy, lies about 73m SE of Kraka. When passing through the narrows, vessels should keep close to the S shore.

A submarine cable is laid across the entrance to Lundevagen.

A concrete wharf, 135m long, with a depth alongside of 14.5m, lies on the S shore of the inlet near the entrance. Another concrete wharf, 106m long, with depths alongside of 5 to 9m, lies on the S shore close to the head of the inlet.

Anchorage.—Small vessels can take sheltered anchorage in the inner part of Lundevagen, in 16.5 to 18.3m, good holding ground. The head of the inlet shoals to a distance of about 0.1 mile offshore.

1.18 **Saltrak** (58°03'N., 6°49'E.) is an island close SW of Sandoy. Palsflua, on the end of a spit extending about 0.2 mile SW from Saltrak, is awash, always breaks, and is marked by an iron perch. Sauflua is located on the edge of foul ground that extends about 0.1 mile E from the SE extremity of Einarsneset. It has a depth of less than 1.8m and is marked by an iron perch.

Flama (58°04'N., 6°50'E.), a roadstead, lies between Faeroy, on the S, Sandoy and the mainland on the W, and Lille Eigeroy on the N. Reefs and islets extend N from Sondre Katland on the E. The roadstead is roomy and easy of access.

Anchorage.—Anchorage can be taken here, in about 33m, clay, with good holding ground.

Katlandflua, with a depth of less than 1.8m and lying within 0.1 mile W of Sondre Katland, is marked by an iron perch and a buoy.

Foeroysundflua, a detached 8m depth, lies close to the Lille Eigeroy range line about 0.2 mile WNW of Sondre Katland.

Two unmarked rocks, with depths of 7.6 and 9m, lie on the W side of the roadstead within about 206m of the E side of Sondoy. The deeper rock never breaks.

Engelskjerflua, on the E side of the roadstead about 0.3 mile NNW of Sondre Katland, is marked by a buoy.

Raudsteinflua, at the N end of the dangers extending N from Sondre Katland, has a depth of less than 1.8m and is marked by an iron perch.

A detached 6.9m depth lies in the NE part of the roadstead about 0.3 mile ESE of the S extremity of Lille Eigeroy.

Directions to Ostre Faeroysundet.—From the vicinity of position 58°02.5'N, 6°50'E, the approach route to Farsund track leads to Flama roadstead by passing Sondre Katland Light (58°03.4'N, 6°50.5'E.) via Ostre Faeroysund, the passage between Sondre Katland and Faeroy, which can be used in all weather conditions.

This channel is approached between Faeroyflua and the Roholme group until the range lights shown from Lille Eikeroy are in line. When on the range line, care must be taken to avoid Foeroysundflua.

1.19 **Kveldsund** (58°04'N., 6°54'E.) separates the NE end of Langoy from the W extremity of Ytre Bugdoy. This narrow, rock obstructed channel is near the E end of Indre Spindsfjorden, 0.25 to 0.5 mile in width, lying between Langoy and the mainland, N. It trends E from Store Haoy for about 2 miles. Several anchorages are located in small coves that lead off from the inlet.

Vikholme lies close off the N shore of the inlet about 0.5 mile NW of the NE extremity of Langoy. Shoal water extends about 137m S from Vikholme.

An overhead cable, with a clearance of 30m, spans the inlet, about 0.3 mile E of Vikholme. A submarine cable crosses the inlet about 0.3 mile W of Vikholme.

Midfjordenskjeret, a detached above-water rock, is located in the W approach to the inlet in a position about 0.2 mile NW of the N extremity of Store Haoy. A 16m depth lies about 0.2 mile ESE of Midfjordenskjeret.

Anchorage.—Anchorage may be obtained, in a depth of 14m, between the N side of Vikholme and the mainland; in a depth of 22m, in a creek on the N side of Langoy, about 0.4 mile S of Vikholme; and, in a depth of 15m, in a cove about 1 mile E of Vikholme.

Anchorage for small vessels with local knowledge may be taken, in depths of 8m to 14m, sand, off Birkenes, 0.6 mile ENE of Store Haoy.

1.20 Lyngdalsfjorden extends about 4 miles NE from Farsund and then divides into two arms, each about 4 miles long. The E arm continues under the name of Lyngdalsfjorden; the NW arm is known as Oftefjorden. About 1 mile from the head of the latter fjord, Drangsfjorden branches NE for about 2 miles.

A bridge, with a vertical clearance of 22m at the center, spans the entrance of Lyngdalsfjorden. About 1 mile within the entrance, an overhead cable, with a vertical clearance of 22m, crosses the fjord.

Oen (58°06'N., 6°47'E.), an island in the SW part of Lyngdalsfjorden, is separated from the mainland on its S, W, and N sides by channels which are, in places, both narrow and shallow. Helvigfjorden, W of Oen, has a depth of 3.2m in its approach, which leads S and W of the island.

With the exception of a shoal extending across the entrance of the E arm of Lyngdalsfjorden and a few scattered dangers, the fjords are deep throughout.

A 5m shoal lies on the E side of Lyngdalsfjorden entrance about 137m W of the NW extremity of Spindsodden.Submarine cables are laid from Farsund to Oen and E of Kilsholme to the mainland. A submarine cable is laid across Lyngdalsfjorden, about 1 mile E of Farsund.

From the S entrance point to the inner part of Lyngdalsfjorden, a submarine cable is laid NW across Oftefjorden to a position about 0.5 mile NE of Herred, at the head of a bight indenting the W side of Oftefjorden.

Another cable is laid from the S entrance point along Lyngdalsfjorden to a position about 0.5 mile W of Lyngdal, located at the head of the fjord.

Anchorage.—Anchorage can be taken in Bjorsviken, on the E side of Oen, in 11.9m, pebbles and shells.

Several anchorages are located in the E arm of Lyngdalsfjorden; a 5.5m channel leads across the shoal fronting this arm.

Anchorage can be taken off Herred, in 14.6 to 22m. Several dangers lie in the NE part of the bight that Herred lies at the head of. An anchorage is also located near the head of Of-

tefjorden, in a depth of about 27m.

1.21 The coast between Einarsneset and Steinodden, about 8.5 miles NW, is indented by several shallow bights. The first 1.5 miles of the coast is fringed by reefs and islets to a distance of about 1.5 miles offshore.

Along the about 7 miles stretch of Lista from Steinodden to Rauna, the bottom slopes steeply. This leads to sea waves being both reflected and deflected. In addition, the current conditions in the area are variable with eddy formations, and the sea can be very rough. Heavy breakers have been observed.

Hummerdus is an islet close W of the S extremity of Einarsneset. Between the islet and Havik, about 1.5 miles WNW, there is a considerable extent of reddish-colored sand, which has sometimes been mistaken for Mandalssand, a strip of yellow sand about 12 miles E of Lindesnes, to which it certainly bears some slight resemblance. Such a mistake is possible in thick weather.

Havik (58°04'N., 6°44'E.) appears as a dark brown hill rising from a small point 2 miles WNW of Einarsneset.

Svaneflu (58°03'N., 6°45'E.), a 2.1m depth located about 1.5 miles SW of Einarsneset and marked by a spar buoy, is the outermost of the many dangers in the vicinity. Between Svaneflu and Rauna the known dangers lie within 1 mile of shore.

Rauna (58°04'N., 6°40'E.), an island, is located about 3 miles W of Einarsneset. Shoal water extends up to 0.3 mile S from Rauna.

Ostre Rauneflu, a 2.5m depth, lies near the coastal bank about 0.25 mile SE of Rauna. A 1.5m depth lies about 0.3 mile ENE of Ostre Rauneflu. Vestre Rauneflua is a 3.5m patch about 0.7 mile W of Rauna.

1.22 **Brekneholme** (58°06'N., 6°35'E.) is an inconspicuous flat islet, consisting entirely of pebbles and located a little over 3.25 miles NW of Rauna.

Listahamn, lying between the SE end of Brekneholme and the mainland, is protected by a mole extending from the islet and one extending WNW from the mainland.

Small vessels may anchor in Listahamn, in depths from 4 to 6m, with their sterns secured to mooring rings because of limited swinging room. During SW storms, there is a considerable current in the outer harbor.

Several above and below-water rocks lie within about 152m of the S shore of Brekneholme.

A projecting quay on the E side of Listahamn has depths of up to 4m alongside.

Lista Light (58°07'N., 6°34'E.), exhibited from a stone tower, 34m in height, is on a level plain which projects about 2 miles from the foot of the high land between Farsund and Listafjorden and terminates in a low sandy shore bordered by ranges of sand hills.

Steinodden to Svaholmane

1.23 **Steinodden** (58°07'N., 6°33'E.) is the W extremity of the peninsula of Lista. Numerous above and below-water rocks lie within 0.4 mile of Steinodden.

Verevagen is a small shallow cove about 0.5 mile ENE of Steinodden. Perches and beacons mark its two entrance channels. A flagstaff stands at the head of the cove.

Lista Light

Stavestoflu, a 1.8m depth, lies 0.2 mile offshore about 1 mile NE of Steinodden.

Varnesholme lies close NW of **Varnes** (58°11'N., 6°38'E.), the S entrance of Listafjorden. Rocks border the SW and NW sides of this small islet.

1.24 **Listafjorden** (58°11'N., 6°37'E.) branches to form Fedafjorden, Stolsfjorden, and Flekkefjorden. Fedafjorden runs NE between steep forested shores, often rising to a height of about 305m. Flekkefjorden runs N from Stolsfjorden and has steep shores up to the port of Flekkefjorden at its head.

Brekneholmen Light (58°05'N., 6°36'E.) is exhibited from a white lantern on piles on Brekneholmen, a flat islet consisting entirely of pebbles, which is not easily distinguishable.

Listahamn, between Brekneholmen and the mainland, has a narrow entrance formed by two breakwaters.

Listahamn from SW

Andabeloy and Hidra, large and hilly islands, lie N and NW of Listafjorden.

Farther NW, the coast is craggy and treeless, rising steeply to

a height of about 183m, and is indented only by a few small inlets. The fjords are deep and mostly clear of dangers.

The fjord gap between Hidra and Varneset is only about 1 mile wide, and with an outgoing current, the sea will become rough. Large depths of about 300m, and a thereby steep shore, means that reflection will cause a rough sea. Refraction can also occur for certain directions.

Dangers on the NW side of Listafjorden include Myskeskjaerne and Hunden. Myskeskjaerne, two groups of low rocks, lie within 0.2 mile of the SE side of Andabeloy.

One group is located about 0.7 mile NE of Hogsaedeskroa, the S extremity of Andabeloy; the other group, which is marked by a beacon 2m high, lies about 0.25 mile farther NE.

Hunden, one of a group of above and below-water rocks, lies about 183m offshore, about 0.2 mile SSW of **Tarmevikodden** (58°13'N., 6°41'E.), the E extremity of Andabeloy.

Eidsfjorden, branching E for about 1 mile from the SE side of Listafjorden, has steep-to shores and ample depths.

1.25 Ytre Pollen (58°11'N., 6°42'E.), at the head of the inlet, affords good anchorage to small vessels, but during W gales the sea breaks across the entrance. Buoys mark the approach to the anchorage. Hausen, a rock on the S side of the entrance, is marked by an iron perch. Small vessels can also take sheltered anchorage, in about 7m, off Vikane, about 0.6 mile E of Varnes.

Fedafjorden, a continuation of Listerfjorden, extends NE for about 6 miles from its entrance between **Ostre Stolen** (58°13'N., 6°43'E.) and a point about 0.5 mile SE. The fjord is deep to within about 0.3 mile of its head, where a shoal fronts the mouth of the river Kvina.

The NW shore of Fedafjorden is more irregular than the SE shore. Anchorages in the fjord are all located on this side.

A bridge, with a vertical clearance of 50m, crosses Fedafjorden in position 58°15.5'N, 6°50.6'E between Agholmen (58″15'N., 6°52'E.) and Teistdalsstranda.

Sageflua, with a least depth of 5m, lies within 0.2 mile offshore in a position about 3 miles NE of Ostre Stolen. Binesflua, with a 9m depth, is located about 0.6 mile NE of Sageflua.

A small bay lies off the settlement of Feda, close NE of Binesflua. Vessels can anchor in the middle of the bay, in 40m, hard sand. A stone beacon and two dolphins stand at the head of the bay.

Agnholmen (58°16'N., 6°50'E.) lies on the N shore close NE of Feda.

Leirvik, located on the NW side of Fedafjorden, is a timber-handling place, with a concrete pier about 92m long and a depth of 5.6m.

Oye, the site of a smelting works, lies across a small bay NE of Leirvik. A concrete quay, 137m long, is located at Oye; a ro-ro berth on its N side has a depth of 8m while its S side has a depth of 12m alongside. Two buoys mark the edge of shoal water SE of the quay. A quay, 40m long, with a depth alongside of 3 to 7m, lies close NW of Oye.

Tides—Currents.—During floods, the outgoing flow in the narrowest part of the fjord, near Agnholmen, can attain a velocity of up to 2 knots. The velocity is usually 0.5 knot.

1.26 Strandsfjorden (58°13'N., 6°39'E.), branching N between Hidra and Andabeloy, is entered between Klubben and Hogsaedeskroa. The fjord is deep and relatively free from dangers. It trends N for about 2 miles to **Kokodden** (58°14'N., 6°39'E.), a prominent mainland point, where it joins Hidrasundet, and then NE toward Risholmsundet, the channel along the N side of Andabeloy.

Katterauva is an islet lying close offshore on the E side of Strandsfjorden, about 0.3 mile NW of Hogsaedeskroa. Rocks, with depths of less than 1.8m, lie near its SW end.

Abelnes is a village on the NE shore of a small cove about 0.3 mile N of Kokodden. Good anchorage can be taken off Abelnes, in 14.6 or 16.5m, sand and clay.

Risholmsundet (58°14'N., 6°40'E.), connecting Strandsfjorden and Stolsfjorden, is a narrow channel between the N end of Andabeloy and Risholmen, a small islet about 0.5 mile E of Kokodden.

Engelsholmen lies in the W approach to Risholmsundet. The islet is located close off the NW side of Andabeloy, about 0.3 mile SE of Kokodden. Two buoys, moored close W and N of the islet, mark the edges of the reef which fringes it.

Risholmen is the southernmost of a chain of islets, rocks, and shoals that almost completely obstructs the passage between the mainland and Andabeloy. Foul ground extends about 137m W from Risholmen. A lighted iron perch, about 91m off the E side of the islet, marks the SE edge of a foul area. Risholmbaen, close off the S side of Risholmen, is marked by a light and an iron perch.

Anchorage.—Good anchorage can be taken in most places on the bank between the N end of Andabeloy and the mainland. The bottom is mostly stiff mud and sand. The best anchorage is between Engelsholmen and Risholmen, in a depth of 20m.

1.27 Stolsfjorden (58°14'N., 6°41'E.) is entered between Tarmevikodden and Ostre Stolen and extends N about 3 miles to the narrows of Straumsundet. The fairway through the fjord is deep and clear.

Terneholmen (58°14'N., 6°41'E.), with a smaller islet and some foul ground near it, lies close off the NE side of Andabeloy. A stone breakwater extends S from Terneholmen to the coast of Andabeloy.

Aleskjera, a group of above and below-water rocks, lies up to 0.2 mile N of Terneholmen is are marked by iron perches.

Straumsundet is the middle one of the three narrow channels that lead N among the several islets in the passage separating Stolsfjorden and Flekkefjorden. These islets, from S to N, are Kjeoy, Litle Torsoya, and Store Torsoya. The least charted depth in the fairway of Straumsundet is 13.5m.

Stamdalsflua, a 1.8m depth marked on its W side by a buoy, lies about 183m offshore and about 0.2 mile S of Kjeoy.

Anchorage.—Small vessels with local knowledge can anchor in a cove on the S side of Kjeoy, in depths of 10 to 17m, sand.

There is anchorage for vessels of moderate size between the SE end of Kjeoy and Stamdalsflua, in a depth of 33m, clay.

1.28 Flekkefjorden extends N about 1.5 miles between Straumsundet and Gronsundet. An islet group extends up to about 0.2 mile from the W shore. Fairway depths through the fjord are ample.

Anchorage.—Anchorage is indicated in the NW part of

Flekkefjorden, in about 25m. Care must be taken to avoid a 4.8m depth on the E side of the anchorage close SW of the entrance to Gronsundet.

Gronsundet is the narrow channel joining Flekkefjorden and Tjorsvagbukta. A buoy marks the E and W sides of the fairway through the channel. The least charted depth through the fairway of the channel is 8.7m over a width of 60m. Range lights, shown from the NW shore of Tjorsvagbukta, lead between the buoys through Gronsundet.

Tjorsvagbukta, extending about 0.5 mile N from Gronsundet and up to 0.5 mile in width, forms the harbor for the town of Flekkefjorden.

1.29 Flekkefjorden (58°18'N., 6°40'E.) (World Port Index No. 23510) is located in the N part of Tjorsvagbukta. Its harbor is ice-free at all times. The harbor comprises all of Tjorsvagbukta and the narrow channel connecting that small bay and Grisefjorden. A drawbridge, spanning the channel, joins the two parts of the town. Vessels with a draft up to 3.7m can use the channel.

The harbor is free from dangers, except for the 5.2m shoal immediately within the entrance close N of Gronsundet. On either side of the harbor, the country is rocky and broken up by small lakes. Sparsely-wooded hills rise on the NW to over 274m and on the SE to over 122m.

Depths—Limitations.—The least charted depth of 8.7m is found in Gronsundet. The New Wharf has a depth alongside of 7.8m. Other quays have depths alongside between 3.0 and 6.1m.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Horten Pilot Booking Center at an additional cost. The pilot boards by prior arrangement at the entrance to Listafjorden in position 58°10.9'N, 6°32.9'E.

The pilots can be contacted on VHF channels 13 and 16 and by telephone (47-33-034954).

Contact Information.—The Port Authority can be contacted, as follows:

1. VHF: VHF channels 12, 13, 14, and 16
2. Telephone: 47-38-322265
3. Facsimile: 47-38-328009

The harbor master can be contacted by telephone (47-38-322265).

Anchorage.—Anchorage can be taken almost anywhere in Tjorsvagbukta, in up to 34m, stiff mud, good holding ground.

1.30 Rasvagen (58°14'N., 6°34'E.), a deep, narrow inlet indenting the S side of Hidra for about 2 miles in a NNW direction, has several coves and anchorages and provides good shelter. A barrier of islets and rocks, among which are five narrow passages, stretches across the entrance between Nesodden, the E entrance point, and a point about 1 mile NW.

A submarine pipeline is laid in the N part of the inlet. The inlet is crossed by an overhead cable with a vertical clearance of 21m.

Flekkefjorden can be approached from Listafjorden either by way of Stolsfjorden or through Strandsfjorden and Risholmsundet and then through the N part of Stolsfjorden. Vessels from W can also approach through Hidrasundet and then through Risholmsundet.

Hobmannen, a group of rocks, is located about 91m offshore about 0.9 mile ESE of Nesodden. Saueholmane is a small group of islets and rocks lying close offshore about 0.3 mile ESE of Nesodden.

Sakseskjeret, marked by a beacon, lies about 0.6 mile SE of Nesodden. The beacon should be given a berth of at least 152m to avoid the dangers extending NE from it.

Baan is a small low rock about 0.1 mile SW of Sakseskjeret. A rock lies awash close E.

Flekkeffjorden

Sjonga, the outermost of a group of rocks about 183m N of Baan, and Skarveskjerflua, the westernmost of a group of rocks about 0.3 mile farther NW, are each marked by an iron perch.

1.31 Rasvagholmane (58°13'N., 6°35'E.) is a group of small islets and rocks on the E side of the inlet, close WSW of the village of Rasvag. An iron perch marks the NW rock by Rasvagholmane.

The entrances into Rasvagen are narrow but not very difficult. Under ordinary circumstances, a pilot will board the vessel in time to take it into the inlet. If a pilot is unable to board, the vessel should stand into Listafjorden or Hidrasundet, both of which are easy of access.

The E entrance, between the coast of Hidra and Sakseskjeret, is the one generally used. It is relatively clear of dangers and is deep. The other entrances require local knowledge. After passing Sakseskjeret, keep E of Naudholme, Lille Hummeroy, and Kregleholme and W of Rasvagholmane.

Anchorage for Rasvag, in the cove fronting the village, is prohibited because of submarine cables. Anchorage may be taken about 0.4 mile NW of Nesodden, off the SW side of Kreglingholmen, in depths of 20 to 30m.

A 9.2m patch lies about 91m S of Kreglingholmen.

Caution.—Vessels must not proceed at more than 5 knots in the upper part of Rasvagen when N of Vage.

Breidlia (Breilien) (58°13'N., 6°34'E.) lies in a small cove on the W side of Rasvagen and affords good anchorage, in

16m, sand. Vessels anchor in the middle of the cove and moor with stern lines to mooring rings.

Vage is a small harbor in a bight on the W side of Rasvagen, about 0.6 mile N of Breidlia. Small vessels can find sheltered anchorage here, in 26m, sand. A stern line should be taken to the shore at the head of the bight.

1.32 Kirkehamn (58°14'N., 6°32'E.), on the W side of Hidra, is a good harbor. Heavy seas from the W send in a heavy swell. The harbor is ice free.

Vessels anchor in the bight NW of the church, in depths of 20 to 30m, mud. Small vessels may obtain anchorage in the E bight, off the village, in a depth of 20m, sand.

There is also anchorage near the NE end of Dragoya, in depths of 16.4 to 20m.

Hidrasundet separates Hidra from the mainland N and can be used by vessels approaching Flekkefjorden from the W. The fairway is free from known dangers and is deep, but is only about 0.1 mile wide at its narrowest part.

From its entrance between Kvalsberget, the N extremity of Hidrsundet trends ESE for about 3 miles to Kokodden, where it joins Strandsfjorden.

Svertingane (58°15'N., 6°30'E.), a group of above and below-water rocks lying within about 0.3 mile NW of Prestoya, are the outermost dangers on the S side of the approach. A 1.5m shoal lies at the W end of the group.

Kadoyflua, a detached 12m shoal, lies about 0.2 mile N of the N end of Kadoya, the island NE of Prestoya.

Stovika (58°15'N., 6°31'E.), on the N side of the W approach to Hidrasundet, is entered a little over 0.75 miles NNE of the N point of Kadoya. It affords good anchorage for small vessels, in depths up to 20m, sand.

Smaller vessels can anchor, in 4m, at the head of the cove. W winds send in a considerable swell. Stovika anchorage is approached between an island group on the SW side of the cove and a rock, awash, located about 137m SW of the E entrance point. Vessels must pass close E of the rock awash to avoid the shore bank extending from the E side of the cove.

1.33 Berefjorden (58°16'N., 6°28'E.) is entered E of Holmen, an islet 0.5 mile NW of Halsodden, the E entrance point. Small vessels with local knowledge can obtain anchorage in a cove NW of Holmen, in depths up to 24m, mud, approaching by the wider channel N of the islet.

Shoal water extends about 18m from the E side of this islet. A power line, 21m high, is reported N of Holmen. Small craft can anchor between **Furuholmen** (58°16'N., 6°28'E.) and the head of Berefjorden, in depths up to 6m, mud; the wider channel S of Furuholmen has a depth of 3.7m.

A hill, 244m high, stands about 0.7 mile NE of Halsodden. Another hill, 218m high, lies about 2 miles NW of Halsodden.

Siragrunnen (58°15'N., 6°20'E.) lies off the outlet to **Ana Sira** (58°17'N., 6°26'E.); the depth varies from 10 to 100m.

The current conditions in the area are very variable. A little further out from land, the coast current runs NE. At the Rekefjord entrance to Ana Sira, the outgoing current has been reported as high as 3 knots.

1.34 Egdeholmen (58°17'N., 6°23'E.) lies close off the E entrance point of Ana Sira. During strong outgoing tidal currents and with onshore gales, the sea breaks on either side of the entrance.

Siragrunnen should be avoided in poor weather. Together with winds from SE, through S to NW, the variable current conditions will cause a rough sea. Even outside the current, the bottom conditions will mean that refraction centers are formed on the shoal with waves from W to NW.

The largest of three quays in Ana Sira is located at the head of the inlet 2 miles ENE of Egdeholmen. It is 50m long, with a depth of 3m alongside, and is approached through a shallow channel marked by buoys.

Between Ana Sira and Buvarodden, about 2 miles NW, and up to a distance of about 2 miles W from that point, there are numerous small islets, rocks, and shoals. The channels among these islets, rocks, shoals and the coast, although deep, should only be used by vessels having local knowledge.

1.35 Jossingfjorden (58°19'N., 6°20'E.), about 0.5 mile E of Buvarodden, lies between Austre Kvalen and Vestre Kvalen, about 183m W. From its narrow, well-defined entrance lying between steep, dark hills, Jossingfjorden extends NE for about 1 mile. The fjord is deep and, within the entrance, is from 0.2 to 0.3 mile wide.

Overhead cables, with vertical clearance of 6.5m, cross the entrance to Jossingfjorden E of Austre Kvalen Light.

Depths—Limitations.—An ore pier at the head of the fjord has a depth of 15m alongside. Vessels of up to 16,000 dwt can load from the silo with the help of a conveyor belt. Water may be obtained from the pier. Another pier at Holmen, on the E shore of the fjord, is about 20m long, with depths of 7.7 to 8.5m alongside; it is used for general cargo.

Vintersto, a 2.7m rock marked by an iron perch from which a light is shown, lies in a small cove on the E side of the fjord about 0.3 mile NNE of Austre Kvalen. Except for this rock, Jossingfjorden is clear of dangers.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Horten Pilot Booking Center at an additional cost. The pilot boards in position 58°17.9'N, 6°13.9'E.

The pilots can be contacted on VHF channels 13 and 16 and by telephone (47-33-034954).

Contact Information.—The port can be contacted by telephone (47-51-470600).

Anchorage.—Small vessels can take good anchorage between Vintersto and the shore of the cove, in 16.5 to 24m, sand. Mooring rings are available.

Anchorages are also located in two coves on either side of a small peninsula that projects from the E shore of the fjord near Holmen, about 0.7 mile within the entrance.

Mooring rings are available in the SW cove. Depths in these anchorages are 20 to 24m. Larger vessels can anchor about 0.4 mile from the head of the fjord, in 40 to 55m, fine sand and mud.

Caution.—The approach to Jossingfjorden should only be made from the W. Passage should be made N of Indrebaen, Langholme, and Dynga.

Two submarine cables lie in the vicinity of the anchorage near Holmen. An outfall pipeline runs from the vicinity of Holmen, seaward along the E side of the fjord. Discharge is achieved through a pipe floating at a depth of 15m.

1.36 The coast between the Jossingfjorden entrance and Rekefjord trends WNW for about 2 miles and is very irregular. It is entirely covered with green grass in summer.

In autumn and winter, when the grass is withered and before the ground is covered with snow, it has a yellowish appearance. The mountains flanking this coastal stretch are naked and dark, presenting a striking contrast.

A chain of four islets and a group of rocks extends for about 1 mile across a coastal indentation comprising the harbor of Sogndalsstranda, in the SE part, and two small arms, Helleviken and Logevik, in the NW part. Vambelsund, the narrow but best entrance into this bay, is between the mainland and the SE end of Langholme, the southernmost islet of the chain.

During spring and autumn after heavy rains, a strong current runs out through Vambelsund. The entire bay is exposed to sea and swell.

Sogndalsstranda (58°19'N., 6°18'E.) is a village located on the E side of the bay. A small harbor formed by a jetty lies S of the village. Along the jetty there is a concrete quay,25m long, with depths of 1.7 to 5.5m. Overhead cables with vertical clearance of 8.5m are located in the vicinity of the village.

1.37 Rekefjord (58°20'N., 6°16'E.), extending about 1 mile N, is entered between Lille Presteskjer and a point about 0.2 mile SE. Reefs fringe the shores of the fjord in places. A light is shown from a 78m high pillar close W of the entrance channel.

About 0.2 mile within the entrance, the fjord narrows to its minimum width of about 64m. The least depth in the narrows is 17.8m. General depths elsewhere in the fjord are 14.6 to 27m. Local knowledge is required. A 22m depth is located in the fairway about 0.2 mile SE of Lille Presteskjer. Within the narrows, there are several dangerous rocks that are marked by iron perches.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Horten Pilot Booking Center at an additional cost. The pilot boards in position 58°17.9'N, 6°13.9'E.

The pilots can be contacted on VHF channels 13 and 16 and by telephone (47-33-034954).

Contact Information.—The port can be contacted by telephone (47-51-470600).

Anchorage.—Small vessels can anchor almost anywhere in Rekefjord. The outer roadstead, just within the entrance, has depths of 29 to 37m, but is exposed to onshore gales.

Moderate size vessels can find sheltered anchorage about 0.5 mile inside the entrance, in a depth of about 24m, clay. Stern lines can be passed to mooring rings on shore.

A submarine cable crosses the S end of this anchorage and an overhead cable, with a vertical clearance of 40m, crosses the N end.

The town of Rekefjord lies on the E side of the fjord near its head. Overhead cables, with vertical clearances of 10m, are located in the vicinity of Rekefjord.

1.38 Nordfjord (58°20'N., 6°15'E.), a narrow but sheltered fjord close W of Rekefjord, is entered on either side of Nordfjordenholmane, which lies in the fjord entrance.

The channels on either side are narrow. The E channel has a depth of 6.9m; the W channel has depths of 5 to 6.9m.

During onshore gales, the sea breaks across both channel entrances. Nordfjord trends NNW for about 1 mile, but dries about 0.3 mile from its head.

Overhead cables, with a vertical clearance of 10m, exist at Nordfjord.

Nordfjordenflu, with depths less than 1.8m and marked by an iron perch, lies close off the NE end of Nordfjordenholmane.

1.39 The coast between the Nordfjorden entrance and Stapnes, a mainland projection about 7 miles NW, is lofty and steep. Along this coastal stretch all known dangers are near the land. There is no shelter and the few anchorages should only be resorted to in fine weather and with local knowledge.

Hadyret (58°20'N., 6°10'E.), a conspicuous 103m hill, is located on the coast about 3 miles NW of Lille Prestskjaer.

Hadyret, resembling a perpendicular wall of rock with a sharp and slightly projecting peak at the outer extremity, is marked by a white patch.

Vatlandsfluene, three detached depths, has depths of 16m, 13.7m, and 24m, lying up to 0.3 mile offshore and between 0.3 and 0.6 miles SE of Hadyret.

Vagene (58°20'N., 6°13'E.) is a small bay that indents the coast for about 0.3 mile N from the chain of islets and rocks fronting it. In the E part of the bay there is a depth of 21.9m over a sandy bottom, where small vessels with local knowledge can take anchorage. A draft of 3.9m can be taken through the channel between the second and third islets from W.

However, the anchorage is seldom used because onshore gales send in considerable swell. Under such conditions, there are breakers in the channels between the islets.

1.40 Nalauviken (58°23'N., 6°04'E.) is a bight on the E side of Stapnes. It is entered between the S extremity of Stapnes and a point about 0.6 mile E.

Haskjaer, an above-water rock with a reef projecting about 183m N from it, is located close off the E entrance point of Nalauviken. Storflu, an 11m depth, lies about 0.2 mile SW of Haskjaer. Lyreflu, with a least depth of 5.7m, lies close N of Storflu. Foul ground, on the W side of the bay, extends about 0.1 mile SE and 0.3 mile ENE of the S end of Stapnes.

Tenholme, on the E side of the bay about 0.3 mile NNW of Haskjaer, is joined to the mainland close E by a drying shoal.

Tenholmflu, with a depth of less than 1.8m, and Kveidflu, a 1.8m rock on the E side of the bay about 0.1 mile farther N, are each marked by an iron perch. Small vessels can anchor, in 5.9m, off Odden, at the head of Nalauviken. The approach to the anchorage is narrow and difficult and should not be attempted without a pilot. During onshore gales, a swell rolls in over the shoals N of Tenholme.

At the head of Nalauviken, there is a good harbor, in depths of 5 to 7m, sand, protected by moles. Mooring buoys and rings are available. There is a quay, 40m long, with a depth of 5m alongside, in the harbor.

Havsund, between the N side of Dragoya, and Prestoya, an island about 0.2 mile N, is the principal passage leading toward Kirkehamn. The fairway through Havsund is deep and free from dangers. Vessels should approach Kirkehamn from W in mid-channel.

Svaholmane to Ognabukti

1.41 About one half the coastal stretch between Svaholmane and Ognabukti comprises the approaches to, and the port area of, Egersund.

Egeroy (Eigeroy) (58°27'N., 5°58'E.) is relatively low and indented; seen from the sea it blends with the background. Lundeviken and Soragapet, the S approach leading into the port area, are well defined.

From W, the lowland region of Jaeren will be visible to the N in clear weather. Eigeroy will resemble a high promontory; the coast SE will appear very high and precipitous. Nordregapet, the W approach to Egersund, will also be clearly visible.

Between Egersund and Ognabukti, the coast is steep and rocky, but seldom rises above a height of 30m. There are a few patches of farmland but very few trees; the whole landscape is wild and inhospitable. A large number of islets front the several bays and coves that indent the coast between Nordregapet and Ognabukti.

Svaholmane (58°23'N., 6°03'E.) is a group of low islets and rocks lying on the E side of the S approach to Egersund within 0.5 mile W of Stapnes.

Kletten, Tysnesflu, and Stiksflu, with depths of 8.2m, 16m, and 8.2m, respectively, lie about 0.5 mile and 0.2 mile WSW and 0.3 mile NW, respectively, of a lighted structure on Svaholmane.

1.42 **Soragapet** (Sondregapet) (58°26'N., 6°00'E.), the S and principal approach to the port of Egersund, is the sound between the mainland and the E side of Eigeroy. Its channel is suitable for deep-draft vessels.

Entrance is made between Svaholmane and the shoals and other dangers that lie up to 1 mile S of Skarvoy, an islet near the SE end of Eigeroy, about 2 miles NNW of Svaholmane.

The most constricted part of Soragapet is between Fugleodden, a projection on the E side of Eigeroy about 1 mile N of Skarvoy, and Synnavikodden(Sonnevi kodden), a small mainland point about 150m NE. A concrete silo, about 61m high, stands on the point.

Vardbergodden, the E entrance point of the outer harbor of Egersund, is located on the E side of Soragapet, about 0.5 mile N of Synnavikodden.

Svanesfluene, with depths of 10m and 12m, lies on the E side of Soragapet, about 0.2 and 0.5 mile offshore and about 0.7 mile NW of the light structure on Svaholmane. Isakbaen, with a least depth of 4m and marked on its SW side by a buoy, is located about 0.3 mile offshore and 1.5 miles NNW of the same light structure.

1.43 **Stabsaet** (58°24'N., 5°59'E.), a small islet, 10m high, on the W side of Soragapet, is located about 0.7 mile S of Skarvoy. Jensbaen, a 3m depth, lies about 0.2 mile SSE of Stabsaet. Jensbohausen, a 20m depth, lies about 183m farther S.

Maerra, a rock, awash, about 0.2 mile NE of Stabsaet, is always marked by breakers. Shoal water extends about 137m S and E from the rock. Krabbeflu, a 23m depth, is located about 0.3 mile WNW of Stabsaet.

Depths of 14.5m and 11.6m lie about 0.3 mile and 0.4 mile NNE, respectively, from Stabsaet.

Store Svetlingen, 17m high, and Lille Svetlingen, two islets, are located about 0.7 mile and 0.8 mile SW of Skarvoy. A beacon stands on the NE side of Store Svetlingen. Shoal water extends about 183m S and W from Store Svetlingen. Glana, a rock, awash, lies about 137m E of the smaller islet.

Bronnesfluene, situated about 0.3 mile NW of Store Svetlingen, is marked at its E end by an iron perch and has a least depth of 7m over its W part.

A constant current, which is often very strong, sets S through Soragapet.

Navigation is rarely restricted by ice, although sometimes the portion of Soragapet above Fugleodden freezes over in winter.

Anchorage.—Skjevollsvika, indenting the mainland about 0.7 mile NE of Skarvoy, provides sheltered anchorage to small vessels, in 12.8 to 22m. The approach to Skjevollsvika is made SE of Tingelset, a 33m high islet on the E side of Soragapet. Moderate size vessels can anchor about 206m E of Tingelset, in 40m, sand.

Rekevika, a bight on the W side of Soragapet, about 0.5 mile N of Skarvoy, provides anchorage to small vessels with local knowledge, in 15 to 20m, good holding ground, sand.

Vessels entering must pass close to the N shore to avoid the shoals and rocks extending from the W shore. A 3m shoal lies in the middle of the entrance.

Gillestadvika is a small bight on the W side of Soragapet about 1 mile N of Skarvoy. Small vessels can anchor in the S part of the bight, in 15 to 20m, sand. Mooring rings are available. Skreddaren, awash and marked by an iron perch, lies about 0.1 mile NNW of Jektevikodden, the S entrance point. A concrete quay, located at Jektevikodden, is 60m long with depths of 8 to 9m alongside.

Hovlandsvika, a bay on the W side of Soragapet, which is entered between Fugleodden and a point about 0.3 mile NNW, is the best of these anchorages. It is the quarantine anchorage for the port of Egersund. Vessels can anchor here, in 10.1 to 14.6m, good holding ground.

Rageskjaerflu, with depths of less than 1.8m and marked by an iron perch, lies on the shore bank in a position about 0.3 mile NW of Fugleodden. A detached 7.2m depth is located in the N part of the bay.

1.44 **Egersund** (58°27'N., 6°00'E.) (World Port Index No. 23490) consists of an inner harbor and an outer harbor that lie between the mainland and the E side of Eigeroy. The outer harbor is separated from the inner harbor of Egersund by Lindoy, an islet which is joined to a peninsula that extends S from the mainland and forms the NE side of the outer harbor. This outer harbor, comprising the N part of Soragapet, is protected from the open sea by Eigeroy. The approach channel is dredged to 13m.

A reach, trending NE from Soragapet, forms the sheltered inner harbor, which is available only to small vessels and is used primarily by the local fishing fleet. Entrance is made close S of Lindoy.

Port of Egersund Home Page

http://www.egersund.havn.no

Ice.—The harbor is ice free during normal winters.

Tides—Currents.—The tidal range is insignificant.

Depths—Limitations.—The main entrance channel has a width between 110m and 230m and a depth of 12.5m. General depths in the outer harbor and anchorage area are 6 to 12m. The inner harbor, adjacent to the town, has depths of 5 to 6m. Berthing details are shown in the accompanying table titled **Egersund—Berthing Information**.

Egersund—Berthing Information		
Berth Name	**Length**	**Depth**
General and Bulk Cargo		
Dampskipskaien	75m	9.0m
Kaupanesplant	220m	9.0m
Kongsteinkaien	207m	3.5 to 7.0m
Ro-Ro		
Kaupanes	170m	9.0m
Bertelsen og Garpestad	59m	5.3m
Ro-Ro and Cruise Ship		
Nordsjoterminalen	52m	7.9m
Fueling Berths		
Statoil	50m	8.3m
Shell	115m	8.4m
Esso	127m	5.6m

Harbor facilities are located on both sides of the inner harbor and close N and S of Lindoy. Steamship Quay, in the outer harbor close SW of the entrance of the inner harbor, is the largest and most used of the berthing facilities; it is 288m long, with a depth of 8m alongside. There is a ro-ro berth for vessels up to 1,500 dwt, with drafts up to 5.2m.

A bridge, with a vertical clearance of 24m, spans Nysund, the narrow dredged channel, with a depth of 5.5m, connecting the N end of the outer harbor with the E end of Nordregapet.

Aspect.—Barren hills, with rock outcrops, rise to heights of more than 122m both N and S of the town; those to the NW are over 244m high.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Horten Pilot Booking Center at an additional cost.

The pilot boards, as follows:

1. North approach—58°26'58.2"N, 5°50'54.6"E.
2. South approach—58°22'57.6"N, 5°59'54.0"E.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-51-463280
3. Facsimile: 47-51-463281
4. E-mail: post@egersund.havn.no

Anchorage.—Anchorage can be taken, in 6 to 12m, in the outer harbor W of Lindoy. The holding ground of sand and clay is very good. Vessels in quarantine anchor between Fuglodden and Svanavagodden, 0.35 mile SE, in depths of 8 to 13m.

Egersund

Caution.—Several submarine cables lie in the approach to the port within Soragapet.

1.45 Lundeviken (58°26'N., 5°55'E.) divides Eigeroy into two parts, which are connected by a narrow neck of low land. It is conspicuous from the offing, as the land is lofty on both sides and the inner part is bounded by a low sandy shore. When approaching Eigeroy with an onshore wind and the weather is too heavy for pilots to go out, a vessel may safely stand in between Kjesholme, 19m high, the largest islet in the approach about 1.5 miles W of Skarvoy, and Fliset, a detached reef on the W side of the approach, about 1 mile WNW of Kjesholme.

There are several rocks and shoals that lie near Kjesholme and Fliset, but the sea always breaks on them in heavy weather. Inside Lundeviken, the dangers are near the shore and are usually marked by breakers.

Abreast Hodnhammeren, on the W side of the bay about 2 miles NNW of Kjesholme, the depth is 20 to 26m, stony ground. North from here, the bottom shoals regularly and is sandy. Temporary anchorage can be taken, in a depth of 11m, about 0.1 mile NE of Hodnhammeren. This anchorage is somewhat exposed to sea and swell.

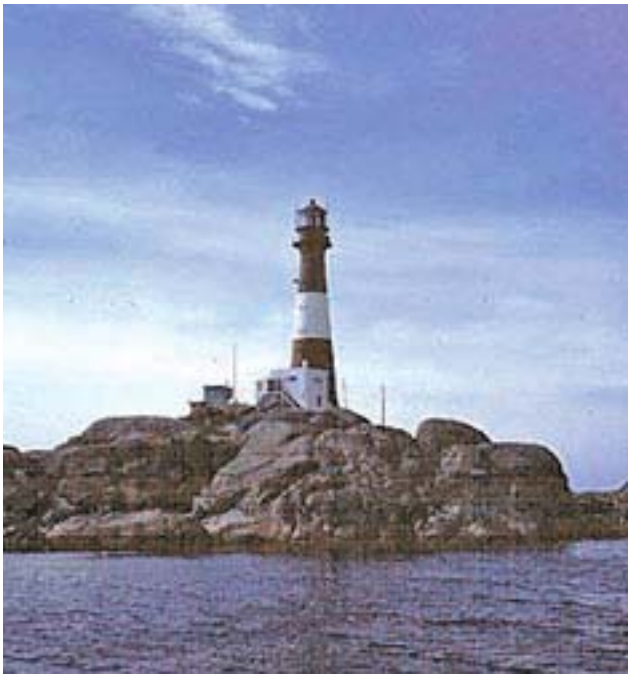
Sprangbukt (58°27'N., 5°56'E.), at the NE end of Lundeviken, is entered between Oksnesodden, a S projecting point that divides the head of the bay into two coves, and Ellevikholme, about 0.1 mile E.

Small vessels can anchor in 10.1m. Southwest winds send in some swell. There are no dangers within the rocks at the entrance. When entering, pass W of Ellevikholme, give it a fair berth, and avoid a 2.7m shoal extending about 183m S from Oksnesodden.

1.46 Nordregapet (58°27'N., 5°52'E.), the W and secondary approach to the port of Egersund, is entered between Ruskodden, the NW extremity of Eigeroy, and Gulholme, about 0.2 mile NW. Pilots for Nordregapet boards 1.5 miles WSW of Ruskodden Light (58°26'N., 5°53.4'E.).

Eigeroy Light (58°27'N., 5°52'E.) is located near the S end of Midbrodoy.

Gulholme is the southernmost of a group of rocks and islets that extend about 0.5 mile S from the mainland and NNE of Midbrodoy. A beacon stands on the NE end of Gulholme.



Eigeroy Light

Beacons, buoys, perches, and several lights mark the inner channel reaches. The least depth through the fairway of Nordregapet is 5.5m and is found in the dredged channel across the bar close N of Grundsundholmen.

Seilsteinen, the outermost of a group of above-water rocks, is located about 0.3 mile SW of Ruskodden. This lofty, perpendicular rock resembles a sail. A whitewashed patch on it is visible for about 2 miles. A beacon stands on the W side of the rock. Several shoals, best seen on the chart, lie off of Seilsteinen.

Tryet, an above-water rock marked by an iron perch, lies in the fairway about 0.25 mile WSW of Ruskodden. Shoal water extends about 91m NNE from the rock; several below-water rocks lie between it and Eigeroy.

Svartholme is a small islet on the N side of the fairway about 137m NW of Gulholme. A 5.5m depth lies between the two islets; shoal water extends about 91m SE and NE from the latter.

Sundsgapholme, the NW and largest of the islets on the N side of Nordregapet's main entrance, lies with its W extremity about 0.5 mile NW of Gulholme. Horsholme is the E islet. A bar extends between the N side of Horsholme and the mainland. This bar limits vessels that can enter through the N channel, which leads E between the mainland and the N sides of Sundsgapholme and Horsholme, to drafts of less than 4m.

Lusaskjaer, marked by an iron perch, is located within the sound on the W side of the fairway, in a position about 91m E of Horsholme.

The usual and best entrance into Nordregapet is made between Tryet and Gulholme. The channel between Tryet and Gulholme cannot be made out until the vessel is close to Tryet.

After passing SE of Gulholme, course can be set for the anchorage area E of Horsholme or for the buoys marking the dredged channel N of Grundsundholmen.

Anchorage.—Good anchorage can be taken, in a depth of 12m, between Horsholme and Grundsundholmen. Anchorage can be taken, in a depth of 12m, in the N channel NE of Sundsgapholme, but vessels with drafts exceeding 4m must approach this latter anchorage from the W.

1.47 Dyroy (58°28'N., 5°52'E.) lies close offshore. Rocks and shoals encumber the narrow passage between the mainland and this small islet.

Svartskjaer is the outermost of several above and below-water rocks lying on the S side of the N approach to Nordregapet and up to 0.25 mile SW of Sundsgapholme.

Karpusskjaer, with a depth of less than 1.8m, is on the N side of the approach close W of an islet that lies about 183m S of the SW extremity of Dyroy. Raudskjaer, with a depth of less than 1.8m and marked by an iron perch, lies about 183m W of the S extremity of Dyroy.

Dyroyflu, with a depth of less than 1.8m and marked by an iron perch, lies about 137m SSE of Karpusskjaer.

A shallow inlet indents the mainland N of Dyroy for about 0.5 mile, then extends about 0.7 mile E. Its much encumbered approach lies between Karpusskjaer and numerous dangers N of it, on the E, and Skjerpingerne, a chain of islets and rocks that extends about 0.6 mile SSW from the mainland, on the W.

Oyafluene, with a depth of less than 1.8m and marked by an iron perch, lie nearly midway between Karpusskjaer and Skjerpingerne. The town of Hellvik stands on the N shore of the inlet. Several concrete quays are located near Hellvik, with depths alongside up to 8m. Two lighted ranges and other navigational aids mark the entrance channel, which has been dredged to 6m. Entrance should not be attempted without local knowledge.

1.48 Skraedderen (58°28'N., 5°51'E.), a 5.5m depth, lies at the S end of Skjerpingerne. Lillegrunn, a detached 16m depth, lies about 0.7 mile offshore and about 0.7 mile W of Skraedderen. Mastefluene has several 12 to 18m depths that lie close to the SW end of Skjerpingerne.

Laedersholme (58°29'N., 5°50'E.) lies close off a small peninsula projecting S from the coast, on the E side of the S approach to Vatnemoholmene. Storflu, a 7m depth about 0.5 mile SSW of Laedersholme, is the outermost of numerous dangers extending S from the islet.

Vatnemoflu, a 4m shoal, lies closest to the approach range line in a position about 0.1 mile NNE of Storflu. Hellarne is two rocky heads about 183m apart, of which the NW is awash and the SE is marked by an iron perch, located about 0.2 mile NE of Storflu.

1.49 **Vatnemoholmene** (58°29'N., 5°49'E.), a small harbor, is formed between the E side of a small coastal projection and some close lying islets.

There are two entrances; the S entrance has a depth of 10.1m while the W entrance has a depth of 5.9m. Northwest and SW winds send in a considerable swell. Mooring rings are available and must be used. Entrance into Vatnemoholmene should not be attempted without local knowledge. The S, or preferred, channel is marked by two pairs of range lights.

Hellesundfluene, with a depth of 4.8m, is located about 0.6 mile W of Vatnemoholmene.

Ognabukti (58°31'N., 5°45'E.), an open bay, recedes NE for about 1 mile and has general depths of from 11 to 22m.

Sirevag (58°30'N., 5°48'E.) is a small fishing harbor on the E side of Ognabukti. It affords anchorage with mooring rings, in depths from 6 to 8m, within a short mole which projects from the N shore. Quays on the N shore have a total length of 300m, with depths from 3 to 5m alongside. There is a new jetty on the S side of the harbor.

Sirevag Home Page

http://www.sirevag-havn.no

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Horten Pilot Booking Center at an additional cost.

The pilot boards, in position 58°26.9'N, 5°50.9'E.

The pilots can be contacted on VHF channels 13 and 16 and by telephone (47-33-034954).

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-51-793000
3. Facsimile: 47-51-532684
4. E-mail: sirevag-havn@ha.kommune.no

Vagsgabgrunn, with a depth of 3.5m, lies close W of the Sirevag entrance. The inlet can be entered either S or N of this shoal, but local knowledge is required.

After entering Lundeviken, the vessel may either hove to when the water becomes smoother, to await a pilot, or stand farther in, keeping about 0.2 mile from the W shore.

Ognabukti to Jaerens Rev

1.50 From Ognabukti, the coast trends quite regularly NNW for nearly 15 miles to Jaerens Rev, the westernmost extension of the mainland in the S approach to Stavanger. A few small coastal indentations provide limited shelter to small craft, but there are no harbors.

Between Jaerens Rev and Lyratangen, a mainland projection located abreast Feistein 4.5 miles NNE, the coast recedes about 0.7 mile E, forming Honsviki.

At Ognabukti, the mountainous coast begins to drop toward the sea; immediately to the N is the low land of Jaeren. This part of the coast is so low that when approaching it from the offing, the houses appear to rise straight from the sea. About 4 or 5 miles inland, a range of hills, presenting, however, no very conspicuous landmarks, rises from the plain.

The beach between Ognabukti and Lyratangen, and about 2 miles farther N to Vigdelneset, is composed of white sand and is backed by sand dunes.

Jaeren is one of the most unusual tracts of land in Norway. Its surface is undulating and occasionally rises into low hillocks. Bogs dotted with peat stacks are varied by heather-covered tracts and luxuriant meadows and farm lands. Here and there at rare intervals are small groups of trees; the whole plain is intersected by a network of stone walls.

Tides—Currents.—The tidal current off Jaerens Rev is irregular and much affected by the wind, which may be N for long periods in early summer. In fine, calm weather the tidal current usually sets N with the rising tide and S with the falling tide. The currents attain velocities of 1 knot to 2 knots and always set strongest to the N.

1.51 The coast between Ognabukti and Obrestad, about 8.25 miles NNW, is relatively steep-to.

Regulations.—Traffic is controlled by Kvitsoy Vessel Traffic Service (Kvitsoy VTS) from Kvitsoya (59°04'N., 5°25'E.). For further information, see paragraph 2.6.

Horr Farm (58°33'N., 5°40'E.) is a conspicuous landmark. Its buildings stand higher than any structures in the vicinity and appear from a distance to be built on a point. A church, located about 2 miles N of Horr Farm and 1 mile inland, is white and has a low tower and spire. Obrestad Light is exhibited from a granite house and is 16m high. **Obrestadbrekra** (58°40'N., 5°33'E.), from which a light is shown, is the highest point on the Jaeren coast.

Jaerens Rev (58°45'N., 5°30'E.), a low point, is the W extremity of Jaeren. The coast at the point is a strip of land from 0.2 to 0.6 mile wide.

A reef extends about 0.2 mile SW from Jaerens Rev. A lighted buoy marks the W side of the reef extending W from Jaerens Rev.

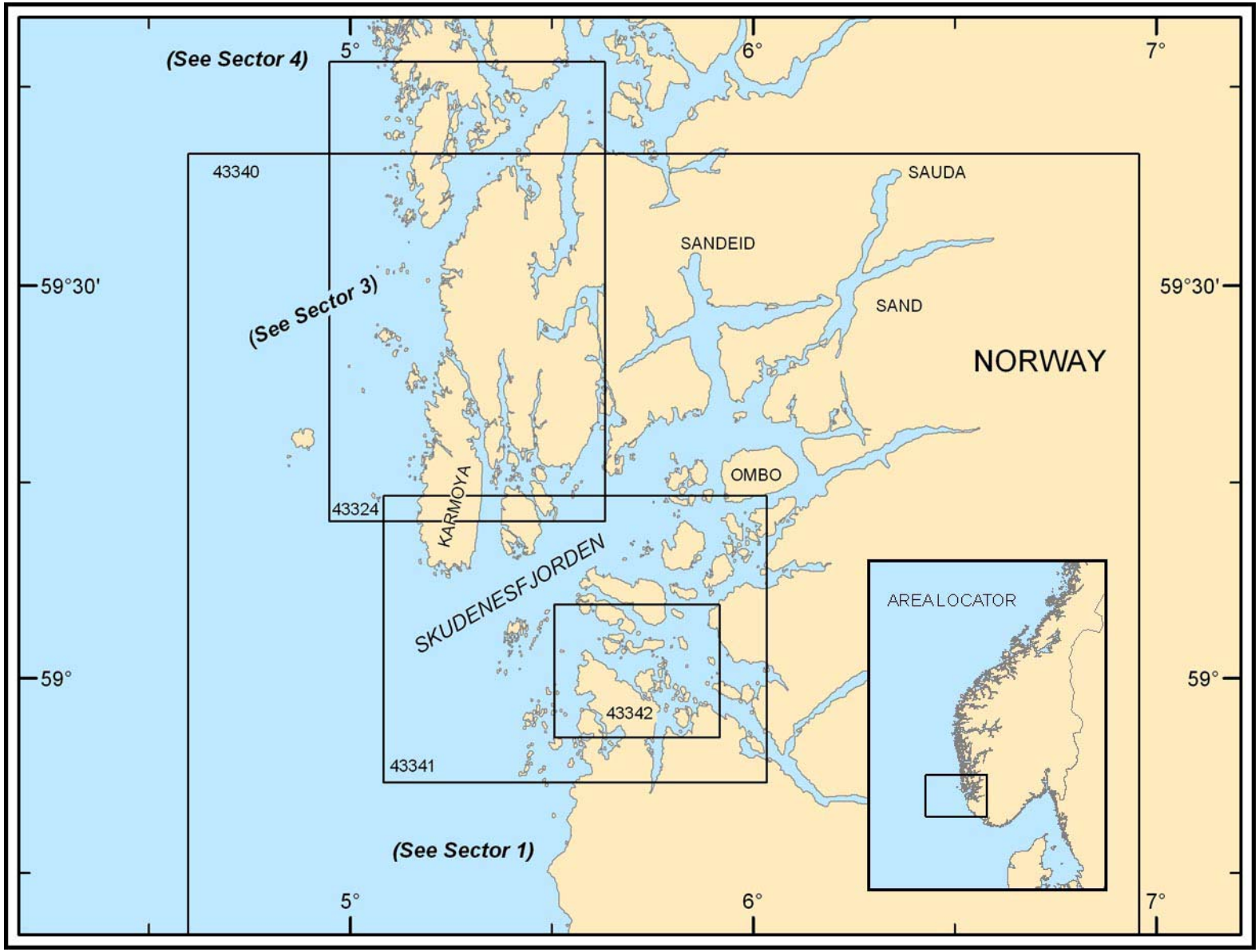
1.52 Honsviki, between Jaerens Rev and Lyratangen, 4.5 miles NNE, is open W and clear of dangers. General depths in the bay are 9.1 to 18.3m.

Skotamedgrunn (58°48'N., 5°26'E.) is located between 3 miles and 3.5 miles NW of Jaerens Rev. The dangerous area extends approximately 2 miles around the shoals in a SW-NW direction. The depths vary from about 40m in its W part to about 16m in its E part. Waves from SW to NW create rough sea in the area.

During N weather, a refraction center will emerge on the shallow areas and, combined with a W current of 1 to 1.5 knots, the conditions will become even worse. Breaking surfs have been observed in the area.

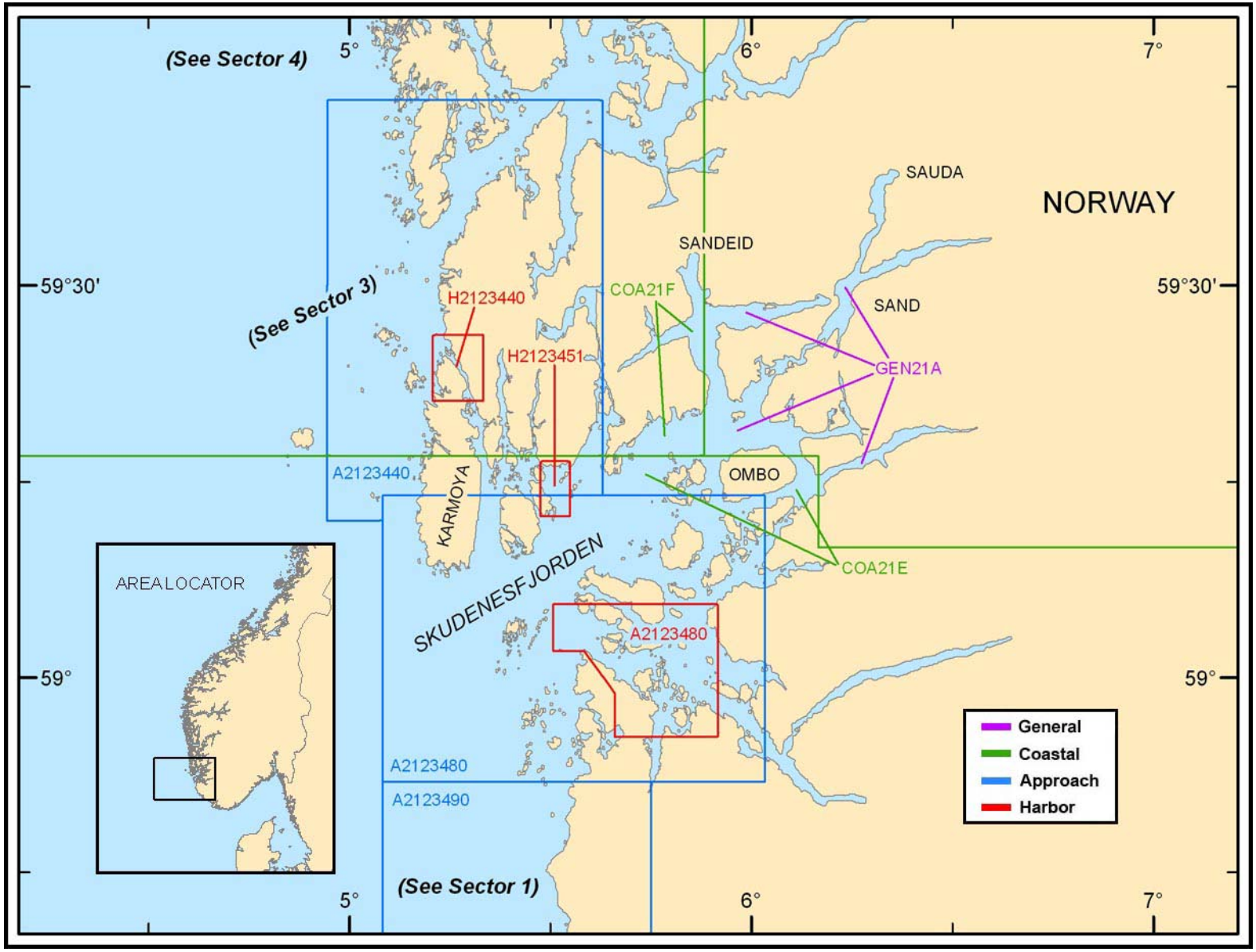
Tangerhaug, a 28m high hillock, lies close SE of Lyratangen and is marked by a wooden beacon.

A radio mast, 152m high, stands 2.25 miles NE of Jaerens Rev. Obstruction lights are shown from the mast.



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

SECTOR **2** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 21 (Limited Distribution) disc within the README\ ICS folder.

SECTOR 2

NORWAY—FEISTEIN TO GEITUNGANE

Plan.—This sector describes the SW coast of Norway between Feistein and Geitungane. Described in sequence are the approaches to Stavanger, the port of Stavanger, and the fjords lying S, E, and N of the port area, those branching from Skudenesfjorden, those in the vicinity of Stavanger, and then, those in the outer areas of Skudenesfjorden.

General Remarks

2.1 Winds—Weather.—The changes in pressure resulting from the change in seasons on the W and S coasts of Norway affect the prevailing winds in this sector. The shift in pressure over S Norway from high pressure in winter to low pressure in summer, results in the wind shifting from S in winter to N in summer. The prevalence of winds from any one direction is not in evidence more than 40 per cent of the time. The usual situation is one of winds induced by a passing cyclone with shifting directions and velocities. Within the fjords and along the very indented coastline, the wind is usually widely different from that in the open sea, owing to land and sea breezes and topographical effects.

Because of the mountainous nature of the coast any wind blowing from a direction between S and WSW, is deflected to blow as a S wind on the coast, and any wind blowing between NW and N is deflected to blow as a N wind. The winds in W Norway therefore have a tendency to blow across the mouth of the fjords. The speed of the wind also increases outward from the coast to a distance of as much as 150 miles.

There is a lot of turbulence along the Norwegian coast when winds are fresh or strong, due to the broken country. Gales occur frequently over this area when deep depressions are moving N between the British Isles and Iceland, under which condition a very steep gradient is apt to develop all along the W seaboard of Norway, producing strong S winds. This very steep gradient at times extends 100 to 150 miles out to sea from the coast.

Under these conditions the coast is swept by violent winds which penetrate into the more sheltered fjords with great turbulence, though with reduced velocity. Spells of NW gales occur on the W coast when a suitable gradient is established by pressure falling over Scandinavia. Such gales are apt to persist but the gradient on some occasions falls off suddenly to the E of the Shetland Islands.

In winter, gales and storms are common on both the S and W coasts of Norway. In spring they are more common on the W and SW coasts than the S coast. These gales decrease in frequency as the season progresses. The strength of the winds decreases markedly in summer though gales are by no means unknown, particularly on the W coast of Norway. North gales as well as W are reported on the W coast. Sea breezes are frequent along the entire coast in the summer season. Wind speeds increase slightly in autumn, especially along exposed coasts, and gales become more frequent.

On the W coast, thunderstorms occur on two or three days a month near the heads of deep fjords in summer, but only about once a month near the open sea. They occur occasionally in winter during gales between SW and NW. In winter heavy SW and W gales are often accompanied by thunder and lightning.

Fog is the primary cause of poor visibility. It varies widely with the location of stations; that is, whether they are dominated by land or by sea. Over the sea, fog is most frequent in summer. The upper fjords and land stations show distinct winter maximum. Sea fog occurs occasionally in winter when cold air moves over the warm waters, or when the air is warmer than the water. The most frequent fogs in winter are the radiation type land fogs. They may be expected at the heads of deep fjords when there is severe frost inland and cold wind blows down on the open fjords. One form of fog, which affects particularly the upper reaches of the fjords, is “frost smoke.” This occurs during a spell of severe frost, and may be expected by an approaching ship if the wind is light and from an offshore direction and skies are clear or nearly so over the land. It is caused by the water being warmer than the overlying air.

In spring, fog decreases generally as radiation land fog become less likely under gradual warming of the land. It increase only at Skudenes. Poor visibility is least common in summer over the land area of this region

Sea fogs are not uncommon along and over the coasts, particularly in the early months of the season. In autumn fog increases at those stations exposed to continental influences in which radiation fog develops.

In general, autumn is the season when fog is least common on the coast, though inland the frequency is increasing toward the winter maximum.

2.2 Tides—Currents.—Tides in the North Sea are always semi-diurnal, with very little diurnal inequality between the two HWs or the two LWs of each tidal day.

The tide progresses into the North Sea from the Atlantic Ocean, between the Shetland Islands and Norway. Within the North Sea, HW progresses counterclockwise about a nodal point off the S coast of Norway, moving S in the North Sea and W along the S coast of Norway between Kristiansand and the 6th meridian.

Along the W coast of Norway the progression is N to about 60°N; N of this the progression is E.

Along the west coast of Norway, tide ranges gradually increase toward the N.

Tidal current off this section of coast is subject to great variations. A tidal current setting W and N is, however, prevalent, especially in summer, but with continuous N and W wind it may set S and E for a week continuously. Near the coast the direction of the current may be toward the land.

Generally, along the W coast of Norway, the influence of winds on the tide levels is small. This is probably due to the scattering effect of offshore islands and the relatively deep water close inshore. North from Jaeren to the vicinity of Korsfjorden, the current just offshore floods to the N, beginning

about 5 to 6 hours after HW at Bergen and ebbs to the S, beginning about 30 minutes to 1 hour before HW at Bergen. From the vicinity of Korsfjorden to approximately 60°10'N, the flood begins about 6 hours after HW at Bergen and set to the E; the ebb begins about the time of HW at Bergen and set to the W.

Surface currents in the fjords are predominantly tidal, setting inward on the flood and seaward on the ebb, except during May and June. During these months increased runoff from melting snow and ice causes the surface currents to flow almost continually seaward. The depth of the surface current averages 3.5 to 5.5m. Though they may vary from 0.9 to 18m.

Current speeds are strongest at the surface, decreasing with depth. An intermediate current sets into the fjord usually between 9.4m and 18.3m. Generally, the water below 40 fathoms either has a very weak seaward set or is stagnant, and is renewed only by major meteorological disturbance.

Wind may alter the tidal currents in the fjords. Onshore winds may cause a rise in the level with a corresponding increase in the velocity and duration of incoming currents. When the wind ceases, current flows in the opposite direction until equilibrium is established. Outflowing currents along the sides of the fjord may occur when strong winds blow onshore for prolonged periods. Offshore winds may have an opposite effect on the water level and currents.

Off the coast and in the fjords between Lindesnes and Jaerens Rev the tidal currents are inappreciable. Small currents may be found in the narrow channel of the fjords, as in Skudenesfjorden but little is know about them.

Aspect.—Skudenesfjorden is the principal approach to Stavanger and is entered S of Geitungane. Within the entrance, and near Stavanger, are hundreds of islands and islets forming numerous sounds, channels, and inlets. The mainland S, E, and N of the island area is penetrated by a complex system of navigable fjords and smaller inlets.

Most of the water area between Feistein and Geitungane is encumbered with low, rocky islands and islets and numerous dangers, through which there are several channels leading N toward the inner approaches to Stavanger. Skudenesfjorden is entered between Geitungane and Kvitsoy. The best approach to Stavanger is through Skudenesfjorden, then SE through the length of Kvitsoyfjorden and Byfjorden.

From Vigdelneset about 3 miles NE of Feistein, the Stavanger peninsula extends N for about 10 miles to Tungeneset. The important port of Stavanger is situated on the E side of the peninsula. Several bays indent the W side of the Stavanger peninsula, and Hafrsfjorden, with a narrow, shallow entrance, occupies the middle part. A submarine pipeline is laid across the fjord, SE of the bridge; a few lakes are in the N part, as shown on the chart. Most of the land is low and cultivated. There are several small stretches of sandy beach, especially on the W side. East of Gandafjorden, the country is high moorland, descending abruptly to the rocky shores of Hogsfjorden. Many low rocky islands, the largest of which is Hundvag, lie off Stavanger.

Sheltered anchorages are found in the bays and inlets of the Stavanger peninsula, among some of the islands between the peninsula, and in coves on the S side of Karmoya, in the vicinity of Skudenshavn.

Off the Skudenesfjorden entrance, the tidal current usually sets N. Near the land, on both sides of the entrance, the current usually sets E with a rising tide and W with an ebbtide. The inward set begins about 5 hours 15 minutes after HW at Bergen; the outward set begins about 1 hour before HW at Bergen.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Caution.—Crawford Oil Field (59°07'N., 1°30'E.) is situated about 115 miles W of Geitungane and consists of a production platform and a tanker mooring buoy. Balder Oil Field lies 27 miles ENE of Crawford Oil Field.

For oil and gas fields N of the above, see Sector 3. For oil and gas fields S of the above, see Sector 1.

Traffic Separation Scheme (TSS).—IMO-adopted traffic separation schemes, best seen on the chart, are located, as follows:

1. About 12 miles SW of Feistein Light.
2. In the approaches to Stavanger NNW, W, and SW of Kvitsoy.
3. In the S end of Karmsundet between Karmoy and Vestre Boka

Approaches to Stravanger

2.3 Hasteinfjorden (59°00'N., 5°30'E.) is the best approach to Stavanger from the S. It is entered between the Hastein group, in the E, and the S islets of the Kvitsoya group, towards the NNW. This passage leads NE for about 7 miles to the hilly and comparatively steep islet of Alstein, in the vicinity of Bragen, off Tungenset, and joins the S part of Kvitsyafjorden, where it joins with the N part of Byfjorden.

Tungeneset Light

Bragen, an above-water rock about 0.5 mile NNW of Tungenset, is marked by a light equipped with a racon.

Feistein Light

Feistein Light

Tungeneset (59°02'N., 5°35'E.) is the N end of the Stavanger peninsula. Shoals fringe the NW and N sides of the point and are within the 10m curve, which lies offshore in this vicinity.

Vestra Imsen (59°01'N., 5°22'E.), the SW islet of the Kvitsoya group, contains a light, which marks the entrance to Hassteinfjorden.

Hastein (58°57'N., 5°26'E.), 45m high, is the largest of a group of islets and rocks NW of the island of Rott. Lille Revingen and Storee Revingen lie S of Hastein.

2.4 Feistein (58°50'N., 5°30'E.), an islet, lies approximately 12 miles S of Hasteinfjorden. In the S approach to Stavanger, it lies about 4 miles N of Jaerens Rev Beacon. Numerous detached shoals and rocks, best seen on the chart, lie near Feistein.

Feistein Light is exhibited from a red metal tower, 25m high, with two white bands, situated on the E side of Feistein. A racon is located at the light.

Hengsoy (58°53'N., 5°26'E.) lies about 4 miles NW of Feistein. A beacon stands on the island.

Solaviki (58°53'N., 5°34'E.) is a small bay indenting the W side of the Stavanger peninsula. Depths in the middle of the bay are 9.1 to 18.7m. Kolnesholmene is a group of islets, best seen on the chart, lying in the entrance of Solaviki.

An airport runway points W into Solaviki Bay. Mariners are advised of low-flying aircraft in this vicinity.

2.5 Risavika (58°56'N., 5°35'E.) (World Port Index No. 23487) and the surrounding sea entrances are included in Stavanger Port District. Risavika is a public port mainly operated by private companies. It functions as an oil related base area with services that supply the oil fields of the North Sea. Risavika is a major oil terminal as well, and can accommodate large tankers. The harbor is entered between Laksholmbaen (58°55.7'N., 5°34.3'E.) and Tangen, about 0.2 mile NE. A breakwater joins Tangen, and runs SE to Melingsholmen. The small harbor formed is called Tananger. On the N side of the inlet, numerous quays and facilities are located at a fitting-out and supply base for oil operations in the North Sea. It is reported (2009) that works are in progress about 0.3 mile E of the existing T-head pier on the S entrance to Tananger.

Port of Risavika Home
http://www.risavika.no

Tides—Currents.—The HW interval at Tananger is 9 hours 36 minutes. The mean range of tide is 0.4m; the spring range of

tide is 0.5m.

Depths—Limitations.—Berthing details are shown in the accompanying table titled **Risavika—Berthing Information**.

Pilotage.—Pilotage is compulsory for vessels over 50 gt. The pilot station can be contacted by VHF radio and by telephone. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Regulations.—Tankers over 40,000 dwt, when navigating within territorial waters near Risavika, are to exhibit three red vertical lights at night, or display a large black cylinder by day, to indicate that other vessels must not impede their safe navigation.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-51-715900
3. Facsimile: 47-51-715901
4. E-mail: post@risavika.no

Anchorage.—Risavika provides a good anchorage over a sand and clay bottom. Strong NW winds send in a considerable swell. While anchoring, vessels must take care not to interfere with the vessels mooring at the oil refinery in the SW part of the bay. Anchorage can be taken in Tananger, in 6.9 to 9.1m, sand and clay. There are mooring buoys and mooring rings. Vessels awaiting berth/daylight navigation: The pilot will give instructions on VHF. Any vessels above 40,000DWT and with a draft exceeding 10m, normally berth and unberth only during daylight hours.

Caution.—Two submarine cables are laid across the entrance to Risavika. When the entrance of Risavika is obstructed by the hawsers of ships maneuvering off the oil facility, red flashing lights will be shown either on Melingsholme or on the facility. Lights indicate which side of the channel is obstructed. It has been reported (2008) works are in progress S of Risavika.

2.6 Skudenesfjorden (59°05'N., 5°15'E.), a deep clear opening, forms the principal outer and easiest approach to Stavanger. The entrance to the fjord lies between Geitungane; two close lying islets off the S end of Karmoya, and the NW side of Kvitsoy; about 6 miles SE of Geitungane. Skudenesfjorden can be easily entered by day or night. Geitungane Light is on the S islet.

When nearing the land, the fjord entrance will be very conspicuous. Cone-shaped mountains on Vestre Bokn and the light structure on Kvitsoya are prominent. A radio tower, marked by obstruction lights, stands on Vestre Bokn.

Risavika—Berthing Information

Berth	Length	Depth Alongside	Remarks
North Harbor			
No. 1	180m	7.0m	Comprised of Berth A, Berth B, and Berth C. Berth C has a depth alongside of 11.0m.
No. 2	120m	11.0m	General cargo. Comprised of Berth A and Berth B.
No. 3	128m	11.0m	General Cargo. Comprised of Berth A, Berth B, and Berth C.
No. 4A	35m	6.0m	General cargo.
No. 6	165m	5.4-7.0m	Comprised of Berth A and Berth B.
No. 7	—	11.0m	Ro-ro (under construction).
No. 8	75m	8.0m	—
Tanker Berths			
Phillips/Conoco No. 9 and No. 10	—	6.0m	Offshore equipment and cranes.
Sola Havn No. 11 and No. 12	—	7.0m	Under construction.
Sola Havn No. 13	—	7.0m	Under construction.
Shell Refinery Pier No. 15	115m	16.5m	Petroleum products. Can accommodate a vessel up to 134,000 dwt, with a maximum loa of 265m and a maximum beam of 44m.
SkanGas	40.0m	—	LNG.
Multi-Purpose Berths			
Sola Havn No. 16	—	11.0m	Under construction.
Sola Havn No. 17	—	11.0m	Ro-ro (under construction).
Sola Havn No. 18	—	11.0m	Ro-ro (under construction).

Risavika—Berthing Information			
Berth	**Length**	**Depth Alongside**	**Remarks**
East Harbor			
Sola Havn No. 19	100m	6.0m	Containers and bulk cargo.
Sola Havn No. 20	100m	11.0m	Containers, ro-ro, bulk, and passengers.
Sola Havn No. 21	180m	11.0m	Containers, ro-ro, bulk, and passengers.
Sola Havn No. 22	180m	11.0m	Containers, ro-ro, bulk, and passengers.
Sola Havn No. 23	183m	11.0m	Ro-ro.
Sola Havn No. 24	183m	11.0m	Ro-ro.
South Harbor			
No. 35	200m	14.3m	Containers, ro-ro, bulk, and passengers.
No. 36	200m	14.3m	Containers, ro-ro, bulk, and passengers.
No. 37	200m	14.3m	Containers, ro-ro, bulk, and passengers.
No. 38	158m	14.3m	Containers, ro-ro, bulk, and passengers.
Tanager Jetty	75m	8.0m	Bulk liquids, petroleum products, chemicals, and inert gases. Can accommodate a vessel up to 25,000 dwt, with a maximum loa of 135m, a maximum draft 7.5m, a maximum displacement of 38,000 tons, and a minimum underkeel clearance of 0.5m.

Tides—Currents.—There appear to be no perceptible tidal currents setting N or S across the entrance of Skudenesfjorden, but inside the fjord, weak tidal currents set inward and outward near the land. Off the fjord entrance, the tidal current usually sets N, but the wind has much to do with its velocity. Near the land on both sides of the entrance, this current usually sets inward during a rising tide and outward during a falling tide. Near the S end of Karmoya, a strong current sets E and into Karmsundet during rising W winds.

Pilotage.—Karmoy pilot station provides pilotage for vessels exceeding 30,000 gross tons and classified to carry hazardous or polluting cargo. Pilotage should be ordered using SafeSeaNet, or alternatively, the Kvitsoy Pilot Booking Center (this may incur additional charges).The pilot will board, weather permitting, and only with prior permission of the pilot station, in Skudenesfjorden Vest (Boarding Position No. 1) in position 59°02.0'N, 5°10.0'E. Otherwise, the pilot will board in one of the following positions:

1. Skudenesfjorden (Boarding Position No. 2)—position 59°06'30.0"N, 5°27'00.0"E.
2. Karmsundet (Boarding Position No. 3)—position 59°13'06.0"N, 5°21'00.0"E.
3. Feistein (Boarding Position Feisten No. 1)—position 58°51'00.0"N, 5°30'17.4"E.

Regulations.—Vessels engaged in fishing within the area covered by Kvitsoy VTS are required to maintain a continuous listening watch and also to answer calls.

Under conditions where two or more vessels are meeting or passing one another within a distance of 0.5 mile in the VTS area, they are required to contact one another on VHF. Each must assure the other of the intent to a safe procedural action and agree to yield.

Vessel Traffic Service.—Traffic is controlled by Kvitsoy (Kvitsoya) Vessel Traffic Service (VTS) for the area bound by the following positions:

a. 58°45'00.0"N, 5°29'36.0"E. (Jaerens Rev)
b. 58°45'00.0"N, 5°21'36.0"E.
c. 58°58'54.0"N, 5°14'54.0"E.
d. 59°05'36.0"N, 5°05'24.0"E.
e. 59°14'18.0"N, 4°43'42.0"E.
f. 59°17'18.0"N, 4°42'48.0"E.
g. 59°19'36.0"N, 4°43'48.0"E.
h. 59°34'30.0"N, 4°53'36.0"E.
i. 59°34'30.0"N, 5°11'05.4"E.(Bomlahuk)
j. 59°32'57.0"N, 5°14'23.4"E. (Haskru Light)

The VTS area is divided into two sectors, as follows:

1. The area N of 59°12.0'W and W of 5°21.5'E and the area N of 59°20.0'W and W of 5°58.8'E—uses VHF channel 19.
2. The remainder of the area—uses VHF channel 18.

Participation in the VTS is mandatory for the following:

1. Vessels of 24m in length and above, including towing and pushing vessels.
2. Vessels towing an object that is longer or wider than 24m.
3. Vessels engaged in towing operations where the total length is greater than 35m.
4. Vessels of all length carrying dangerous and/or polluting liquid cargo in bulk.

All vessels must request a sailing clearance at least 1 hour prior to entering the VTS area or leaving a quay or anchorage. The following information should be given:

1. Vessel name and call sign.
2. Sailing Plan and destination.

Kvitsoya Light

Kvitsoy VTS Center

3. ETA at the outer limit of the VTS area and the ETA at the port, mooring, or anchorage—for vessels located outside the operational area of the VTS.
4. ETD from the VTS area—for vessels inside the area.
5. Any other information requested by the VTS, such as vessel type, nationality, and port of registration.

Vessels should send position reports to the Kvitsoy VTS, as follows:

1. When passing the limits of the VTS area when heading into the VTS area.
2. When passing between VHF channel sectors.
3. Before moving with the VTS area (leaving the wharf, berth, or mooring facility).
4. When being towed.
5. When at anchor.
6. When involved in an accident.
7. Immediately if the vessel is in difficulty and likely to result in a change of voyage plan.
8. When passing position 58°58'33.0"N, 5°43'37.8"E (Stavanger) (Inbound/Outbound).

All vessels must maintain a continuous listening watch on the appropriate VHF channel for the area. All communication with the VTS shall be in a Scandinavian language or, if not using a pilot, in English.

In certain cases, permission will have to be renewed from the VTS Center when passing through specific areas. For further information contact Kvitsoy VTS.

Vessels of less than 100m loa do not need to obtain permission from the VTS when only using the fairway E of a line joining Toftoy Light and Dusaviga Light.

All vessels using the main fairway to/from Sauda should obtain permission from the VTS on VHF channel 19 when passing a line between Vardnes Light and Jelsahunden Light.

Contact Information.—The pilot station can be contacted, as follows:

1. VHF: VHF channel 13
2. Telephone: 47-51-735397
   47-51-735398
3. Facsimile: 47-51-735391
4. E-mail: pilot.kvitsoy@kystverket.no

The VTS Center can be contacted, as follows:

1. Call sign: Kvitsoy VTS
2. VHF:
   a. VHF channel 19—When N of 59°12.0'N and W of 5°21.5'E and when N of 59°20.0'N and E of 5°58.0'E.
   b. VHF channel 18—the remainder of the VTS area.
3. Telephone: 47-71-736032 (south sector)
   47-51-736033 (north sector)
   47-91-681173
4. Facsimile: 47-71-736031
5. E-mail: vts.kvitsoy@kystverket.no

2.7 Kvitsoya (59°04'N., 5°25'E.), the largest of a group of islands and islets, marks the E entrance of the approach to Stavenger via Skudenesfjorden. The land of Kvitsoya is low and relatively inconspicuous from offshore. Lights are shown from some of the islands and islets; buoys and perches mark the intricate channels leading to some of the anchorages.

A number of sheltered anchorages are indicated among the islands and islets, but entry should not be attempted without local knowledge. Some of the islands are connected by causeways.

Settlement on the islands is concentrated at Ytstabohamn and Leiasundet. Ytstabohamn is located on the S side of Kvitsoya and Leiasundet is located on the W side of Kviting. Kvitsoya Light, 27m high, standing on the SW side of Kvitsoya, is conspicuous.

Kvitsoya radio station is located on Krakoy, about 0.5 mile E of Kvitsoya; the radio masts are conspicuous and stand up to 125m high. There are numerous radio masts on this island. A group of four masts stands at the N end.

Caution.—Due to a strong electromagnetic field around the masts, navigation, and communication equipment in the vicinity may be disturbed. Vessels passing close to **Kvitsoya Broadcasting Station** (59°04'N., 5°24'E.) may experience electronic interference due to the station electromagnetic fields.

2.8 Jarsteinen (59°09'N., 5°11'E.) is a small island about 0.5 mile off the SW end of Karmoya. Svelgjeskjaer, an above-water rock, is located about 0.2 mile S of Jarsteinen.

Geitungane (59°08'N., 5°15'E.) are two islets that lie close S of Karmoya. A light is shown from a tower, 11m high, standing on the S islet. A racon is located at the light tower.

Kryssgrunn, a 9.1m depth, lies about 0.5 mile ESE of the S islet. An overhead cable, with a clearance of 20m, spans the channel between the N islet and Karmoya.

Skudeneshavn (59°09'N., 5°16'E.) (World Port Index No. 23485) is fronted on its S side by Vikeholmen, Bakareholmen, Steiningsholmen, and several smaller islets and rocks. Three small moles also enclose the harbor. Skudeneshavn is a sheltered harbor used by ferry and coastal vessels up to 5,000 dwt.

Nesagapet, the E and principal entrance of Skudeneshavn, is between Vikeholmen and the S coast of Karmoya. A light is shown from the head of a small mole on the N side of Nesagapet. This entrance has a least charted depth in the fairway of 6.2m.

Berthing details are shown in the accompanying table titled **Skudeneshavn—Berthing Information**.

Caution.— Submarine cables are laid across the S and NW parts of the harbor and a submarine pipeline is laid on the NE side. Care must be taken to pass S of a 5.3m depth which lies in the narrowest part of the sound. There are several rocks in the harbor, some of which are marked by iron posts. Navigation is not affected by ice.

2.9 Austbaen (59°08'N., 5°17'E.), the outermost danger in the approach to Skudeneshavn, lies about 1 mile ESE of Geitungane. Sondreflu is a 4.6m depth about 183m W of Austbaen.

The S coast of Vestre Bokn, towards the NE, on the N shore of the Skudenesfjorden, E of Karmoya, is formed by **Drivsund** (59°10'N., 5°25'E.), an islet and shoal-encumbered bay; the S ends of the two parts of Vestre Bokn form the W and E shores of this bay. Vestre Bokn is in two parts; its SW and smaller part is separated from the main portion by Sundalandsstraumen, a very narrow sound extending NW from the head of Drivsund. Drivsund has several anchorages for small vessels, but local knowledge is required.

Arsgrunn (59°08'N., 5°26'E.), with a least depth of 3.2m and marked on its SW end by a buoy, is located about 1 mile SSW of the SE extremity of Vestre Bokn.

Kraka (59°09'N., 5°25'E.) is an above-water rock and Skolleflu, 0.5 mile ENE, is a 3m shoal marked by a buoy.

Fjoloy and **Mosteroya** (59°05'N., 5°38'E.), with some islets between and near them, form the NE side of Kvitsoyfjorden. The islets and dangers on the NE side of Kvitsoyfjorden, between Alstein and Sveinane, together with those near Tungeneset, form the SW side of the fjord.

Mosteroy, the SE part of which is called Aske, is nearly joined at its NW end to Klosteroy and is separated from Fjoloy by Klosterhamn, a sheltered harbor for small vessels with local knowledge.

Isgrunn, a 6.9m depth, lies about 0.5 mile off the SW side of Mosteroya, in a position about 1 mile SSE of Ejoloy. Langeflu, a 12.8m depth, lies about 0.25 mile NE of Isgrunn.

2.10 Dysjalandsvag (59°05'N., 5°40'E.), between the SE end of Mosteroy and Aske, affords secure anchorage, in 12.8 to 18.3m. Local knowledge is required.

Gryda Light (59°03'N., 5°37'E.) stands on a rock, lies awash on the NE side of the junction of Kvitsoyfjorden and Byfjorden. It is located about 0.5 mile off the NW side of the island of Bru and nearly 1.25 miles NE of Tungeneset. A 12.8m patch is located about 0.1 mile NW of Gryda.

Nordgrunn is a 6.9m depth lying about 1 mile NW of Gryta. Kolsboane, about 0.5 mile NNW of Gryta, is two rocks; the SW rock is awash and marked by an iron beacon. while the NE rock, with a depth of 1.5m, is marked by an iron perch.

Skudeneshavn—Berthing Information

Berth Name	Length	Maximum Vessel Draft	Remarks
No. 1	80m	5.5m	—
No. 2	80m	5.5m	—
No. 3	80m	5.5m	—
Refrigeration Plant Berth	100m	5.5m	—
Cuxhaven Berth	100m	5.2m	Ro-ro.
Ols Berth	60m	4.3m	Ro-ro.

Byfjorden is the inner part of the approach to Stavanger. It is entered from Kvitsoyfjorden between Gryta and Bragen. The island of Bru, on the NE side of the fjord, is comparatively steep. The W slope of the high land descends almost perpendicularly to the fjord. Brufjell, on the SW side of Bru, rises to a height of 86m close inland.

Brukjeoy (59°02'N., 5°40'E.) lies on the NE side of Byfjorden at its junction with Amoyfjorden. The islet lies about 0.5 mile SE of Bru; close W of it is the smaller Persholmen, from which a light is shown. Shoals, fringing the E end of Brukjeoy, extend about 0.1 mile offshore and are marked by a buoy.

Flataskjaer is an above-water rock about 183m W of Persholmen. An iron perch, about 183m NW of Flataskjaer, marks the outer end of a reef extending from the rock. Sore Raunegrunn, a 1.8m depth marked by an iron perch, lies about 0.2 mile N of Flataskjaer.

Randabergviga (59°02'N., 5°37'E.) is a small bight about 1 mile SE of Tungeneset. Good anchorage can be taken here, in 12.8m, sand and mud.

2.11 **Dusavik** (59°00'N., 5°40'E.), located on the W side of Amoyfjorden, provides a protected anchorage, in 22m, gravel bottom. A large installation, with deep-water facilities for servicing oil rigs, is located in Dusavik.

Dusavik Light

Byfjorden extends in a SE direction, where it meets Amoyfjorden. A chain of small islets and dangers, which are scattered across the E end of Amoyfjorden, separates this basin from the NW end of Horgefjorden. General depths through the middle of Amoyfjorden are 64m to 101m.

A 10.1m depth and an 8.2m depth are located about 0.5 mile NW and nearly 1 mile NNW, respectively, of the NE extremity of Hundvag. Dangers elsewhere are those extending across the E end of the fjord or lying within 0.2 mile offshore.

A light is shown from the largest and W of Klovingane, a group of four small islets in the E end of Amoyfjorden. A beacon stands on the largest islet. Buoys and perches mark a few of the dangers lying between Klovingane and the S side of Amoy.

Vessels proceeding through Amoyfjorden to Horgefjorden should pass N of Storholmen, in a depth of 24m, staying in mid-channel, with the S extremity of **Hille Kjeoy** (59°02'N., 5°48'E.) bearing 075°.

The approach to Stavanger or to Sandnes, at the head of Gandafjorden, can be made from Horgefjorden through Lindoysund, the passage between Vassoy and Lindoy, or from Hogsfjorden through the passage between Kalvoy and Uskjo.

Revingen (59°00'N., 5°49'E.), which is marked by a lighted beacon, lies in the N part of Lindoysund, about 0.2 mile N of Lindoy. Shoal water extends about 91m N and S from this rock. Revingsgrunn is an 11.9m depth in the SW part of Horgefjorden, about 0.5 mile NNE of Revingen.

Tunsoy (58°59'N., 5°49'E.) is close SE of Lindoy; between them is Lindoygrunn, which is marked by an iron perch.

Stavanger (58°59'N., 5°45'E.)

World Port Index No. 23480

2.12 Stavanger was founded around the beginning of the ninth century, and is one of Norway's oldest cities. Noted for shipbuilding and fishing for many years, it is now the main support base for the oil and gas industry in the North Sea area close to southern Norway.

Port of Stavanger Home
http://www.stavanger-havn.no

Winds—Weather.—Gales are fairly frequent in winter and are usually from the SE. Northwest gales make loading and unloading difficult at most of the main quays. Prevailing winds in the summer are SW and W; in winter they are E and NE. The climate is mild, and there is frequent precipitation throughout the year. Stavanger is an ice-free port.

Tides—Currents.—Tidal currents are slight. During NW gales, the water may rise to the decks on some piers. Normal tidal range is 0.6m.

Depths—Limitations.—General depths in the fairway between the entrance of Stavanger at Ulsneset and the entrance of Vagen are 23m to 50m.

Stavanger—Berthing Information

Berth	Length	Depth Alongside	Remarks
Mekjarvik Deep Water Berth	148m	19.8m	—
Mekjarvik Ro-Ro Ramp	250m	14.4m	Dry bulk, container, and general cargo.

Stavanger—Berthing Information			
Berth	**Length**	**Depth Alongside**	**Remarks**
Makjavik Ferry Quay	170m	10.0m	Ferries.
Randaberg Industries			
Randaberg Berth	330m	6.5-12.0m	Dry bulk, container, and general cargo.
Stogsto N	193m	4.8-7.0m	—
Stogsto S	112m	4.1-5.0m	—
Kalhammarbukta N Quay	23m	10.0m	—
Kalhammarbukta Middle Quay	92m	8.2-11.5m	—
Kalhammarbukta SE Quay	77m	4.2-7.9m	—
Rosenberg Worley Parsons	—	—	Container, general cargo, and ship yard.
Stravanger International Cruise Terminal			
021V	75m	—	Cruise ships with a draft up to10m.
018VUpper	149m	14.0m	Cruise ships with a draft up to 8.2m.
018VLower	53m	14.0m	Cruise ships with a draft up to 8.5m.
016V	309m	8.5m	Cruise ships with a draft up to 7.5m.
013V	163m	8.2m	Cruise ships with a draft up to 7.5m.
005V	149m	6.8m	Cruise ships.
004V	78m	6.6m	Cruise ships.
003V	55m	6.5m	Cruise ships.
002V	60m	6.5m	Cruise ships.
001V	135m	7.2m	Cruise ships.
Kerringholmen			
80	66m	5.0-8.8m	—
Jorenholmen	144m	9.3m	Ferry.
Fiskapiren Passenger Terminal			
Fiskapiren Berth	130m	4.6m-16.8m	Passengers.
Bekhuskaien Terminal			
210	109m	8.0-8.3m	General cargo.
200	107m	—	General cargo and ro-ro, with ramp of 18m.
Norgrain Terminal			
Main Pier	165m	15.5m	Grain and molasses.
East Pier	130m	8.0m	Grain and molasses.
West Pier	63m	6.5m	Grain and molasses.
Siriskjael	95m	—	Grain, bulk cargo, and waiting berth.
Lerving E Berth	95m	3.3-7.0m	Dry bulk.
Lerving S Berth	85m	—	Dry bulk.
T Sketting	240m	6.0m	Fish meal.

Stavanger—Berthing Information			
Berth	**Length**	**Depth Alongside**	**Remarks**
NCC Quay	40m	—	Sand and gravel.
Norstone Dirdal	40m	—	Aggregates.
Monier	74m	—	Concrete.
Forsand Sandkompani	80m	—	Grout.
Felleskjopet Rogaland Adger	50m	—	Multipurpose cargo.
NorSea Dusavika	600m	80-8.3	Multipurpose cargo.
Stravanger Bunker Terminal			
Texaco Berth	30m	9.0m	Petroleum products. Can accommodate vessels with a maximum loa of 100m and a maximum draft of 7.2m.

Approaches to Stavanger Fjord

Berthing details are shown in the accompanying table titled **Stavanger—Berthing Information**.

Aspect.—The principal part of the city faces a bay on the N side of a small promontory which extends E from the main peninsula. The port area now has a total quayage length of approximately 5,000m and is divided into many separate terminals, spread across a large area, from the industry port of Mekjavik to the fish and animal feed silos at Felleskjopet.

The principal deep-water quays line the shores of Vagen (58°58.3'N., 5°44.0'E.), an indentation on the N side, near the city. Numerous small shoals and rocky patches are scattered among the islands and islets which form the NE side of the harbor.

The basin just E of Stavanger is bounded by Steinsoya, Ormoy, and Vassoy to the N; Lindoy, Hellesoy, and Kalvoy to the NE; and Uskjo to the S. A chain of islets and dangers extends SW for about 1 mile through the middle of this area.

Pilotage.—Pilotage is compulsory for Stavanger and is available 24 hours. Pilots should be requested at least 24 hours in advance. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The Kvitsoy pilots are to be advised of the vessel's arrival, giving the following information:

1. Vessel name.
2. Call sign.
3. Gross registered tons.
4. Draft.
5. Cargo.
6. Port of destination.

Pilots can be contacted on VHF channels 13 and 16 and meet inbound vessels outside Feistein, as follows:

1. Approximately 21 miles S of Stavanger, in position 58°50'N, 5°26'E.
2. In Skudenesfjorden, at Skedenesfjorden Vest, in position 59°02'N, 5°10'E.
3. At Skedenesfjorden, approximately 18 miles NW of Stavanger, in position 59°06'N, 5°26'E.

Vessels greater than 30,000 gt carrying hazardous or polluting cargo will use the boarding position at Skudenesfjorden Vest.

Pilot boats are white and have orange superstructures.

For detailed information on pilotage regulations, see Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

Signals.—Storm signals are shown from a mast on the NE side of Vagen.

Contact Information.—The Port Authority can be contact-

Stavanger—Inner Harbor

Stavanger

Hidle from W

Horge from E

Approach to Lindoysundet from N

The Stavanger Bridge from E

The Stavanger Bridge from W

Stavanger Petroleum Museum

ed, as follows:

1. Telephone: 47-51-501200
   47-51-501201 (after hours)
2. Facsimile: 47-78-501222
3. E-mail: info@stavanger.havn.no

Port Control can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-51-501201
3. Facsimile: 47-51-511221
4. E-mail: havneoppsyn@stavanger.havn.no

The harbormaster can be contacted by telephone (47-51-501212).

Anchorages—Stavanger affords fairly good anchorage throughout, but the best is in the E part S of Solyst and Grasholmen, where the depths are 18.3 to 27.4m.

Deep draft vessels also anchor NE of Grasholmen, approaching through Amoyfjorden and Horgefjorden.

Amoyfjorden provides anchorage for large vessels and oil rigs. The water depth varies from 30m to 130m. Smaller vessels may anchor off Ulsnes Point, which has a maximum depth of 40m.

Vessels in quarantine or without berth assignment should an-

chor near the entrance at Ulsnes Point, taking care to avoid the submarine cables and water pipelines.

Gandsfjorden is a construction site for large offshore structures (depth of 245m) and a lay-up area for oil rigs (depth of 180m).

Stavanger Port Control is to be contacted prior to anchoring. Port Control uses VHF channels 13 and 16 and may also be reached by telephone (51-73-53-97).

Caution.—Numerous changes to depths, lights, and aids to navigation have been reported (2008) in Stavanger and its approaches. Vessels should contact local authorities for further information.

2.13 Sandnes (58°51'N., 5°45'E.) (World Port Index No. 23470) extends around the head of and along the W shore of Gandafjorden. Behind the town, on the SE, the land rises in hummocky hills, 101 to 198m high. East of Gandafjorden and immediately NE of the town, the hills rise more steeply to a height of about 189m. The country W of Sandnes is comparatively low, about 46m high in some places, and is mainly fertile agricultural land.

Port of Sandnes

http://www.sandneshavn.no

Depths—Limitations.—The inner harbor has six berths with a total length of 633m and a depth alongside of 8m. The OneCo Solutions Quay is 268m long and has depths alongside of 10.7m at the north end and 9m at the south end. StatOil Lura Tanker Berth is 77m long with a depth alongside of 11.5m.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 14 and 16
2. Telephone: 47-51-608990
   47-47-853012 (duty officer)
3. Facsimile: 47-51-608991
4. E-mail: post@sandneshavn.no

Anchorage.—Small vessels can anchor off Sandnes, in 13.7 to 18.3m. Small vessels can also anchor near the head of the fjord, in a depth of about 6.1m.

The Fjords

2.14 Gandafjorden (58°55'N., 5°46'E.), a deep fjord, trends S for about 7 miles from Store Maroy. There is a 5-knot speed limit in the inner part of the fjord.

Gandsflu, a 5m depth marked by a light, lies about 0.4 mile SW of Store Maroy. Depths of 7.3 and 8.7m lie within about 0.1 mile NNE of Gandsflu.

A quay, with a depth of 7.6m alongside, is located in the vicinity of **Fiskaneset** (58°54'N., 5°45'E.), on the W shore of Gandafjorden. Another quay, with a depth of 11m alongside, lies about 1 mile further S.

Buoys mark some of the shore banks in the inner part of Gandafjorden. Two lights, in range 186.5° and shown from the E shore opposite Sandnes, lead into the fjord.

2.15 Riskafjorden (58°56'N., 5°49'E.), which is about 0.2 mile wide in its narrowest part, is formed between the mainland SE of Stavanger and the S and E sides of the island of Uskjo. It branches off from the NE end of Gandafjorden and, at its N end, leads into the junction of Horgefjorden and Hogfjorden.

Riskafjorden is deep and, except for Riskaholmene, two small islets in mid-channel SW of the S extremity of Uskjom, is free from dangers in the fairway.

In Riskafjorden, there is good anchorage, sand and shell, for small vessels at the head of a small inlet at Hammersak on the SE side of the fjord. There are mooring buoys and several quays, with depths up to 4m, located in the inlet. Li is located on the S shore of Riskafjorden, about 0.4 mile SSW of Riskaholmene. A concrete quay, with a depth of 4m alongside, is located at Li.

2.16 Horgefjorden (59°01'N., 5°50'E.) surrounds the islet Horge. The fjord is bounded on the SW and W by the many islands and islets lying off Stavanger, on the NW by the islets and dangers at the E end of Amoyfjorden and the SE side of Amoy, on the N by Hille Kjeoy and the island of Hidle, and on the E by Heng and Idse and the chain of islets and rocks between these two islands. General depths throughout Horgefjorden are ample, but there are some shoal patches. Vessels without local knowledge should not attempt passage between the islets and reefs lying between Heng and Idse.

Hogsfjorden (58°56'N., 6°00'E.) trends SE for about 12 miles, is from 0.5 mile to 1.5 miles wide, and is deep and clear of dangers in the fairway. Several small sounds lead off from Hogsfjorden. Lysefjorden is entered about midway along the NE shore.

Frafjorden, a continuation of Hogsfjorden, trends E for about 3 miles, is about 0.5 mile wide, and is also deep and clear. The shores of both fjords are mostly steep-to.

A wooden quay at the head of Frafjorden has a depth of about 4.5m alongside and can accommodate vessels with drafts to 5.5m.

2.17 Idsefjorden (59°01'N., 5°58'E.) is the basin formed between the mainland, on the N and E; the islands of Idsal and Idse, on the S; and Heng and the islets and rocks extending S, on the W. Botnefjorden, a narrow inlet, extends SE for about 2 miles from the E end of Idsefjorden.

Most of Idsefjorden is deep and clear, but there are shoals and rocks near shore and among the scattered islets at the W and E ends. A few detached shoals lie near the fairway. Inside Botnefjorden, the depths shoal from about 81m in the entrance to 16.5m near the head of the fjord.

Jorpeland (59°01'N., 6°02'E.), a settlement in a small cove on the NE shore of Idsefjorden, is one of the larger places in the area. It has numerous buildings and workshops and a quay with 4 to 6m alongside. There is a steel works, with a quay having a depth of about 5m alongside. A telegraph station is located here.

Hillefjorden (59°04'N., 5°49'E.) is a comparatively broad sheet of open water between Aske, Rennesoy, and Brimse, on the N, and Amoy and Hidle, on the S. Depths through the fairways of Hidlefjorden range from about 29 to 180m.

Anchorage can be taken, in 13m, good holding ground, clay

Tau—Abandoned brewery

Approach to Tau from S

and mud. Mooring rings and buoys are available. In the NE part of the cove, there is a quay, with depths of 3.1 to 4.8m alongside and a length of 84m. A grain elevator has a quay, 36m long, with a depth of 9m alongside.

A secure harbor for small vessels lies on the E side of Hidlefjorden off the village of **Tau** (59°04'N., 5°55'E.)

2.18 Mastrafjorden (Mastrafjorden) (59°06'N., 5°39'E.) is a good channel for vessels bound to any of the fjords E or S of Stavanger. From its NW entrance, it trends SE between the SW side of Rennesoy and the NE sides of Klosteroy, Mosteroya, and Aske for about 6 miles to its junction with Hidlefjorden. The least width between the land on either side is about 0.4 mile; however, shoals on either side reduce the navigable channel width to less than this in places. A least depth of 18.3m is available through the fairway, but there are lesser depths and dangers nearby.

Anchorage.—Medium-size vessels can take good anchorage in Finnesandbukt, the bay formed between Klosteroy and the N side of Mosteroya. The anchorage is in a depth of 20m, coarse sand. Care is necessary to avoid Bakhodnagrunn, a 9m shoal lying in the entrance to this bay.

Vikevag (59°06'N., 5°42'E.), on the N shore of Mastrafjorden, is the main port on Rennesoy. The largest quay, on the NW side of the inlet, has depths to 5m alongside. A quay at Dale, about 1 mile SE of Vikevag, has depths from 5 to 6m.

Caution.—Numerous submarine cables extend from Rennesoy to the surrounding islands.

Saebosundet (59°10'N., 5°56'E.) is the narrow sound separating the NE side of Fogn from Teistholme, Lindoy, Buoy, Byre, Bokn, and other islands, islets, and rocks to the NE. It leads from the N end of Fognafjorden into Finnoyfjorden. Although very narrow in places, the channel fairway has ample charted depths. Detached 4.1m to 9.1m depths lie near the fairway. Some of the detached dangers and those extending from the islets on the NE side of the passage are marked by buoys or perches. Other navigable channels lead among these islets.

The Fjords Branching from Skudenesfjorden

2.19 Boknafjorden (59°12'N., 5°38'E.), a continuation of Skudenesfjorden, trends NE for about 10 miles to the S entrance of Nedstrandsfjorden. It is about 4 to 6 miles wide between the islands and islets on either side. Depths through the fairway are great, but there are some detached dangers, particularly in the NE part and along the SE side.

Boknasund (59°14'N., 5°27'E.) lies between Vestre Bokn

Boknafjorden

and Austre Bokn and leads NW for about 3 miles between Boknafjorden and the S end of Boknaflaeet. It was reported (1944) that a depth of 9.7m is available through Boknasund but that passage through the sound is difficult for vessels over 107m in length and with a draft of over 7.6m.

Boknasund

Two submarine cables cross the sound in the vicinity of Boknasund Light.

Knarrholme (59°13'N., 5°28'E.) is the farthest SW of a group of above-water rocks on the SW side of the fairway. Knarrholmgrunn, with a depth of less than 1.8m and marked on its NE side by a buoy, lies about 91m E of Knarrholme.

Strandvikflu, lying near the E shore of the sound about 0.2 mile NE of Knarrholmgrunn, has a depth of less than 1.8m and is marked by an iron perch.

Ta (59°14'N., 5°27'E.), a reef marked at its S end by a beacon, is on the W side of the fairway. It lies within about 0.1 mile offshore and about 2 miles NNW of Knarrholme. A 6.4m depth is located about 183m E of the beacon.

2.20 Bleikje (59°15'N., 5°27'E.), a small islet, lies in mid-channel about 0.5 mile N of Ta. A 1.8m depth is located about 137m SE of the islet.

Brattholme lies 183m off the W side of Boknsund and about 0.5 mile W of Bleikje. A smaller islet is located about 183m NW of Brattholme; Brattholmbaen, with a depth of about 1.5m and marked by an iron perch, lies about 0.1 mile SE of Brattholme.

Tides—Currents.—In Boknasund, the tidal current depends mainly on the wind and may run in one direction continuously for a considerable time. It is very strong in the narrowest part of the sound. During long periods of calm weather at sea, the tidal current runs regularly, changes direction at half tide, and is strongest at HW. Farther N in Boknaflaeet, the tidal current usually runs in the same direction as in Boknsund. It often changes direction under Boknahovud, the NW extremity of Vestre Bokn, and is strongest round Bleikje and between Vesteroy and Hovringoy.

In Austdjupet, the tidal current usually sets in a direction opposite to that in Karmsund, but depends greatly on the wind.

Still farther N in Fordesfjorden, there is usually an incoming tidal current in bad weather and an outgoing current in fine weather, but these currents are very weak.

Depths—Limitations.—A quay at Alvestadkroken, on the W shore of Boknasund, has depths up to 5m alongside. Fuel oil and fresh water are available. A quay at Foresvik, about 1 mile NW of Alvestadkroken, has depths from 5 to 7m alongside. Fuel oil and fresh water are available.

Anchorage.—Anchorages for small vessels with local knowledge are available on both sides of Boknasund.

2.21 Boknaflaeet (59°16'N., 5°26'E.) is the basin between Ognoy, Austeroy, and Vesteroy on the E, and Hovringoy and the numerous islets on the W. Boknaflaeet is a continuation N of Boknasund and leads into Fordesfjorden.

Depths through the fairway are ample, but there are nearby shoals and rocks on either side.

Anchorage.—On the NE side of Boknaflaeet, anchorage can be taken between the W side of **Austeroy** (59°17'N., 5°27'E.) and the SE end of Vesteroy, or between the N side of Austeroy and Kvernholmane, about 0.2 mile N of the NW extremity of Austeroy. A rock lies awash close off the W side of Austeroy in the channel between these two anchorages.

The fairway through **Austdjupet** (59°16'N., 5°24'E.) is clear and deep except for Austdjupholmane, two islets which lie in mid-channel about 2 miles from the S entrance. Other dangers are near the islets on either side of the channel.

Guleskjaer, a detached rock, is on the W side of the fairway, about 0.3 mile W of the W islet of Austdjupholmane.

Tallaksholmane, consisting of two islets and rocks, is the outermost group in the SE part of Austdjupet.

2.22 Karsto Gas Terminal (59°16'N., 5°30'E.) (World Port Index No. 23451) is located a little over 0.75 mile NW of **Arviksundet** (59°16'N., 5°33'E.), which lies close N of the N extremity of Arvikholmen. Gas from the North Sea fields is piped to the terminal, where it is processed and stored while awaiting export.

A submarine pipeline connects Karsto Gas Terminal with Austre Bokn, 2 miles S. Vessels are prohibited to anchor within 0.2 mile of the pipeline. Karsto Control can be contacted on VHF channel 11.

Depths—Limitations.—There are four berths with lengths

between 160m and 275m and depths alongside between 10 and 14m. Gas and petroleum products are handled at these berths.

A safety zone extends 300m from shore in the terminal area, as shown on the chart.

Pilotage.—A sea pilot should be embarked from Kvitsoya pilot station; they will also act as a harbor pilot.

Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Regulations.—Vessels over 50 gt and carrying dangerous cargo wishing to use Karsto Gas Terminal must obtain prior permission from the Harbor Terminal before entering the regulated area of Skudenesfjorden and Boknafjorden E of the line between the light on **Geitungen** (59°08'N., 5°15'E.) and the light on Vestre Imsen, 8 miles SSE. Such vessels must not exceed a speed of 10 knots in the regulated area.

Permission to enter must be applied for at least 1 hour before arrival in the regulated area or before leaving the quays, anchorages, or other mooring installations in those waters.

The vessel's ETA should be sent, via the agent, at least 72 hours prior to arrival. The ETA must be confirmed 48 hours, 24 hours, and 12 hours prior to arrival.

Contact Information.—The port can be contacted, as follows:

1. Call sign: Karsto Harbor
2. VHF: VHF channel 11
3. Telephone: 47-52-772682
4. Facsimile: 47-52-772680

Anchorage.—Vessels waiting to berth at the terminal are to anchor in the designated anchorage in Falkeidfaet, between Rovetaerne Light and Billingen Light, and in Hervikfjorden.

Directions.—The main approach to Karsto Gas Terminal is between **Austre Vagholmflua** (59°13'N., 5°31'E.), a 3m shoal with a light, and Rovetaerne Light, standing on an outermost rock lying a little over 1 mile ENE.

2.23 Nedstrandsfjorden (59°15'N., 5°44'E.) is formed by the mainland on the NW, N, and NE, and by a group of islands and islets, which are known collectively as Sjernaroyane and the island of Ombo, on the S. Nedstrandsfjorden has an entrance that lies between the S end of Toftoy and Lundaroy, about 4 miles ESE. From its entrance, it trends NE and E for about 11 miles to the entrance of Jelsafjorden.

Great depths prevail through the fairway of Nedstrandsfjorden. Shoals and islets lie clear of the fairway.

Lindoy (59°17'N., 5°42'E.), NE of which is Slattholme, is the largest of a group of islets and rocks lying within 1 mile E of the N end of Toftoy. Lindoygrunn, the southernmost danger of the group, is located about 0.2 mile S of Lindoy and is marked on its S side by an iron perch.

Heimraflu, the NW danger, is a 1.8m depth marked by a buoy about 0.2 mile N of Lindoy.

A rock, with a depth of less than 1.8m and marked by an iron perch, is located about 183m NE of the SE end of Slattholme. A 5.9m depth and an 8.2m depth lie within about 0.2 mile E and SE of this rock.

Lamholme (59°20'N., 5°45'E.) is a small islet in the approaches to Muslandsvag. Gullholme lies about 0.1 mile S of Lamholme. Haskjaer, with other islets and rocks NW, lies about 0.2 mile SSW of Gullholme.

Hunderavag (59°20'N., 5°49'E.), which indents the mainland for about 1 mile N, is entered between Tveiteneset, about 1 mile ESE of Lamholme, and Baustaneset, about 1 mile ENE. Hestflu, marked by an iron perch, extends about 0.1 mile from the E shore of the bay to a position about 0.4 mile NW of Baustaneset.

Anchorage.—Large vessels can take anchorage in Hunderavag, in 27 to 59m, but the anchorage is exposed to S winds. The best anchorage for small vessels is off Tveit, located on the NW side of Hunderavag.

2.24 Nedstrandsvag (59°20'N., 5°52'E.) is entered between Lille Faeroy, about 1 mile ENE of Baustaneset, and Tonganes, a mainland projection about 0.2 mile farther ENE. A 5.9m depth lies in the middle of the entrance. Within Nedstrandsvag, there are numerous dangers, including above and below-water rocks, some of which are marked by iron perches. A quay has a least depth of 5m along its outer side.

Foldoy (59°20'N., 5°58'E.) lies in the NE portion of Nedstrandsfjorden. Sondre Breidvik, on the S side, and a smaller bight, on the N side, almost divide Foldoy in two.

Both parts of the island are fairly high; the E part rises to an elevation of about 35m. Tjuvholme and other islets and rocks lie within 0.25 mile SW of the S extremity of Foldoy; within 0.25 mile farther SW there is a detached reef, on the NW end of which a rock lies above water.

Skindryggen, with a depth of less than 1.8m and marked by an iron perch, lies close off the N side of Foldoy in a position about 0.2 mile NW of the island's NE extremity.

Smaskjaer (59°17'N., 5°57'E.), marked by an iron perch, lies about 0.1 mile N of the W entrance point of Jorstadvag, which is on the NW side of Ombo, about 1 mile NE of the NW extremity of the island.

2.25 Talgjefjorden (59°08'N., 5°49'E.) is the basin formed between Rennesoy and Talgje, on the S, and Finnoy and the islets and dangers lying up to 3 miles W of Finnoy, on the N. Fairway depths are sufficient for large vessels. A few detached dangers lie near the fairway, but most shoals, rocks, and islets are in the N part W of Finnoy. A light is shown from close N point of Finnoy.

Galtaholmen (59°09'N., 5°37'E.) is located close off the N extremity of Rennesoy. Galten, a rock marked by a beacon, lies about 0.1 mile N of Galtaholme.

Ertensoy, comparatively steep-to, lies about 2 miles ENE of Galtaholme; between these islets is the principal entrance of Talgjefjorden. Midflu, a detached 7.8m patch, lies about 0.3 mile SW of Ertensoy.

Tjelmen is a detached 3.2m depth lying on the N side of the fjord approach, about 1 mile NW of Ertensoy.

Flustein (59°08'N., 5°39'E.), on which a beacon stands, lies at the N end of a shoal that extends N from the N shore of Rennesoy.

2.26 Finnoyfjorden (59°10'N., 5°54'E.), which is formed between Finnoy on the W, and the islands of Fogn, Bokn, and **Halsne** (59°11'N., 5°57'E.) on the E, trends NE and N from Talgjefjorden for about 5 miles to the W approach to Garsundsfjorden. It has a minimum width of about 1 mile, great depths through the middle part, and few dangers.

The Lysefjorden Bridge from S

Kjerringi, lying awash about 0.5 mile NNW of the NE extremity of Finnoy, is marked by a beacon. Kjerringer, about 183m N of Kjerringi, is awash and marked by an iron perch.

Anchorage.—Several good anchorages, suitable for small vessels with local knowledge, are located along both sides of Finnoyfjorden.

Garsundsfjorden (59°13'N., 6°00'E.), N of Halsne and Randoy and S of the island of Ombo, trends NE for about 8 miles to the entrance of Josenfjorden. The minimum width of Garsundsfjorden is about 0.7 mile; it is deep and free from dangers in the fairway.

Quays, with depths of 4 to 9m alongside, are at Vestersjo, about 3 miles ENE of Eidsvag, and at Skar about 2 miles farther ENE.

Anchorage.—On the N side of Garsundsfjorden, anchorage for small vessels is available, in 10.1 to 11.9m, in Eidsvag, which indents the S side of Ombo about 0.5 mile E of the SE extremity of Ombo.

On the S side of the fjord, anchorage can be taken in Batviki, on the NW side of Halsne.

Breidvik (59°13'N., 6°03'E.), on the N shore of Randoy, provides good holding ground, in 16.5m. Oyehamn, in a narrow inlet about 1 mile W of the NE extremity of Randoy, provides good anchorage to small vessels, in 10.1 to 11.9m; mooring rings are available.

2.27 Fognafjorden (59°07'N., 5°56'E.) lies between Rossoya and the island of Fogn, on the NW, and the mainland, on the SE. It leads NE for about 3 miles from Hidlefjorden and Brimsefjorden and joins the S end of Saebosund and the outer end of Ytre Ardalsfjorden. Fognafjorden is 0.75 mile to 1.25 miles wide and throughout its middle part is deep and clear. Charted depths exceed 183m and all known dangers lie within 0.15 mile offshore.

Mosnesholmane, a group of three close-lying islets, are on the SE side of Fisterfjorden (59°09'N., 6°00'E.) within 0.4 mile NW of Helgoy. Kue is a small islet lies about 0.2 mile off the SE shore, nearly 0.75 mile NE of the larger islet of the group. A below-water rock is located close off the NE side of Kue.

Anchorage.—On the NW side of the fjord, vessels can anchor in Sandangervag, about 1 mile farther NE; and in Kvaloysund. An overhead cable, with a vertical clearance of 21.9m crosses the entrance of Sandangervag.

On the SE side of Fisterfjorden, small vessel anchorage can be found in Fistervag, which is entered about 2 miles NE of Kue; and in Vassvik, about 2 miles further NE.

2.28 Ardalsfjorden (59°08'N., 6°00'E.), with its W end starting between Fognafjorden and Fisterfjorden, has numerous islets and dangers. Helgoy is separated from the mainland N by the narrow Helgoysund. A 10.1m shoal is located about 0.2 mile W of the W extremity of Helgoy. Kvaerholmane, within 91m of which there are some above and below-water rocks, lies about 0.4 mile off the S shore of Ardalsfjorden and 1.25 miles E of Hoylandsneset.

Anchorage.—Good anchorage is available off Fiska, on the S side of Ytre Ardalsfjorden about 1 mile SE of Hoylandsneset. A concrete quay at Fiska has depths up to 6m.

The Outer Fjords

2.29 Solbergfjorden (Gapafjorden) (59°15'N., 5°55'E.) is the channel between the W side of Ombo and a group of islands and islets of which the largest are Kyrkjoy and Bjergoy. It leads N from the W approach to Garsundsfjorden to Nedstrandsfjorden and Jelsafjorden.

Solbergfjorden has a minimum width of about 1 mile and is deep and free from dangers in the fairway, except in the N part, where there are some rocks awash.

Caution.—Marine farms have been established on the N side of Solbergfjorden in position 69°02.12'N, 17°38.85'E. Ground tackle extends up to 0.7 mile into the fairway from these farms.

Gapaskjaergrunnane, which is awash in places, lies in the N part of Solbergfjorden about in mid-channel. An iron beacon marks the northernmost rock while an iron perch marks the southernmost rock.

Kvellandsholme is located on the W side of the fjord, about 0.2 mile off the SE extremity of Bjergoy. A submarine cable crosses the fjord close N of Kvellandsholme. A submarine cable lies between Bjergoy and Hidleholme, an island about 0.6 mile SE of Bjergoy.

Tennholme (59°17'N., 5°52'E.), on the W side of the N end of Solbergfjorden, lies on foul ground extending about 0.3 mile from the NE side of Bjergoy. The N and NE edges of the foul ground are each marked by an iron perch.

2.30 Ombofjorden (59°17'N., 6°07'E.) is the passage between Ombo and Josneset. To the E, it leads N from Garsundsfjorden to Jelsafjorden. The minimum width of the passage is about 1 mile. It is deep and free from dangers in the fairway.

On the E side of Ombofjorden, the coastal bank on the W side of the approach to Knutsvik, a cove about 2 miles NNW of the SW extremity of Josneset, is marked by an iron perch. Skarvagrunn, a 3.7m depth, lies close offshore about 0.4 mile NNW of Knutsvik.

Lysefjorden (58°54'N., 6°05'E.) is entered between Oanes and a point about 0.4 mile SE. From the entrance, Lysefjorden extends in a general NE direction for about 20 miles to its head. The fjord is deep and free from dangers in the fairway. Noted for its wild and beautiful scenery, it trends between cliffs rising almost perpendicularly on either side to heights of from 610 to 914m.

In the entrance, the channel leads between shoals extending from either side and has a width of about 0.2 mile and a minimum charted depth of 10.1m. A buoy marks the edge of the shoal water off Oanes.

Caution.—A bridge, with a vertical clearance of 50m, spans Lysefjorden, about 2 miles from the entrance.

2.31 Store Bergsholme (58°56'N., 6°07'E.), with Lille Bergsholme close off its NW side, lies in Lysefjorden, about 2 miles from the entrance. Navigable channels pass E of the larger islet and W of the smaller islet. A depth of 11.9m is available through the E channel; greater depths can be found in the western channel, but a 15.1m bank, which lies within 183m NW of Lille Bergsholme, should be avoided. An overhead cable, with a clearance of 27m, spans the channel between Store Bergsholme and the coast to the NE.

A concrete quay, with depths alongside of up to 4m, is located at Oanes. A quay at Eidane, about 4 miles NE of Oanes, has depths up to 5m alongside. A quay at Bratteli, on the NW shore of the fjord 4.5 miles further NE, has depths from 6 to 9m alongside.

Kvassnos Light is shown from the S shore of the fjord in a position about 3 miles NE of Store Bergsholme.

A submarine cable is laid from a position 1.75 miles ENE of Kvassnos Light across the fjord to Sangesand; another cable is laid from the same position for about 7 miles E, close to the S shore.

A light is shown from the N shore of Lysefjorden in a position about 9 miles NE of Store Bergsholme. Kallasteinsgrunn, lying awash close off the N shore about 10 miles NE of Store Bergsholme, is marked by an iron perch.

2.32 Fordesfjorden (59°20'N., 5°23'E.) trends N for about 8 miles from its junction with Austdjupet and Boknaflaeet at the N end of Hovringoy. It penetrates the mainland of the Haugesund peninsula; Fosenoy forms the S part of its W side. The minimum width through most of the fjord is about 0.3 mile, but islets reduce the navigable channel in places to a width of about 0.2 mile. Charted depths in the fairway are ample.

Anchorage.—Anchorage can be taken in Fosnavag, an inlet on the W side of the fjord, about 1 mile NW of Hovringoy. Hellevik, on the W side of the fjord about 1 mile N of Fosnaholme, provides a good anchorage for small vessels.

Leirvagholme, Skarveskjaer, Flogholmane, and several above and below-water rocks are in the S part of Fordesfjorden within 0.5 mile N of the N extremity of Hovringoy.

Fosnaholmen (59°18'N., 5°23'E.) is on the W side of the fairway about 1 mile NNW of Hovringoy. Fosnaflu, a rock with a depth of less than 1.8m and marked by an iron perch, lies about 0.2 mile N of Fosnaholme. Other rocks lie between Fosnaflu and the islet.

Hoyeholmane is on the E side of the fairway about 3 miles N of Fosnaholmen. Leirvagflu, a 3m depth, lies about 183m offshore and 0.15 mile SSE of the southernmost islet. Fjordenflu is a rock marked by an iron perch lying in mid-channel, about 3 miles N of Hoyeholmane.

Many islands, islets and other hazards lie between Fjordenflu and the head of Fordesfjorden.

Royksundviki, on the W side of the fjord about 0.5 mile N of Hellevik, provides good anchorage for small vessels.

2.33 Falkeidflaeet (59°14'N., 5°31'E.), a basin, lies on the NW side of Boknafjorden and is formed by Austre Bokn and Ognoy on the W, the mainland of the Haugesund peninsula on the N, and a chain of off-lying islets on the SE.

Some islands and numerous islets, rocks, and shoals occupy the N part of the basin. General depths through the fairway of Falkeidflaeet are 46 to 92m. A few detached shoal patches lie near the fairway.

The entrance to Falkeidflaeet is between **Nordre Vagaholme** (59°13'N., 5°31'E.) and Flata Rova, a rock at the SW end of the islet chain fronting Falkeidflaeet.

Austreflu, a 3m depth, lies on the SW side of the Falkeidflaeet entrance, in a position about 0.2 mile ESE of the N end of Nordre Vagaholme.

Nautoyflu, a 6.4m depth, is located about 0.2 mile off the W side of Nautoy in a position about 1 mile NE of Nordre Vagaholme. Nautoygrunn, with a depth of 11m, lies about 0.25 mile WNW of this shoal.

Gasaholme (59°15'N., 5°32'E.) and Arvikholmen, together with some smaller islets and rocks, lie on foul ground in the NE part of Falkeidflaeet. Holmeflu lies close off the NE end of Arvikholmen.

Arviksund is the passage between Holmeflu and Haugsneset, a mainland point about 0.3 mile N. It leads into Falkeidflaeet from Hervikfjorden.

Austreflu lies at the edge of foul ground extending about 0.1 mile S from Haugsneset. A detached 10.1m depth lies about 183m N of Holmeflu. An 11m depth lies about the same distance SW of Austreflu.

Krake, with a depth of 5.9m, and Ytre Krake, above water, are located about 0.5 mile and 1 mile, respectively, WNW of Holmeflu. There is an 11m depth about 183m SE of Krake; rocks with depths of 4.6m and 6.4m lie within 0.4 mile of the N shore.

Deep-draft vessels should not use Arviksund because of the above-mentioned dangers.

Caution.—The mainland shore on the N side of Falkeidflaeet is fringed by reefs; depths in the vicinity are very irregular, and undiscovered shoals may exist.

2.34 Sandsfjorden (59°21'N., 6°00'E.) trends in a general NE direction for about 11 miles from its entrance to its junction with Hylsfjorden. Skorpene, about 3 miles within the entrance, divides Sandsfjorden into three channels. The fjord then becomes narrow and winding until it opens again near Naevoy, about 5 miles farther NE. Depths through the fairway of Sandsfjorden are ample.

Tides—Currents.—In Sandsfjorden and in Saudefjorden, farther N, the tidal current (resultant of constant and tidal currents) usually runs outward. At the head of Saudefjorden, the current is strong and runs through the fjords to the narrow channel at **Ytre Asaroy** (59°25'N., 6°08'E.), where it may attain a velocity of 3 to 4 knots; then it passes N of Ottoy toward the W shore, with a branch setting S into Ottoysand, SE of Ottoy, out through the three channels at Skorpene, with about equal strength in all the channels.

Kvitholm (59°23'N., 6°03'E.) is on the W side of the main fairway about 3 miles NE of the entrance to Sandsfjorden. The channel width abreast the islet is about 0.2 mile. Two 7.5m depths are located about 0.2 mile and 0.5 mile SW of Kvitholm.

Skorpene lies about 0.3 mile N and 0.5 mile NW of Kvitholm. The easternmost of the three channels formed by these two islets is the main fairway. Midtholme lies about 0.2 mile NE of Kvitholm and an islet lies about 160m NE of the E Skorpene island; both dangers lie close W of the main fairway.

A 4.5m depth is located about 0.2 mile NW of the western Skorpene island. A rock, marked by an iron perch, lies close S of the 4.5m depth.

A 7m depth, marked by a buoy, lies about 91m N of **Ottoy** (59°24'N., 6°06'E.). A reef extends about 183m S from the shore N of Ottoy toward the fairway.

A light is shown from Foreholmen, which lies on the N side of the fairway about 0.5 mile E of the N extremity of Ottoy.

An above-water rock is located about 183m NW of Foreholmen.

2.35 Sand (59°29'N., 6°15'E.), where there is a quay with depths of 9 to 10m alongside, lies on the N side of the shallow mouth of a river flowing into the E side of the fjord. There are regular ferry services from here to Ropeid and Stavanger.

Omsmallneset, from which a light is shown, is a salient point on the E side of the fjord about 0.7 mile NE of Foreholmen. Between Omsmallneset and Blaskjaer, about 0.1 mile W, Sandsfjorden is at its narrowest and takes an abrupt turn N.

Anchorage.—Small vessels can take anchorage in the N part of the cove off Sand, to avoid a submarine cable in the S part, in 25m, clay.

Leirvik, on the W side of the fjord about 0.3 mile N of the entrance to Sandsfjorden, is a secure anchorage for small vessels except during E winds. It has a quay, with 2 to 5m alongside. Tveitavik, about 2 miles farther NNE, is exposed to the S. Small vessels can anchor on either side of a promontory at the head of the bay. There is a quay, with depths of 2 to 5m alongside.

Vatlandsvag, about 2 miles further NNE, has a qua, with depths of 3 to 12m alongside.

Jelsafjorden (59°19'N., 6°02'E.) trends E from Nedstrandsfjorden to Ersfjorden and is deep and clear throughout. Jelsahunden, marked by an iron perch, lies about 91m off the W entrance to **Jelsavag** (59°20'N., 6°02'E.), on the N side of Jelsafjorden. Jelsa, on the NE side of a bight close W of Jelsavag, has a quay with a depth of 5m on one side. Fuel oil and water are available.

Anchorage.—Small vessels can take good anchorage within Jelsavag.

2.36 Okstrafjorden (59°20'N., 6°06'E.) trends N from its entrance for about 2 miles to the entrance of Lindevik, where it becomes very narrow. It then continues NNE for 1 mile to its head. North of Lindevik, the narrow channel is shallow, restricted by rocks, and icebound in winter. In the lower narrows off Holenes, about 1 mile from the fjord entrance, tidal currents may often set strongly.

Charted depths in the fairway as far as Lindevik entrance are 40 to 82m. Some of the dangers in the fjord are marked by iron perches. The lower narrows, for a distance of about 0.5 mile, is about 91m wide.

An overhead cable, with a clearance of 15m, crosses the narrow inner part of Okstrafjorden.

The **Josenfjorden** (59°15'N., 6°10'E.) entrance is between the SW extremity of Josneset and a point about 1 mile SE. The fjord trends NE and E for about 14 miles and is deep and free from dangers throughout. Within about 2 miles of its head, it is narrow. The land on either side of the fjord is very high; on the S side it is very steep.

Anchorage.—The anchorages in Josenfjorden are suitable only for vessels with local knowledge.

2.37 The entrance to **Ersfjorden** (59°19'N., 6°08'E.) lies between Lyngneset, a projection at the NW end of Josneset, and Landsnes, about 0.5 mile N. Ersfjorden trends E for about 5 miles to Kileneset, has a minimum width of about 0.3 mile, and is deep and free from dangers in the fairway. The NW side

of Landsnes is foul for about 183m offshore.

Tyssefjorden (59°21'N., 6°14'E.) is a narrow branch trending NNW from the E end of Ersfjorden for about 3 miles. The fairway is deep and clear, but is usually icebound in winter. A bridge with a vertical clearance of 23m spans the inlet entrance. The numerous anchorages in Tyssefjorden are only suitable for small vessels with local knowledge.

Hylsfjorden (59°31'N., 6°16'E.), from its junction with Sandsfjorden and Saudefjorden, trends ENE for about 10.75 miles to its head. It is deep and free from dangers in the fairway. Anchorages for small vessels with local knowledge are available in several places within the fjord.

2.38 Saudefjorden (Saudafjorden) (59°33'N., 6°17'E.) trends NNE for about 8 miles from its junction with Sandsfjorden and Hylsfjorden. The fjord is deep and free from dangers in the fairway.

In winter, Saudefjorden is icebound from its head S to Soland, which is on the W side about 4 miles NNE of the entrance.

A light is shown from Asneset, on the W side of the fjord, about 1 mile N of the entrance. A quay located in a cove S of Asneset has depths of 6m alongside.

A light is shown from **Ramsnes** (59°38'N., 6°20'E.), a point on the E shore, about 7 miles NNE of the entrance.

A light is shown from Saunes, on the N side of the fjord, about 1 mile N of Ramsnes.

Shoal water extends up to 0.2 mile offshore in places along the N shore of the fjord NE of Saunes. A buoy marks a sand and gravel bank at the mouth of a river.

Ekkjegrunn, with a depth of about 1.8m and marked by a lighted beacon, lies 0.2 mile WNW of Hesthamaren, a point on the E side of the head of Saudefjorden, about 1 mile E of Saunes. Several buoys also mark this shoal.

Saudasjoen is on the NW side of the head of the fjord. It has a concrete pier, 87m long, with a depth of over 9.1m alongside.

Two other piers, one 37m long and the other 46m long, have depths from 3 to 5.9m alongside.

2.39 Sauda (59°39'N., 6°21'E.) lies at the mouths of two rivers. There is an import quay, about 252m, long with depths of 6 to 11m alongside. The export quay E of it, is 112m long, with depths of 8 to 9m alongside. The public quays have depths from 5 to 6m alongside.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 6, 9, and 16
2. Telephone: 47-52-782585
3. Facsimile: 47-52-781588

Anchorage.—At the head of the fjord, vessels can anchor off Saudasjoen, in 11 to 20m, and off Sauda, in 40 to 50m, clay.

Caution.—Vessels going alongside the quays at Sauda must exercise caution because of the strong currents from the rivers.

Careful attention should be paid to wind direction.

2.40 Vindafjorden (59°20'N., 5°56'E.) trends NNW from its entrance for about 6 miles to Krossfjorden, a basin formed by the junction of four separate fjord arms. The E arm, under the name of Vindafjorden, leads ENE for about 9 miles.

From Krossfjorden, Sandeidfjorden trends NNW for about 5 miles, and Yrkefjorden trends SW for about 7 miles.

Vatsfjorden extends NNW for about 3 miles from about the middle of the N side of Yrkefjorden.

There are few good harbors in Vindafjorden and its connecting fjords to the N, due to the generally steep-to shoreline.

Ice.—Vindafjorden is usually free from ice. Ice sometimes forms in Sandeidfjorden, but seldom lasts very long.

Vatsfjorden and the head of Yrkefjorden may be icebound for several months continuously.

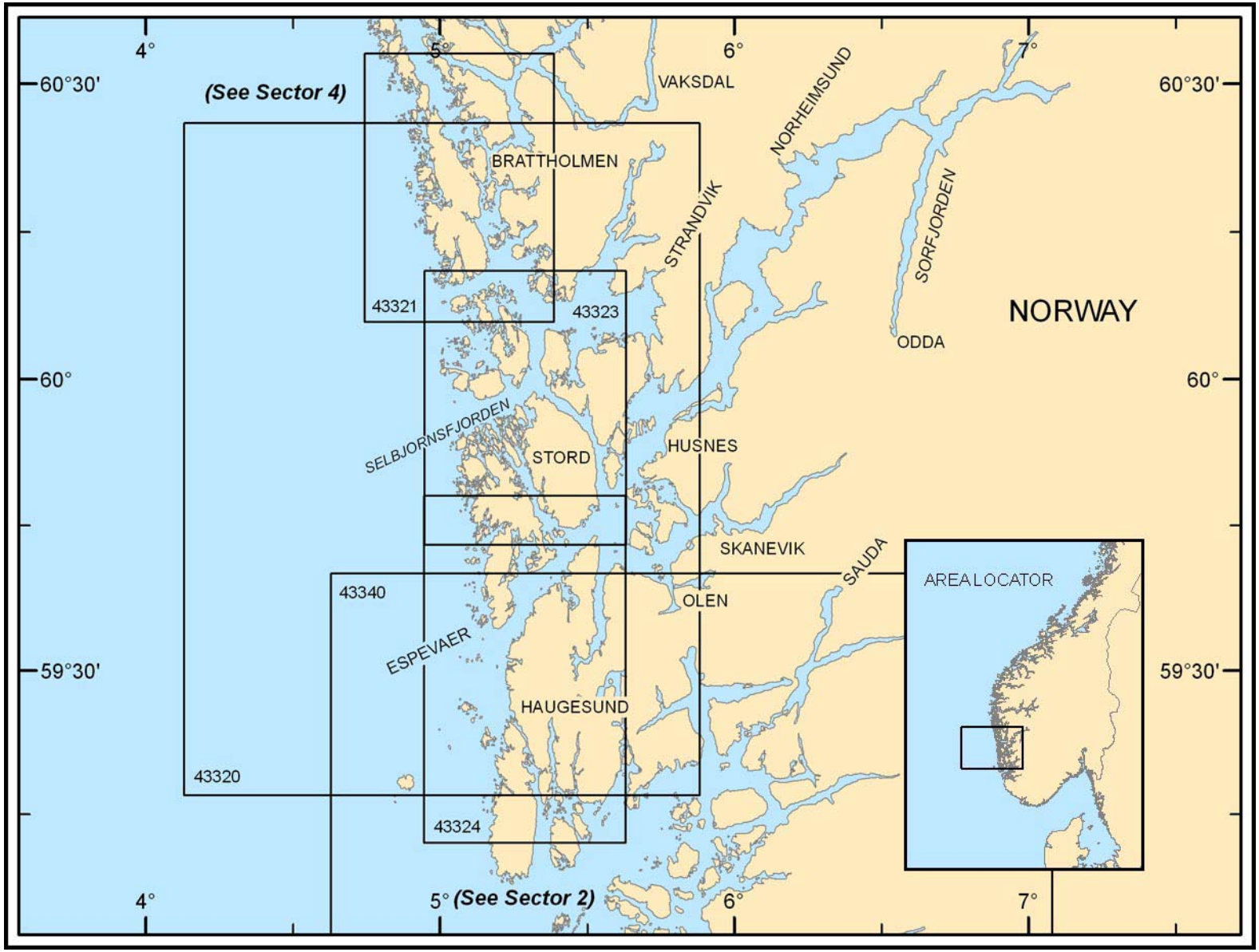
A light is shown from **Skjervheim** (59°28'N., 5°45'E.) in a position on the E shore of Vatsfjorden about 2 miles NNW of the entrance.

Flatskjaerbaen, at the S end of a reef on the E side of the Vatsfjorden entrance, is marked by an iron beacon. Forholme is a small islet at the N end of the reef.

A quay, with depths of 3 to 6m alongside, is located at Vikedal on the E shore of Sandeidfjorden.

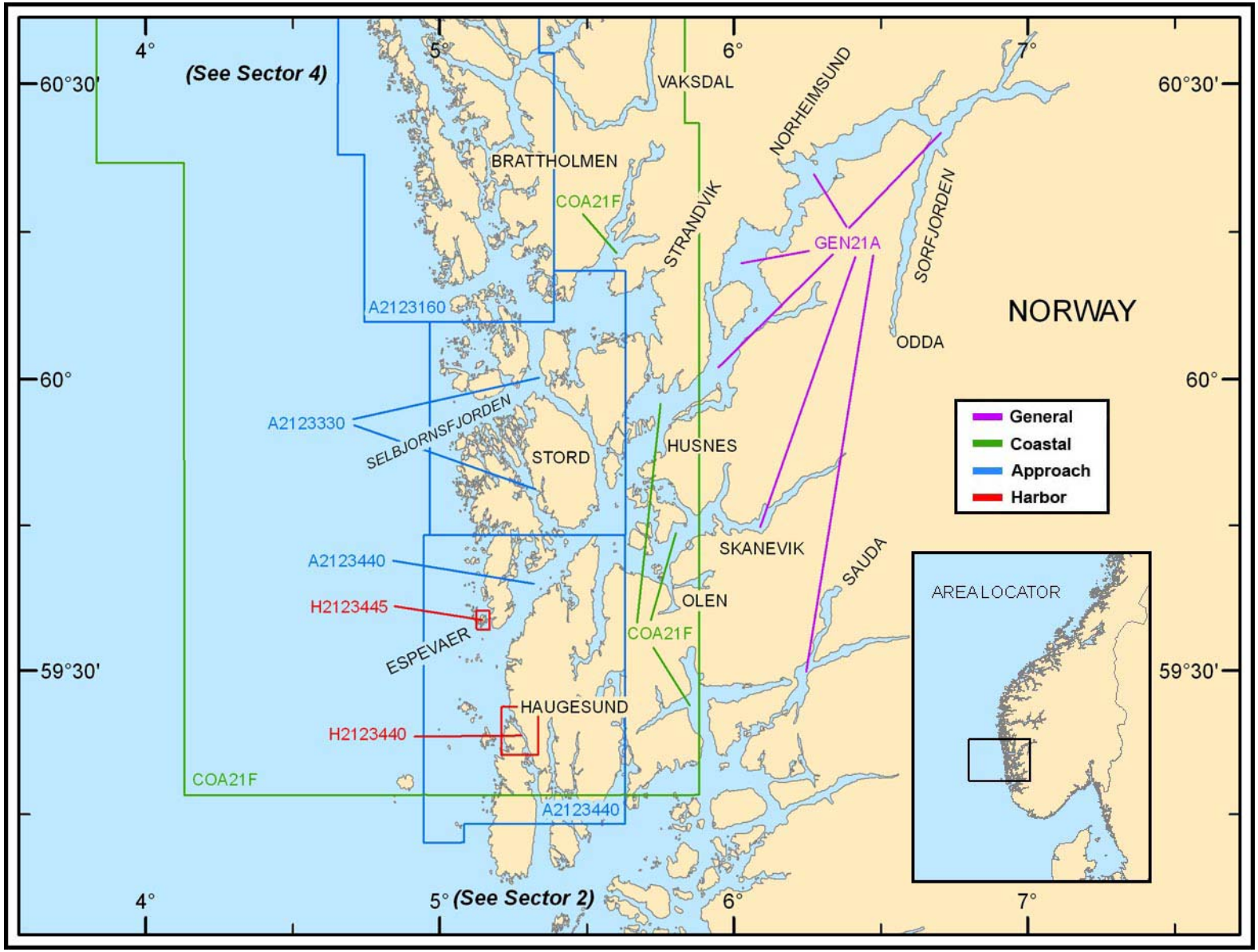
A submarine cable is laid in Sandeidfjorden between Ilsvag and Sandeid at the head of the fjord.

An overhead cable, with a vertical clearance of 18m, crosses Yrkefjorden about 0.2 mile from its head.



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

SECTOR **3** — CHART INFORMATION



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SECTOR 3 — DNC LIBRARY INFORMATION

SECTOR 3

NORWAY—SKUDENESFJORDEN TO KORSFJORDEN

Plan.—This sector describes the outer coast between Skudenesfjorden and Korsfjorden, and then the inner route and adjacent inlets between these two major fjords. The arrangement is N, starting from Getungane, two islets directly S of Karmoya on the N shore of Skudensfjorden, and Store Marstein, an islet on the S side of Korsfjorden.

General Remarks

3.1 Winds—Weather.—The prevailing winds on the W and S coasts of Norway reflect the average pressure distribution and its seasonal changes. With the shift from high pressure over S Norway in winter to low pressure in summer, the winds on the W coast change from S in winter to N in summer. The prevalence of winds from any one direction is not in evidence more than 40 per cent of the time. The more usual situation is one of winds induced by a passing cyclone with shifting directions and velocities.

Within the fjords and along the very indented coast line the wind is usually widely different from that in the open sea, owing to land and sea breezes and topographical effects.

Because of the mountainous nature of the coast any wind blowing from a direction between S and WSW is deflected to blow as a S wind on the coast, and any wind blowing between NW and N is deflected to blow as a N wind. The winds in W Norway therefore have a tendency to blow across the mouth of the fjords. The speed of the wind also increases outward from the coast to a distance of as much as 150 miles.

There is a lot of turbulence along the Norwegian coast when winds are fresh or strong, due to the broken country. Gales occur very frequently over this area when deep depressions are moving NE between the British Isles and Iceland, under which condition a very steep gradient is apt to develop all along the W seaboard of Norway, producing strong S winds. This very steep gradient at times extends 100 to 150 miles out to sea from the coast.

Under these conditions the coast is swept by violent winds which penetrate into the more sheltered fjords with great turbulence though with reduced velocity. Spells of NW gales occur on the W coast when a suitable gradient is established by pressure falling over Scandinavia. Such gales are apt to persist but the gradient on some occasions falls off suddenly to the E of the Shetlands.

Weather conditions in this coastal sector are changeable. The prevailing winds are E from October to March and W from April to September. In winter the heaviest gale occur with SW winds and are usually accompanied by rain or snow. Northwest winds are, as a rule, dry both in summer and winter.

The most rainy months are generally October and November. Snow appears near the coast in December and in places remains until March.

Fog occurs off the coast in summer for an average period of five days each month.

Ice.—Ice in this area offers no hindrance to navigation and is present only in the upper reaches of the fjords along the coast. Floating ice is met in spring, when small masses, which are soon dispersed, may drift out of Oslofjorden and Kattegat, and occasionally from some of the larger fjords to the W and N of Lindesnes.

Tides—Currents.—North of Skudenesfjorden entrance the current sets N with a decreasing velocity. An average velocity of about 2 knots is maintained about 5 miles offshore as far N as Breidsundet.

The velocity decreases both toward the coast and seaward, and about 15 miles offshore is not more than about 0.2 knots.

The decrease seaward may be caused by a S current E of the Shetland Islands. These two currents form large weak eddies, rotating counterclockwise and centered 30 to 40 miles offshore.

Tidal currents between Skudenesfjorden entrance and Korsfjorden entrance the tidal currents about 5 miles offshore usually sets N. With long periods of SW and W gales, the set is N and fairly strong, especially during the rising tide (beginning about 5 hours 45 minutes after HW at Bergen).

Closer inshore, the tidal current component is more appreciable, resulting in a N set during the rising tide and a S set during the falling tide (beginning about 30 minutes before the HW at Bergen).

The tidal current usually sets outward from the entrances of the large fjords.

In Stokksund and Nyleid the tidal currents set N with the rising tide and S with the falling tide. Before the onset of unsettled weather, however, there may be a set in one direction, either N or S, for a considerable period of time.

In Alfjorden the tidal currents may be very strong, but there may also be tidal currents setting in opposite directions in the outer and inner parts of the fjord. The tidal currents near the land usually differ in direction from that in the middle of the fjord.

In Langenuen there is nearly always a N setting tidal current, although occasionally in fine weather it sets S. Current velocities of 4 to 5 knots during strong S winds have been reported off Skor Light. Dangerous eddies near the shores of Langenuen have also been reported. There is usually an ebb tidal current in Hardangerfjorden, however, there may be an incoming current during W gales at sea, but only in the outer part. The outgoing tidal currents may be very strong in Bondesundet W of Varaldsoy, off Ljones in Hissfjorden, and off Krosnes at the entrance of Sorfjorden.

Off Simadal, at the head of Eidfjorden, there is usually a weak outgoing current, which is somewhat increased during and after periods of heavy rains and after the snow melts, but this current may cease with long continued SW winds.

In Lokksundet, the channel connecting Hardangerfjorden with Bjornefjorden the spring velocity of the current is nowhere more than 0.3 knot. With onshore winds at sea, there is a continuous N tidal current in Lokkfsundet.

Tides in the North Sea are always semidiurnal, with very lit-

tle diurnal inequality between the two HW or the two LW of each tidal day.

The tides progress into the North Sea from the Atlantic Ocean, between the Shetland Islands and Norway. Within the North Sea, HW progresses counterclockwise about a nodal point off the S coast of Norway, moving S in the North Sea and W along the S coast of Norway between Kristiansand and the 6th meridian. Along the W coast of Norway the progression is N to about 60° N.; N of this the progression is E.

Along the W coat of Norway, tide ranges gradually increase toward the N, from 0.2m at Mandal to 0.91m at Bergen.

Generally, along the W coast of Norway, the influence of wind on the tide level is small. This is probably due to the scattering effect of offshore island and the relatively deep water close inshore.

Pilotage.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Caution.—A permanently-active firing practice area lies in the SW and W approaches to Korsfjorden. For further information, see Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

In winter, falling snow is the greatest danger. The land is often completely obscured in snow. In Indreleia, when a snowstorm threatens, careful bearing of the nearest anchorage should be taken to enable the vessel to seek shelter. Because of the tidal current, it.is dangerous to heave-to.

Skudensfjorden to Korsfjorden

3.2 The coast between Geitungane, two islets directly S of Karmoya on the N shore of Skudensfjorden, to about 60 miles N to Store Marstein, an islet W of Stora Kalsoy on the S side of the entrance to Korsfjorden, consists of several large islands, fringed with islets and rocks. The large islands include Karmoy, Bomlo, and Selbjornen. There are numerous detached dangers along the irregular outer coast.

Bomlafjorden and Selbjornsfjorden are two deep inlets which are entered from seaward and lead into the inner network of fjords.

Hardangerfjorden is a continuation of Bomlafjorden and extends, under various names, about 70 miles in a NE direction from its entrance. Indreleia (Inner Lead), comprising all of the inner channels leading N toward Bergen, is entered from Skudenesfjorden through Karmsundet, the passage on the E side of Karmoy.

Caution.—Marine farms exist within the area of the inner fjord of Bomlafjorden near Toflekalven. They may not all be shown individually and their positions change frequently. Marine farms may be marked by lighted or unlit buoys or beacons. Mariners are advised to avoid these structures and associated moorings.

North of Skudenesfjorden, the characteristic features of the Norwegian coast begin gradually to appear; the islands increase in size and number, and the mountains attain a greater elevation, but there are as yet no traces of the bold, striking outlines and savage grandeur which distinguish the coastal scenery N of Trondheim.

The entrances of Skudenesfjorden and Bomlafjorden are conspicuous from offshore. Although, when sailing toward Bomlafjorden, the elevation of the land along the coast decreases in height, when entering Bomlafjorden in clear weather, the Hardanger Mountains are easily visible.

An imaginary line drawn through the outermost islands, islets, and dangers fronting the mainland between the Bomlafjorden entrance and the Korsfjorden entrance runs irregularly, but approximately N for about 35 miles.

Selbjornsfjorden is entered about 12 miles S of Korsfjorden. These last two fjords are considered the most important N fjords of this section. They are the principal S approaches to Bergen.

The Outer Coast—Off-lying Islets and Dangers

3.3 **Beryl Oil Field** (59°33'N., 1°32'E.) is situated about 103 miles WNW of Utsira. There is a production platform with an adjacent flare structure linked to it by a bridge. SPM tanker loading platforms stand close NE and SE of the platform.

Ness Oil Field, Bruce Gas Field, and Linnhe Oil Field lie 4 miles W, 9 miles N, and 9 miles NE, respectively, of Beryl Oil Field.

Heimdal Gas Field (59°35'N., 2°15'E.) lies 20 miles E of Beryl Oil Field; gas pipelines, which may best be seen on the chart, extend S and SSW from it.

Frigg Gas Field (59°53'N., 2°04'E.) is situated about 90 miles W of Slatteroy and consists of a complex of platforms.

A treatment and compression platform stands in the field. Close W of it and linked to it by a bridge, stands a treatment platform. A platform containing living quarters stands close SSE of the treatment platform and is linked to it by a bridge.

A drilling platform, a flare structure, a steel platform, and a disused drilling platform stand close SSW, close W, close NNE, and close ESE, respectively, of the treatment and compression platform. Gas pipelines, which may best be seen on the chart, extend N, NE, and SW from the field.

Ringhorne Field (59°16'N., 2°27'E.), marked by a lighted platform, is connected by a submarine pipeline to a storage vessel moored about 5 miles SSW.

Northeast Frigg Gas Field and East Frigg Gas Field lie 8 miles NE and 9 miles ENE, respectively, of Frigg Gas Field.

For oil and gas fields N of the above, see Sector 4. For oil and gas fields S of the above, see Sector 2 and Pub. 141, Sailing Directions (Enroute) Scotland.

3.4 **Utsira** (59°18'N., 4°53'E.), 71m high, lies about 9 miles off the W coast of Karmoy and, because of its isolated position, is conspicuous. Utsira is inhabited; during the spring herring fishing season numerous fishing vessels visit the island. A light is shown from a prominent light tower, 13m high, standing on the W part of the island.

Lights are shown from both sides of a sound that indents the SE side of Utsira close NW of Beiningen, a small islet. A light is shown from a rock close E of Beiningen.

Lausingen is the southernmost islet in the Utsira group and is located about 2 miles SSW of the S extremity of Utsira. This islet is low and foul on all sides. Vestreflu, a 5m depth, and Lausingbaen, a 2m depth, lie about 0.1 mile SW and 0.2 mile N, respectively, of Lausingen. Skallen, a 14m depth, lies about 0.6 mile SE of Lausingen.

Spannholmane (59°17'N., 4°51'E.), a group of islets, is located about 0.5 mile N of Lausingen. Holmegrunka is an 11m depth, about 0.2 mile N of Spannholmane.

Vindballen, an above-water rock, and Vindballflu, with a depth of less than 1.8m, lie within 0.3 mile SW of Beiningen. Lille Seiskjaer, partly above-water, lies about 0.3 mile SSE of Beiningen. Skarholmflu, a 4m shoal, is located 0.25 mile off the E extremity of Utsira. All other charted dangers near Utsira lie within 0.2 mile offshore.

The two harbors in Utsira are Tuavag and Nordvikvag, on its S side and N side, respectively. They are available only to small vessels with local knowledge.

Tuavag provides anchorage, in a depth of 17m. A mole, near the head of the cove, forms a boat harbor which has depths of 1.8 to 7.6m. In the entrance to the boat harbor, there are depths of 4.9 to 5.8m. A quay has depths of 4 to 5m alongside.

Nordvikvag is free from dangers in the fairway and affords anchorage, with good holding ground, in depths of 6 to 17m. Two quays have depths of up to 5m.

Ferkingstadoyane (59°14'N., 5°04'E.), a group of comparatively high islets, lies nearly 3 miles W of Ferkingstadneset, which is on the W coast of Karmoy, about 5 miles N of Jarsteinen. The islets are unoccupied, but are frequented during the fishing season by lobster fishermen. There is no harbor in the group. Fringing rocks and shoals, some of which are awash, lie within 0.25 mile of some of the islets.

Urter (59°22'N., 5°02'E.) lies with its S end about 4 miles NE of Utsira. It includes the small islet of Urter and a number of islets and above and below-water rocks spread over an area about 2 miles long, N and S.

The Urter group is uninhabited, but is visited by fishermen during the fishing season. On Urter, there is a building for their use. There are no harbors in the group.

All the remaining islets and dangers along the coast between Geitungane and Korsfjorden entrance lie within 6 miles W of the larger islands forming this coast.

Skudensfjorden to Bomlafjorden

3.5 The coast between Skudenesfjorden and Bomlafjorden, the next N large fjord which leads in from seaward, is formed by the W coasts of Karmoy. It is part of the Haugesund peninsula. This peninsula is indented by smaller fjords, bays, and inlets, and is separated from Karmoy by Karmsundet, which forms the S reach of Indreleia.

The irregular coast of Karmoy is fringed by close-lying islets and dangers, which extend as far as 2.5 miles offshore. About 10 miles N and NW of Karmoy, in the seaward approaches to Haugesund and Bomlafjorden, there are groups of islets and numerous dangerous rocks.

Hills in the SE part of Karmoy are 61 to 79m high and are rugged. The beaches up to Veavagen, a distance N of about 10 miles, are composed mainly of white sand and rocks.

Sandvehamn (59°11'N., 5°11'E.) is a small harbor sheltered by two sets of breakwaters. Anchorage is available for small vessels at Sandvehamn only during good weather. Local knowledge is required before attempting to anchor in this area.

Ferkingstadvag (59°14'N., 5°11'E.) is a good fishing harbor entered N of a short mole. It has a dredged depth of 4m and has quays with mooring rings. Fuel oil and fresh water can be supplied. Foul ground, with some above-water rocks, extends up to 0.2 mile offshore NW from the S entrance point of Ferkingstadvag.

3.6 **Akrehamn** (59°16'N., 5°11'E.), a harbor for small vessels and fishing boats, is on the W shore of Karmoy, midway S of Veavagen.

The approach to Akrehamn lies between the coast at the Ferkingstadvag entrance and Maroy, which lies close offshore about 3 miles N. The approach is encumbered with numerous dangers extending up to 1.5 miles offshore.

The islets forming the harbor are joined by causeways and moles, leaving an opening from the S which is entered close E of a short mole extending SE from Mortholme. There are several approaches leading in among the outer dangers, but local knowledge is required. Buoys and perches mark the channels. The inner harbor has been dredged to a depth of 4m.

Svortingen and Ryvingen, the outermost islets in the near approach to Akrehamn, are located about 1 mile WNW and 1.5 miles NNW, respectively, of Akrehamn. Both islets are dark colored and are easily seen against the beach's white sand. Svortingflu, a 9m depth, lies about 0.5 mile WNW of Svortingen.

3.7 **Veavagen** (59°18'N., 5°13'E.), a narrow inlet, runs SE for about 2.25 miles from its entrance between Kvartnesholme, about 2 miles NE of Maroy, and Veavagneset, on Karmoy about 0.2 mile farther NE. A light is shown from Veavagneset. Several islets and rocks, some marked by buoys and iron perches, lie on a foul ground area W of the entrance to Veavagen.

Veavagen

The approaches to Veavagen within 1.5 miles SW, W, and NW of Kvartnesholme are obstructed by numerous islets and reefs, among which there are several channels. Only the N channel, leading in between the NE side of Kvitingane and Meldrane, is recommended.

Salvoy, Dyrholme, and Kavholme lie in the foul area SW, W, and NW, respectively, of Kvartnesholme. A beacon stands on the NW extremity of Dyrholme.

Beacons marks some of the dangers in the area between Sal-

voy and Maroy; perches marks some of those near the approach channels.

A beacon stands on Svartholme, about 0.5 mile N of the N end of Kavholme. Between the beacon and the islet there is a group of above-water rocks named Kvitingane. A 4m depth, marked by an iron perch, and a 5m depth, marked by a buoy, lie about 0.2 mile WNW and 0.3 mile NNW, respectively, of Svartholme.

Lamholme (59°20'N., 5°12'E.) is located in a foul bight about 1 mile NNE of Svartholme. Rocks lie up to 0.2 mile SW of the islet. Meldrane, an above-water rock, is the outermost danger in this direction. Stroka, with a depth of 15m, lies about 0.3 mile NW of Lamholme on the N side of the entrance to Veavagen.

Breakwaters extend from each shore in a position about 1 mile SE of its entrance to Veavagen. The space between heads is about 60m. A light is shown on each side.

Anchorage.—Anchorage can be taken in Veavagen, in a charted depth of 23.8m, with a mud and sand bottom, about 1 mile SSE of the entrance. There are several other anchorages on both sides of the inlet.

Caution.—A submarine pipeline crosses the head of Veavagen N of **Brekke** (59°17'N., 5°16'E.). It then extends NW for about 2 miles, close to the NE shore of the inlet.

Gas pipelines extend seaward from a terminal located close to the N end of the entrance to Veavagen.

3.8 **Feoy** (59°23'N., 5°10'E.), an inhabited group of islands and islets, lies within 2.5 miles of the W side of the N part of Karmoy. Foynfjorden lies between Feoy and Karmoy.

Most of the islets and islands are close to one another. Some of the narrow channels that separate the islands are navigable by small vessels. Within and on the outer edge of the group, there are numerous smaller islets, rocks, and other dangers. Perches, beacons, and buoys mark some of the dangers near the channels.

Foynfjorden (59°25'N., 5°11'E.) has a depth of more than 14m in its fairway; some of the dangers on both sides are marked by perches and buoys. It provides a navigable channel leading N to the seaward approaches to Haugesund.

3.9 The approach to Haugesund leads in among the concentration of islets and rocks lying within 2 miles NW and N of **Osnesgavlen** (59°25'N., 5°14'E.), the N extremity of Karmoy. Haraldstotta, a conspicuous red granite obelisk, stands on the mainland about 1 mile NNE of Osnesgavlen.

The port of Haugesund is entered by either one of two channels which are formed at the N end of Karmsund by a chain of islets extending SSE from **Sorhaugoy** (59°25'N., 5°14'E.).

Vestre Karmsund, the SW and principal channel, lies between these islets and the N end of Karmoy at Osnesgavlen. It is approached directly through the outer buoyed channel.

Vibrandsoysund, the NE channel, leads in between the above-mentioned islet chain and Killingoy and Hasseloy.

Pilotage.—Pilotage is compulsory. Pilots can be obtained

Tides—Currents.—The tidal current turns regularly 3 hours before and 3 hours after HW, so that at about HW the current is setting with its greatest velocity to the S; at LW the current is setting with its greatest velocity to the N. With strong, continuous N winds, the tidal current may set continuously S and, sim-

from Kvitsoy.

From the vicinity of the N entrance to Haugesund, the mainland coast trends in a general N direction for about 6 miles to Ryvarden, the S entrance point of Bomlafjorden.

Four islet and rock-encumbered bays and a few small coves indent the coastline. Numerous islets, shoals, and foul patches front this coastal stretch, most of them lying in the seaward approach to Bomlafjorden, where they form the N side of Sletto.

Sletto is an open stretch of sea NW of Haugesund. The depths in the area are variable, from shoals with depths of 2m to places as deep as approximately 250m.

The area is relatively narrow, and the great variations in depth cause extremely turbulent and choppy seas when waves come in from the SW to NW. The conditions become even worse when the tidal current runs against the waves.

Smorsundnes (59°30'N., 5°14'E.), marked by a beacon, is located on the mainland about 4 miles N of the N entrance to Haugesund.

Smorsundholme lies close NE of this point and is separated from Trettoy, NE of it, by a narrow channel named Smorsund. Viksefjorden is joined to the SE end of Smorsund by the narrow Straumen, which has depths of 0.9m in places.

Molstrevag is entered between **Langeneset** (59°31'N., 5°14'E.) and a point about 0.3 mile farther N. The inner part of Molstrevag is sheltered, but the entrance channels are very narrow. Some of the rocks in the bay are marked by iron perches. Among several quays at Molstrevag, the largest has depths of 5 to 7m alongside.

Anchorage.—Anchorage can be taken in Molstrevag, in 16.5m, sand bottom. The approach channels to this anchorage are narrow. Smaller vessels anchor farther in.

Haugesund (59°25'N., 5°16'E.)

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3.10 Haugesund (Karmsund) was originally a fishing port, it consists of six municipalities with Karmsund being the largest. Shipping and industry have gradually increased its importance. It has an expanding ship building and ship repairing capability for conventional vessels, supply vessels, and offshore structures.

Haugesund's harbor facilities extend from the mainland to the adjacent islets of Risoy, Hasseloy, and Killingoy, and continuing across Karmsundet to Karmoy.

Port of Haugesund Home Page

http://www.karmsund-havn.no

Winds—Weather.—The weather at Haugesund is changeable, which is characteristic of the W coast of Norway. Cargo operations are not interfered with. The port is well sheltered from all winds and is ice free. Winter storms are frequent and may be from any quarter.

ilarly, with strong, continuous S winds, it may set continuously N.

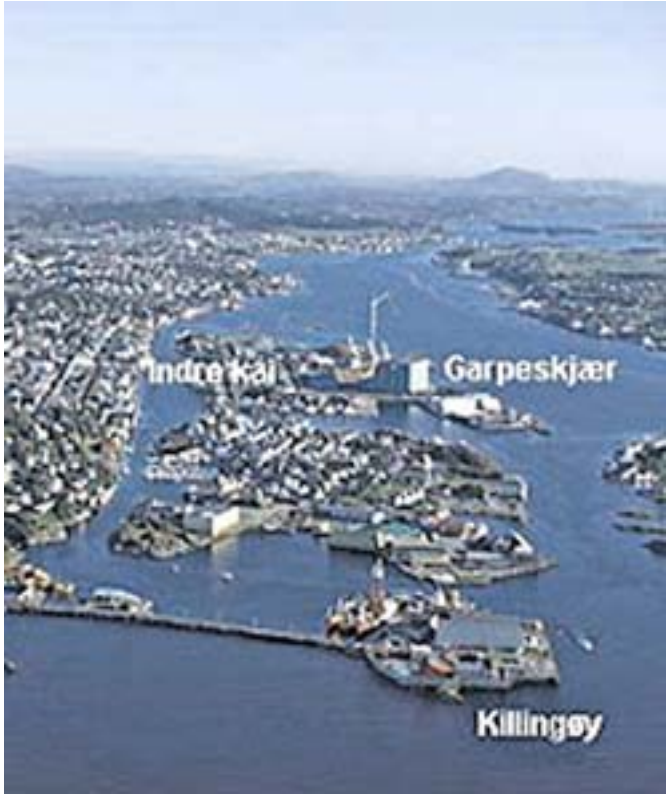
The tidal currents attain their maximum velocity through Vibrandsoysund, off Osnesgavlen in Vestre Karmsund, and in Salhusstraummen. In the latter channel, the current may attain

Panoramic view of Smedasundet—Inner Harbor of Haugesund

Port of Karmsund Area—Berthing Information			
Berth Name	**Length**	**Depth**	**Remarks**
Karmsund Container Terminal			
KCT1 Berth	270m	10.0m	Containers. Maximum vessel size of 40,000 dwt.
Veldeoyene Ro-Ro Berth	—	10.0m	Ro-ro.
Langevag-Bomio Skipservice AS			
Langevag Quay	117m	5.5-11.7m	Vehicle equiptment.
Espervik			
Amrock Granite Terminal	100m	10.0m	Granite. Maximum vessel size of 25,000 dwt.
Garpeskjaerskaien			
Ferry Berth	11m	10.5m	Ro-ro and passengers.
East Quay	260m	7.1m	Cruise vessels with a maximum loa of 220m.
West Quay	420m	9.5m	Cruise vessels with a maximum loa of 362m.
Haavik			
General Cargo Berth	75m	—	General cargo.
Ro-Ro Berth	121m	—	Ro-ro ramp 27.5m in length.
Alumina Bulk Berth	270m	11.0m	Aluminum. Maximum vessel size of 147,000 dwt.
Killingoy			
No. 1	240m	10.0m	Subsea support.
No. 2	160m	15.2m	Subsea support.
Kopervik			
Kopervik Quay	291	5.2-14.5	General cargo.
Akrehamn			
Akrehamn Tralboteri AS Quay	114m	3.0-4.0m	—
Concrete Quay	22m	7.1	Concrete.
Forsevik			
Forsevik Quay	43m	5.5-9.7m	—
Norcem Karmony			
Cement Berth	23m	—	Cement.

Port of Karmsund Area—Berthing Information			
Berth Name	**Length**	**Depth**	**Remarks**
Norbar Minerals			
NM Berth	78m	—	Dry bulk.
Karsmund Maritime AS			
Concrete Quay	75m	9.3-11.9m	General cargo.
Gismarvik Harbor			
Gismarvik Berth	80m	16.5m	General cargo.
Norscamp Karmony			
Norscamp Berth	50	—	Scrap metal.
Karsmund Havn			
Export quay (KFXP)	75m	10.0m	General, bulk, and offshore cargo.
Freezer quay (KFRY)	98m	8.0m	General, bulk, container, and offshore cargo.
Husoy			
Husay Quay (HUSO)	120m	9.4m	Public pier with electricity and fresh water.
Koralfisk			
Kony N	52m	8.0m	Fish.
Kony S	51m	8.0m	Fish.
Biomar			
Biomar E Quay	48m	7.0m	Fish.
Biomar W Quay	47m	7.0m	Fish.
Biomar Quay	46m	10.0m	Fish.
Stena Recycling			
Stena Berth	50m	—	Scrap metal.
Arsvagen			
Passenger Berth	—	—	Passenger ferries and ro-ro vessels.
Rubbestadneset			
1	65m	—	Timber.
2	36m	—	Timber.
3	45m	—	Timber.
Herring Oil Factory			
AKNY N	60m	8.0m	Fish oil, meal, and grain.
AKNY W	91m	8.0m	Fish oil, meal, and grain.
Tanker Berths			
Statpipe Gas			
Jetty No.1	80m	13.5m	LNG and LPG. Can accommodate vessels with a maximum loa of 220m and a maximum draft of 12.5m.
Jetty No.2	331m	14.0m	LNG and LPG. Can accommodate vessels with a maxim loa of 275m and a maximum draft of 13.0m.

Port of Karmsund Area—Berthing Information			
Berth Name	**Length**	**Depth**	**Remarks**
Jetty No. 3	61m	10.0m	LNG and LPG. Can accommodate vessels with a maximum loa of 160m and a maximum draft of 9.0m.
Shell			
Shell Berth	75m	—	Petroleum products. Can accommodate vessels up to 20,000 dwt with a maximum loa of 198m.
Stat Oil			
Stat Oil	70m	—	Petroleum products. Can accommodate vessels up to 20,000 dwt with a maximum loa of 168m and a maximum beam of 21.0m.
Lemminkainen			
Asphalt Berth	65m	5.5m	Asphalt.
Hydro Texaco			
Hydro Texaco	—	—	Petroleum products.
Other Berths			
Fishing Tanker Berth	—	—	Bunkering.



Courtesy of Eirik Hustvedt

Haugesund

a velocity of 3 knots, but in Vibrandsoysund it is seldom stronger than 2 knots. Strong winds, as mentioned above, also greatly influence the velocity.

In Smedasund and other parts of the harbor, the velocity is usually about 1 knot. Nowhere do tidal currents affect the normal use of the port.

Courtesy of Eirik Hustvedt

Garpeskjaer

Courtesy of Eirik Hustvedt

Killingoy

Depths—Limitations.—The port of Karmsund in Haugesund consists of more than 100 public berths exceeding 7,400m of quays. There are more than 20 private quays in use with a total length of 1,400m of berthing length. The port itself is divided into several subport regions. Berthing details for the most significant berths are shown in the table titled **Port of Karmsund Area—Berthing Information**.

A bridge, with a vertical clearance of 13.5m, connects Hasseloy with the mainland. Another bridge, with a vertical clearance of 22.5m, joins Risoy with the mainland. Lights are shown from the center of the bridges to indicate the fairway.

There is a lay-up area for rigs and vessels up to 250,000 dwt, in depths of 23 to 40m. It is reported that vessels are generally restricted to a length of 320m and a sailing draft of 10m.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-52-703750
3. Facsimile: 47-52-703769
4. E-mail: havneovakte@karmsund-havn.no

The harbormaster can be contacted by telephone (47-52-703752).

Anchorage.—Vessels can anchor, in 18.3 to 37m, good holding ground, about 0.1 mile off the SW side of Risoy. In this anchorage caution is necessary because farther SW the depths increase suddenly.

Caution.—Submarine cables and pipelines lie in the vicinity E of Haugesund and close N of Karmoy. Mariners are advised not to anchor or trawl in this vicinity.

3.11 Bomlafjorden (59°34'N., 5°14'E.) is entered between **Ryvarden** (59°32'N., 5°14'E.) and Bomlahuk, the S extremity of Bomlo. Bomlafjorden is described along with Indreleia.

Ryvarden Light stands on the N entrance point of Molstrevag.

Ryvarden Light

Gunnarskjersholet (Gunnarskjaershalet) (59°33'N., 5°08'E.) is the name given to the approach leading in from the W to Bomlafjorden. Its fairway is deep and free and has a width of about 0.5.

Raudholmene (59°33'N., 5°09'E.) is a group of islets and rocks on the S side of Gunnarskjersholet, about 2 miles SW of Bomlahuk. Numerous islets, rocks and shoals, best seen on the chart, lie in the vicinity of Raudholmene. Gunnarskjersholet lies about 1 mile NW of Raudholmene.

Directions.—There is no difficulty in approaching Bomlafjorden from seaward by way of Gunnarskjaersholet. Steer for the light structure on Raudholmene on a bearing of about 099° and, when about 0.5 mile from the light, alter course to pass about midway between Raudholmene and Gunnarskjaer. When clear of Raudholmene, alter course E into the fairway of Bomlafjorden.

Caution.—Vessels passing close to **Sveio Broadcasting Station** (59°37'N., 5°19'E.) may experience electronic interference due to the station's electromagnetic fields.

Bomlafjorden to Selbjornsfjorden

3.12 The coast between the seaward entrances of Bomlafjorden and Selbjornsfjorden is irregular. It is formed by the islands of Bomlo, Goddo, and Gissoy, and the many islets, rocks, and shoals in their vicinity.

Bomlafjorden lies between the mainland, on the SE, and the islands of Bomlo, Mosteroy, and Stord, on the NW. From its entrance, the fjord runs NE for about 15 miles to Tittelsnes, where it joins with the inner fjords of Alfjorden, Bjodafjorden, and Klosterfjorden.

Bomlafjorden is a broad, deep channel. Its fairway is free from dangers and is easily navigated. The current at its entrance is usually outgoing, but is incoming in bad weather, even during NE gales.

When passing W of Bomlo, it is advisable to keep well clear of the outer dangers for, although most of them are either visible above-water or are indicated by breakers, they extend some distance seaward; during light winds the flood current frequently sets strongly toward the shore.

Most of Bomlo is moderately high and, as the off-lying islets are much lower, they are not easily distinguished until within a distance of about 10 miles.

Pilotage.—Pilotage is compulsory for most vessels.

Siggja (59°45'N., 5°18'E.), a peak in the N part of Bomlo about 20 miles N of the N end of Karmoy, is visible in clear weather for a distance of about 30 miles. It resembles a pyramid with a rounded top and a broad base. Siggja is normally seen before any other part of Bomlo is visible.

There are numerous anchorages on this coast, some of which would possibly afford shelter to vessels of moderate draft, although the available sources of information generally limit them to small vessels.

3.13 Bomlo (59°40'N., 5°12'E.) is an irregularly-shaped island which is divided into two parts by the Kuleseidkanal, which is described in paragraph 3.16. The W coast of Bomlo is somewhat protected by a number of scattered islet groups, through or E of which there is an inshore channel for small vessels with local knowledge.

Dyrneset (59°37'N., 5°10'E.), a point, is located about 3 miles NNW from the point of Bomlahuk. Four inlets between Dyrneset and Bomlahuk indent the island's coast; Kalavag, Eidesvik, and Roaldsfjorden, the three southernmost inlets, provide anchorages for small vessels with local knowledge, in 7.3 to 12.8m. Iron perches mark some of the dangers on the approach to the anchorage areas.

Dyrnesflu, a 1.8m depth marked by an iron perch, lies 183m offshore in a position about 0.3 mile S of Dyrneset.

Espevaer (59°35'N., 5°09'E.) is the largest islet in the Espevaer group lying within 2 miles NW of Bomlahuk.

Numerous above and below-water rocks lie within and on the edge of the group. Fishing vessels frequent these islets, especially during spring. Only small vessels with local knowledge can enter the group.

3.14 **Nordoyane** (59°36'N., 5°07'E.) is a group of small islets and rocks that lie within about 2 miles NW of the NW extremity of Espevaer; these waters are very foul. Navigation through them should be attempted only by small vessels with local knowledge.

Sonoyosen (59°35'N., 5°07'E.) is the channel between the Espevaer group and Nordoyane. It should not be used during stormy weather or without local knowledge. Iron perches mark some of the dangers near the fairway.

Vikafjorden (59°38'N., 5°11'E.), on the W coast of Bomlo, can be used for anchorage by small vessels, but local knowledge is necessary. Iron perches mark foul ground on the sides of the fjord.

Gissoysund (59°38'N., 5°10'E.), immediately N of Vikafjorden, is a passage between the coast of Bomlo and Nordre Gissoy and Sore Gissoy, the two parts of an off-lying island.

Holsoyane (59°39'N., 5°07'E.) is a group of islets and rocks which lies within 2.3 miles W and WNW of the N extremity of Nordre Gissoy.

3.15 **Grutlefjorden** (59°40'N., 5°10'E.) indents the W coast of Bomlo. Shoal water extends about 0.2 mile from the head of the inlet. Several of the dangers fringing the shores of the inlet are marked by iron perches. A quay at the head of the inlet has depths of 5 to 7m alongside.

Anchorage.—Anchorage can be taken, in 20.1m, on the NW side of Grutlefjorden about 0.3 mile within the entrance.

Stokvik, on the Bomlo coast about 1 mile N of Grutlefjorden, provides anchorage for small vessels in about 5.5m.

Lyklingfjorden (59°42'N., 5°11'E.), which indents the Bomlo coast, can accommodate small vessels with local knowledge. Lyklingfjorden is very foul; iron perches mark some of the dangers.

Store Hiskjo (59°44'N., 5°09'E.), Lille Hiskjo, and numerous other close-lying islets, fringing dangers, and detached rocks lie in a group close off the coast of Bomlo and NW of the entrance to Kuleseidkanal.

The channels between Bomlo and these islands and between Store Hiskjo and Lille Hiskjo are encumbered with dangers, some of which are marked by iron perches. Dangers extend about 0.5 mile offshore from the seaward sides of the islets. Hiskosen is the water area between the SE sides of Store Hiskjo and Lille Hiskjo and the coast of Bomlo.

Anchorage.—Anchorages for small vessels with local knowledge are available in several places in the channels separating Store Hiskjo and Lille Hiskjo and among the adjacent islets.

3.16 The W approach to Kuleseidkanal leads through Hiskosen, then NE through Adnanesosen, the water area between the SE side of Lille Hiskjo and the Bomlo coast, then SE through **Troytarosen** (59°44'N., 5°13'E.), an embankment.

Dyroy (59°45'N., 5°11'E.), with Dyroykalven close S, forms the N side of Adnanesosen. A 2.7m depth extending a short distance S of Dyroykalven is marked by an iron perch.

Hanaskjaer (59°44'N., 5°10'E.), marked by a beacon, is on the NW side of the fairway about 0.3 mile SSE of the S extremity of Lille Hiskjo. Tausastein, awash and marked by an iron beacon, lies on the W side of the fairway at the N end of a shoal in a position about 0.2 mile NNE of Hanaskjaer.

Selvagflu, marked by an iron perch, is on the edge of foul ground extending from Bomlo, on the E side of the fairway about 1 mile E of Tausastein.

Vordnesholmen (59°45'N., 5°13'E.) lies close off the N side of Vordnes on the S side of the channel to Kuleseidkanal.

A 7m depth is located about 0.1 mile WNW of Vordnesholmen. Foul ground, marked by an iron perch, fringes the E side of Vordnes.

Flatholmen is located about 183m NE of Vordnesholmen. Entrance into Troytarosen is made between these two islets.

Kuleseidvag (59°44'N., 5°14'E.) lies SE of Troytarosen and is connected to that basin by a narrow channel between Bomlo, on the NE, and the small islet Straumsholmen, on the SW. A light marks each end of the channel.

Kuleseidkanal leads NNE from Kuleseidvag to Finnasvik, at the NW end of Boroyfjorden. The canal is about 8.8m wide in its narrowest part and 4m deep. A bridge, with a vertical clearance of 13m, spans the canal near its SW end. Vessels with a length of 38m and a draft of 3.6m can use the canal. There is a speed limit of 5 knots in the canal. Lights mark each end of Kuleseidkanal.

The coast from **Storaneset** (59°45'N., 5°08'E.), a projection on the seaward side of Bomlo, to Slatteroy, on the S side of the Selbjornsfjorden entrance about 9 miles N, is formed by the seaward sides of Bomlo, Rogoy, Goddo, Gissoy, and numerous other islets that are near and between these islands and larger islets. Fringing dangers lie up to 1.25 miles off some of the larger islets. A maze of intricate channels leads among the islets into sheltered anchorages for small vessels, but local knowledge is necessary for their navigation.

Beacons and perches mark some of the dangers near the fairways and there are several lights.

3.17 **Melingsvag** (59°47'N., 5°07'E.) (World Port Index No. 23300) is a safe harbor. There are several quays, with depths alongside of 3 to 9m. Fuel oil and fresh water are available.

Two lights, in range 058°, are shown from the SE side of the bay and lead through the fairway of the narrow entrance. Another light is shown from the SW extremity of Litlenesholmen. A beacon stands on Kattholme, on the NW side of the entrance channel. Svelteflu, on the opposite side of the channel, is marked by an iron perch.

Strong onshore winds, especially from S, raise heavy seas in the entrance and close to it.

3.18 Mosterhamn (59°42'N., 5°24'E.) (World Port Index No. 23310) is located at the SE end of Mosteroy on the N side of Bomlafjorden. It is noted for its church, the oldest in Scandinavia, which was built in the 10th century by Olaf Trygvesson. There is a concrete quay, 47m long, with depths alongside from 6.2 to 7.4m. Another quay, which is 19.8m long, has depths from 3.4 to 5.9m alongside.

The outer harbor has anchorage depths of 14.6 to 18.3m, sand and clay, and is provided with mooring rings. South gales send in considerable swell. The best anchorage position is toward the E side of the harbor. Should the wind blow from S, it is better to shift farther inside and anchor, in 11m, abreast the N end of Fyrholme, the islet close NE of Kaninholme, where the vessel will be less exposed to the swell. The inner harbor has a depth of 7.3m, but can only be entered by vessels of very shallow draft.

When entering or leaving Mosterhamn, keep well over toward Kaninholme, as a reef, which is marked by iron perches, extends for some distance from the S shore of the harbor.

Eldoyane (59°45'N., 5°30'E.), a man-made peninsula, extends about 1 mile S from the SE side of Stord. A large shipyard, equipped with cranes of up to 300 tons capacity, and a drydock, which is 325m long and 52m wide, and can accommodate vessels up to 250,000 dwt, is located at Eldoyane.

3.19 Leirvik (59°47'N., 5°31'E.) (World Port Index No. 23340) is a roomy harbor on the SE shore of Stord. It is sheltered from the E by several islets, but is open to the SE.

Depths—Limitations.—The main wharf is 240m long, with depths of 6 to 12m alongside. There is 600m of private quayage, with depths of 5 to 12m alongside. There are facilities for ro-ro vessels and coastal tankers. Vessels up to 160m in length can be handled in the port.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 16
2. Telephone: 47-53-496766
3. Facsimile: 47-53-496768

Anchorage.—Anchorage can be taken, in 40m, sand and clay, in the W part of Leirvik. Caution should be taken to avoid a submarine cable along the N shore.

The entrance to **Fordespollen** (59°39'N., 5°25'E.) lies on the SE side of Bomlafjorden. The fjord extends S from its entrance for about 3 miles and has several side leads. This branch of Bomlafjorden does not freeze over in winter.

Narrow and encumbered channels lead from the SW portion of Fordespollen into Rodspollen.

Depths through the fairway of Fordespollen are ample, but there are nearby dangers, particularly in the SE part of the basin, some of which are marked by iron perches.

As there are rocks and shoals in the vicinity of the anchorages, local knowledge is essential.

3.20 The entrance to **Boroyfjorden** (59°40'N., 5°17'E.) lies on the NW side of Bomlafjorden. From the entrance, the fjord trends N for about 4 miles and has a maximum width, between islands and islets on either side, of about 2 miles. Finnasvik, the head of which is about 5 miles N of the Boroyfjorden entrance, is the largest of a number of bays and inlets which lead off from the main fjord. Kuleseidkanal, previously described in paragraph 3.16, is entered from the NW end of Finnasvik. Fairway depths through Boroyfjorden are ample.

Secure anchorages are located in some of the side bays and inlets. In winter, the N half of Boroyfjorden is sometimes icebound. Only small craft with local knowledge can anchor in Boroyfjorden.

Langestraumen (59°41'N., 5°15'E.), the narrow channel between Bomlo and Straumoy, which leads S into Tjongspollen, has a least fairway depth of 3m and is only navigable at slack water.

Stokksund (59°45'N., 5°23'E.), one of the channels of Indreleia, is formed between the island of Bomlo, on the W, and the island of Stord, on the E. It leads NNW for about 8 miles to a position E of **Store Klakksoy** (59°50'N., 5°16'E.), where it branches. One branch continues NNW for about 7 miles under the name of Nyleid and gives access to the S side of Selbjornsfjorden. The other trends N under the name of **Engesundsleid** (59°52'N., 5°17'E.) and becomes very narrow and shallow in some of its reaches.

The Stokksund-Nyleid route is safe in clear weather, but should not be attempted in thick weather without reliable local knowledge. Large vessels should always use the main route through Langenuen, on the E side of Stord. Langenuen, although about 3 miles longer than the Stokksund-Nyleid route, is wider, deeper, and free from dangers in the fairway.

3.21 Sagvag (59°46'N., 5°23'E.) (World Port Index No. 23330) is located at the head of a small islet-encumbered inlet. The inner channel becomes very narrow but is well marked by lights, buoys, and iron perches. A quay on the S side of Sagvag entrance has a depth of 12m. A shoal, with a depth of 5m, lies near the SW end of the quay. Small vessels with local knowledge can anchor in the inlet.

Langenuen trends N and NW for about 14 miles from its S entrance (59°48'N., 5°34'E.) to its junction with the E end of Selbjornsfjorden. The S part of the passage is formed between Stord, on the W, and the islands of Huglo and Tysnesoy, on the E. Langenuen continues N for an additional 10.5 miles between Selbjornsfjorden and Korsfjorden and leads between the islands of Huftaroy and Reksteren and then across the W end of Bjornafjorden.

The S part of Langenuen narrows to a width of 0.5 mile in places; the least width of the N part is about 1 mile. Great depths prevail in the channel and there are no dangers in the fairway.

Heavy squalls occasionally sweep down from the high land of Stord. In Langenuen, there is nearly always a tidal current setting N, although occasionally in fine weather it sets S.

Dangerous eddies near the shores of Langenuen have also been reported.

Caution.—A permanently-active firing practice area lies in the SW and W approaches to Selbjornsfjorden. For more information, see Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

Selbjornsfjorden to Korsfjorden

3.22 This is the coastal sector between Furen and Store Marstein, an islet on the S side of Korsfjorden entrance about 10 miles N. It includes numerous islets and rocks fronting the islands of Stolmen, Huftaroy, and Hundvaga and is indented by Skoltafjorden, Mokstrafjorden, and Horgefjorden. It has been reported (2008) that the area N of Stolmen Island has new beacons and lights, as well as significant changes to lights and buoyage.

Several good anchorages for both large and small vessels are found in this area. From offshore, the openings of Selbjornsfjorden and Korsfjorden can be distinguished.

Veten (60°01'N., 5°15'E.), a hill in the S part of Huftaroy, should be easily identified. Maksteinen is located about 2 miles N of Fugloy and, because of its isolated position, cannot be mistaken. The lights shown from the islets of Slatteroy and Store Marstein are also good landmarks.

The outermost dangers between Furen and Store Marstein all lie within 1 mile of the nearest islet. Even with a moderate breeze, the sea breaks over them.

Marsteinsbaen (60°08'N., 4°59'E.) lies, awash, about 1 mile WSW of Store Marstein and is unmarked. This is a serious hazard and vessels should navigate with caution when in the area of this shoal. Hillagrunn, about 2 miles WSW of Store Marstein, has a least depth of 21m and only breaks in very heavy weather.

3.23 **Skoltafjorden** (60°02'N., 5°00'E.) is entered from seaward between Skoltane and Englamarskaget and leads E to Stolmasund, Mokstrafjorden, and the N approaches to Bekkjorviksund. Ample depths can be found through the fairway, but there are a few islet groups and some detached dangers lying in mid-channel. Kalsoy, about 2 miles ENE of Skoltane, is the largest islet on the N side of the channel.

Kalsoy is about 30m high. Brorne, a group of above and below-water rocks, lies within 0.2 mile SW of the SW extremity of Kalsoy. The S and E sides of the islet are fringed by foul ground extending 0.15 mile offshore in places, and on the E side, Vardholme, Hestholme, and nearby rocks lie up to 0.3 mile offshore.

Larsaskjaer, a detached above-water rock marked by an iron perch, is located about 0.4 mile E of the SE extremity of Kalsoy. Vessels with local knowledge can use the narrow channel on the NW side of Kalsoy.

3.24 **Fjordaflu** (60°01'N., 5°07'E.), a 5m depth marked by a buoy, lies in the fairway of the N approach to Stolmasund. On the E side of the N approach to Stolmasund, Vadholmane, a group of several small islets and some rocks, lies up to 0.5 mile off the N side of Selbjornen. Iron perches, beacons, and buoys mark some of these rocks and other dangers closer inshore.

Stutaflu, a 4.5m depth marked by a buoy, is in the fairway of the Stolmasund approach in a position about midway between the NE extremity of Stolmen and the SW islet of Vadholmane.

Mokstrafjorden entrance is between the N end of **Mokster** (60°04'N., 5°06'E.) and the S extremity of Horgo, about 1 mile NE. The channel leads in a general SE direction toward the N end of Bekkjorviksund and is connected SW with Skoltafjorden and Stolmasund and NE with Hundvakosen. Ample depths prevail in the fairway.

Hysteinen, a 14m depth, lies in the Mokstrafjorden entrance, about 2 miles WNW of the N extremity of Mokster.

Nordstallen and Midstallen, with depths of 21m and 19m, lie about 0.5 mile ESE and 0.75 mile SE, respectively, of Hysteinen. These depths may break during onshore gales.

Kvitingsflu, a rocky area with a depth of 6m, lies about 0.1 mile S of Midstallen.

Helgeskjaer and other rocks, some above water, lie within 0.3 mile NW of Mokster. Blaasterstallen, a 4.5m depth, lies about 183m N of Mokster.

Stovholme (60°03'N., 5°06'E.) is located close offshore on the E side of the approach to Naustvag, a cove on the SE side of Mokster. Close E of the islet there is a 5.5m depth.

A mole extends N from Stovholme to Mokster; another mole, its outer end marked by a light, extends about 69m SW from Stovholme.

3.25 **Mokstra Groningen** (60°03'N., 5°07'E.) is an islet about 0.5 mile NE of the NE end of Kalsoy. Shoal water, marked by an iron perch, extends NW from Mokstra Groningen to a position about 0.2 mile ESE of the S point of Mokster.

Krabbhausane, a group of above and below-water rocks, lies within 0.3 mile E and ESE of Mokstra Groningen Two below-water rocks at the SW end of the group are each marked by an iron perch. A detached 12m depth lies about 0.3 mile S of the southernmost rock of the Krabbhausane group.

Terneskjaer is located on the NE side of the fjord about 0.2 mile SSE of Horgetrynet, the S point of Horgo. A 4.5m depth lies about 0.2 mile E of the same point.

A number of islets also encumber the sound between the SE side of Hundvaga and the W coast of Huftaroy, to the E. A navigable channel leads N among these latter islets from Mokstrafjorden to Hundvakosen.

Hundvakosen (60°07'N., 5°12'E.), a basin, lies between the E side of Hundvaga and the N end of Huftaroy. There are a number of islets at the N and S ends of Hundvakosen; the NW part is obstructed by above and below-water rocks, some of which are marked by iron perches.

Charted depths through the fairway and in the approach channels are irregular but ample.

Krosshavnsund (60°09'N., 5°12'E.), the channel between Staloy and Krossoy to the W leads N from Hundvakosen to Korsfjorden. Overhead cables, with a minimum vertical clearance of 35m cross, the channel.

3.26 **Horgefjorden** (60°06'N., 5°05'E.), a basin, is formed between the islet Horgo, on the S, and Stora Kalsoy, on the N, and trends E to the W side of Hundvaga. It is connected to Mokstrafjorden by a channel leading S between Hundvaga and Horgo and to Korsfjorden by the channels leading N between Hundvaga and Stora Kalsoy.

Sveinane, the S danger on the N side of the Horgefjorden entrance, lies awash on the S side of Stora Kalsoy. Sverslingen is a small islet on the S side of the entrance about 1 mile SE of Sveinane. Within 91m S of Sverslingen there are numerous rocks, some of which are awash.

On the N side of Horgefjorden, Bergsholme lies at the end of a chain of islets which extends about 1 mile E from the SE end of Stora Kalsoy. Kalsoyvik is formed between the N side of

these islets and the S side of Stora Kalsoy.

Reefs extend about 0.2 mile N and NE from Bergsholme. Smaskjaerflu lies about 0.2 mile NE of Bergsholme. An 11m depth lies about 0.2 mile ESE of Bergsholme.

Anchorage.—Anchorage can be taken in Kalsoyvik, near its head, in 45 to 50m, clay. A detached shoal, with depths of 3 to 3.9m, lies 183m off the S shore of Kalsoyvik nearly 0.5 mile W of Smaskjaerflu. Barnehaughflu, marked by an iron perch, lies close off the N shore NW of this detached shoal. Close SSE of Barnehaughflu, there is a 4m depth.

The best anchorage for small vessels is in the SW part of the bay. Such vessels can also anchor off Hille, in a cove NW of Barnehaughflu; an iron perch marks foul ground on the W side of the cove.

Between Stora Kalsoy and Navoy, the NW part of Hundvaga, are Hidleroy, Nautoy, Spissoy, Kvaloy, some other smaller islets, and numerous rocks. A reef extending about 91m SW from Nautoy is marked by an iron perch.

Bakkasund is the narrow channel between Nautoy and the E side of Stora Kalsoy. Kubbholme and Aerholme lie within 0.3 mile SE of Hidleroy, and about 0.1 mile E of the latter there is a 9m depth. Foul ground fringing the S end of Spissoy is marked by a buoy moored in a position about 0.2 mile NE of Aerholme. Svartaskjaer, about 0.3 mile E of Aerholme, is awash in places. Arholme is located about 0.2 mile N of Svartaskjaer and is foul on its S side. An 8m depth lies about 0.1 mile S of Arholme. Mjanesflu, lying 183m offshore about 0.2 mile E of Svartaskjaer, has a depth of less than 1.8m and is marked by an iron perch.

Austreflu, a 3m depth, marked by a buoy, lies about 0.5 mile N of the N entrance to Bakkasund. Some of the other dangers between Stora Kalsoy and Navoy are marked by buoys or iron perches.

An overhead cable, with a vertical clearance of 25.9m, spans the N entrance of Bakkasund between Kvaloy and the NW extremity of Spissoy. Another overhead cable, with a vertical clearance of 19.8m, extends from the SW extremity of Nautoy to Hidleroy.

Skudenesfjorden to Korsfjorden

3.27 Indreleia comprises the fjords and sounds forming the protected inland navigation route between Skudenesfjorden and Korsfjorden. Karmsundet is the first, or southernmost, reach of Indreleia. Vessels proceeding N from Stavanger to Bergen can enter Karmsundet from the N side of Skudenesfjorden. Between Haugesund, at the N end of Karmsund, and the entrance of Bomlafjorden, about 8 miles N, the route leads along the outer coast and is only partly protected by the inshore islet groups.

North of Bomlafjorden, Indreleia offers alternate routes, of which the E, through Langenuen, should be taken by large vessels. The W route leads through Stokksund and Nyleid. Both routes join N of the island of Stord.

North of Stord, the principal route passes between Huftaroy and Reksteren, through the W part of Bjornefjorden, and then E of **Lille Laugaroy** (60°09'N., 5°15'E.) into Korsfjorden.

The secondary route leads N through Bekkjorviksund, Mokstrafjorden, and Hundvakosen, then through the channel between Krossoy and Staloy, and E of Store Skorpo into Korsfjorden.

Pilotage.—Pilotage is compulsory in Indreleia.

Most of the inner fjords and sounds which are adjacent to this section of Indreleia penetrate inland in a general NE direction through the Hardangerfjorden region and have the group name of Hardangerfjordenane. This grand inlet is, perhaps, the most beautiful of all the Norwegian fjords. Its various branches extend through districts abounding in game and presenting a great diversity of magnificent scenery.

The main branch is a continuation of Bomlafjorden and extends, under various names, about 50 miles NE from its entrance. It then branches, with one branch, Sorfjorden, extending about 20 miles S, and the other, Eidfjorden, extending 15 miles E. There are also numerous smaller branches, in most of which anchorages can be found. Hardangerfjordenane is for the most part free from dangers; their shores are nearly everywhere steep-to.

Caution.—In winter, falling snow is the greatest danger, as the land is so often completely obscured for hours on end, even when quite close. In Indreleia, when a snowstorm threatens, careful bearings of the nearest anchorage should be taken to enable the vessel to seek shelter. Because of the tidal currents, it is dangerous to heave-to.

The Inner Fjords

3.28 Karmsundet (59°09'N., 5°21'E.) is about 17 miles long from its S entrance in Skudenesfjorden, between Skudenes, the SE extremity of Karmoy, and the SW point of Vestre Bokn, about 3 miles ENE. It lies in a generally N direction between Karmoy, on the W, and Vestre Bokn, Fosenoy, and the mainland of the Haugesund peninsula, N of Fosenoy, on the E.

Karmsundet may be considered the beginning of Indreleia. The port of Haugesund (see paragraph 3.10) is on the E side of the N end of Karmsundet, and Kopervik (see paragraph 3.29) is on the W side, about 8 miles above the S entrance of the sound. It is easily navigated and is used often. Vessels of 40,000 dwt with a draft of 9.7m can navigate the sound. Its S part is deep and its fairway is free from dangers. Special care should be taken, however, near the W end and N end of Fosenoy and in other narrow portions of the sound.

Gronestadvag (59°12'N., 5°23'E.) lies on the E side of Karmsundet. A beacon stands on the N entrance point of the bay. An 8m depth lies about 183m offshore, 0.15 mile NW of the beacon; a 4m depth lies about 183m W of the beacon. Kjelsflu, which is marked by an iron perch, is on the N side close within the entrance of Gronestadvag.

Foul ground fringes the S entrance point up to 183m offshore; a 5m depth lies nearly in the middle of the bay.

Small vessels with local knowledge can anchor in Gronestadvag.

Trosnavag (59°13'N., 5°23'E.) is another small bight on the E side of Karmsundet. Trosnavagneset, its SW entrance point, is located about 1 mile N of the beacon at the entrance of Gronestadvag. Skruholme is located about 0.1 mile NNE of Trosnavagneset. A number of rocks, one of which is awash and marked by an iron perch, lie between them. Small vessels with local knowledge can anchor in Trosnavag.

Ternholme, about 2 miles NNW of Trosnavagneset, is at the

S end of a chain of islets and rocks extending about 2 miles from the S point of Fosenoy. Ternholmflu, with a depth of 4m and marked by a buoy, lies at the end of foul ground extending about 0.2 mile SSW from Ternholme.

Smorstakk, an islet easily identified by its sugarloaf shape, is the SW of the islets extending S from Fosenoy.

3.29 **Kopervik** (59°17'N., 5°19'E.) (World Port Index No. 23450) is located on the W side of Karmsundet. The harbor is situated on both sides of an inlet. Vessels wishing to anchor should do so N of Byggnesskjera, which marked by an iron perch; the bottom holding ground is a mixture of clay and rock.

The Stromsund Bridge spans the inlet about 0.3 mile within the entrance. Vessels with a draft up to 5.8m can pass the bridge. The vertical clearance under the middle of the bridge is reported to be 3.3m.

Courtesy of Eirik Hustvedt

Kopervik

Stangalandsvagen and Skipparvik are small inlets close S and N of the harbor. Skipparvik is spanned by a cable with a vertical clearance of 15.8m.

There are two berths for general cargo with depths alongside between 1.6 and 8.7m.

Kaleflu, awash and marked by an iron perch, lies close off a point S of the entrance to Stangalandsvagen. Mandalsflu, a 3.9m depth marked by a buoy, is located about 0.1 mile N of Kaleflu.

A light is shown from Koparnaglen, a rock close offshore N of the approach to Kopervik. An iron perch marks a group of rocks, with depths of 1.8m and less, which lie between Koparnaglen and the shore W.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Contact Information.—The Port Authority can be contacted, as follows:

1. Telephone: 47-52-850243
   47-52-851055
2. Facsimile: 47-52-852513

The harbormaster can be contacted by telephone (47-52-852613 and 47-52-815619).

The port can be contacted on VHF channels 12, 14, and 16.

Anchorage.—Vessels awaiting pilots should anchor, in about 37m, with the light on Koparnaglen bearing about 290°.

Anchorage can also be taken close E of the harbor entrance, in 14.6 to 20.1m.

3.30 From Kopervik, Karmsundet trends N for about 3 miles, then continues NNW for about 3 miles to the narrows of the sound at Salhusstraummen. The E shore of this section is quite regular, and there are few islets, but the W side is indented by three separate areas in which there are numerous islets, rocks, and detached dangers, some of which are marked by perches or buoys. Mandalsflua, a 2.5m patch marked by an iron perch, lies on the S side of the approach to Kopervik, 0.4 mile SSE of Koparnaglen.

A small 15m depth lies on the W side of the fairway about 1 mile NNE of Koparnaglen.

Several above and below-water rocks, marked by two iron perches, lie along the W shore of Karmsundet, about 1 mile NNW of the bridge. A 2.9m depth, marked by an iron perch, is located close off the E shore opposite the rocks.

Salhusstraummen (59°22'N., 5°18'E.) is the narrowest part of Karmsundet. There is a bridge which has a vertical clearance of 45m and a horizontal clearance of 90m. Green lights are shown from the bridge to indicate the fairway. An overhead cable, with a vertical clearance of 47m, spans the channel about 183m S of the bridge.

A fish oil factory and an oil tank farm on the N shore of the bay have quays, with depths alongside of 6m. Quays, with depths alongside of 3 to 4m, are located at Utvik, in the SW corner of the bay.

3.31 **Boviki** (59°22'N., 5°18'E.), on the W side of the fairway, affords good anchorage, in depths up to 31m. In the outer part of the bay, the bottom is mostly sand and shingle. From abreast the tile works and inward, it is mud. Boflu, lying in the N part of Boviki, has a depth of 2m and is marked by an iron perch. Kyrkjeflu, on the S side of Boviki about 0.2 mile offshore, has a depth of 2.7m and is marked by an iron perch.

Three overhead cables, with vertical clearances of 60m, span Karmsundet close S of Kulorten. Mariners are cautioned that, within a distance of about 1 mile, the overhead cable gives a radar echo similar to that of a ship on a collision course.

Kulorten, marked by a tower beacon, lies 91m offshore about 0.5 mile N of Koltrepynten. Storetang, a rock with less than 1.8m, lies about 0.1 mile S of Kulorten and is marked by a buoy.

Koltrepynten (59°19'N., 5°20'E.), on the W shore of Karmsundet, is the site of an aluminum works. There is a concrete quay, 270m long, with a depth alongside of 11.6m. It is reported that vessels of up to 100,000 dwt have been accommodated alongside. It has a large conspicuous warehouse, cranes, and a plant for discharging alumina.

3.32 The fjords and channels which continue in a NE direction from Bomlafjorden are called Hardangerfjorden. Occasionally, there are heavy squalls, and visibility is reduced. There are few other dangers, however, and the fjords are, for the most part, easy to navigate.

Generally, the shores are steep and rise to heights of about 914m, but there are many bays and small fjords where flat, fertile land is largely used for cherry and apple orchards.

The lower slopes are generally covered with pine forests,

above which there is a belt of summer pasture land. The summits are, however, of bare rock, except where Folgefonni, a glacier about 1,654m high, covers 108 square miles of the mountain region between the main fjord and Sorfjorden.

Regular ship communication is maintained between places in Hardangerfjorden and other places on the Norwegian coast.

Pilotage.—Pilotage is compulsory for most vessels.

Anchorage.—When selecting an anchorage, avoid anchoring too near shore in places exposed to avalanches.

3.33 Laukhamarsund (59°52'N., 5°36'E.) is the navigable channel between Huglo and Skorpo leading NW from Husnesfjorden into the SE part of Skjeljaviksund. Skolten, a rock with a depth of less than 1.8m and marked by an iron perch, lies on the N side of the fairway about 0.3 mile ENE of Kvarvaneset, the NW extremity of Huglo. Skolten is the only known danger in Laukhamarsund.

A cable, with a vertical clearance of 50m, spans a narrow portion of the sound about 0.5 mile E of Kvarvaneset.

Skorpesund (59°55'N., 5°38'E.) separates the island of Skorpo from the SW side of the irregular peninsula extending from the SE side of Tysnesoy. The sound is narrow and should not be used without local knowledge. Near its middle part, a reef extends from each of the shores almost halfway across the sound; an iron perch marks each of these reefs.

An overhead cable, with a vertical clearance of 25m, crosses Skorpesund about 1 mile within its SE entrance.

Seloysund, Midtoysund, and Anuglosund are the three channels, from W to E, leading N from Husnesfjorden to **Onarheimsfjorden** (59°57'N., 5°41'E.) among Seloy, Midtoy, and Anuglo. Several small islets and many above and below-water rocks lie in Seloysund and Anuglosund.

Midtoysund is free from dangers, except near the middle of its W side, where reefs extend about 0.1 mile offshore. At its N end, Midtoysund becomes quite narrow and has a least charted depth of 29m in the fairway.

An overhead cable crosses each of these sounds. There are vertical clearances of 17m, 30m, and 25m, respectively, under these cables. A submarine cable is laid across Midtoysund and another across Anuglosund.

Anchorage.—Anchorage can be taken in **Rysslandsvik** (59°52'N., 5°44'E.), on the SE side of Husnesfjorden about 4 miles SSW of Heroy, in 14.6 to 29m, sand.

3.34 Husnes (59°52'N., 5°46'E.) (World Port Index No. 23355) is located on the E side of Ondarheimsvag, about 3 miles SSW of Heroy. A concrete quay at Husnes is 240m long, with depths alongside between 10.5m at the S end to 16.5m at the N end. There is a hauling-off buoy moored off the quay. The quay is well fendered and equipped with two cranes.

Port of Husnes Home Page

http://www.husneshavn.no

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 9
2. Telephone: 47-53-475070
   47-53-475000 (after office hours)
3. Facsimile: 47-53-475015
4. E-mail: firmapost@husneshavn.no

Anchorage.—Anchorage can be taken off Husnes in Ondarheimsvag, in 12.8 to 16.5m, sand. This location is exposed to N winds.

3.35 Heroysund (59°55'N., 5°47'E.), between Heroy and the mainland to the E, affords anchorage for small vessels, but it is exposed to strong squalls; small quays and mooring rings are available. Vessels entering from S should pass between Heroy and the foul ground S of it.

An overhead cable, with a vertical clearance of 20m, spans the N part of Heroysund.

Kvinnheradsfjorden trends NE from Husnesfjorden for about 14 miles and joins Hissfjorden in the vicinity of the islet of Sild.

Tangeflu (59°56'N., 5°44'E.), marked by an iron beacon, lies on the SW side of the junction of Kvinnheradsfjorden and Husnesfjorden, in a position about 0.2 mile ENE of the NE extremity of Anuglo. Rocks, with depths of 4.9m and less, lie up to 0.2 mile off the N side of this islet.

Fjaereflu, on which a beacon stands, is located near the middle of Onarheimsfjorden, in a position about 2 miles NNW of Tangeflu. A 5m depth lies close SE of the rock.

Onarheim (59°57'N., 5°38'E.), located on the SW shore of Onarheimsfjorden, has a 35m long quay, with depths of 3 to 6m alongside. Several quays, with depths of 4m alongside, are located at Vattedal, about 1 mile NNE of Onarheim.

Anchorage.—The best anchorage in Onarheimsfjorden is located on the NE side of the fjord in Teroysund, the channel E of Teroy. Anchorage can be taken, in 9.1 to 18.3m, sand and clay.

3.36 Lokksundet (60°03'N., 5°43'E.) is a narrow sound separating the island of Tysnesoy from the mainland to the E and joins Onarheimsfjorden with Bjornefjorden. It is about 5 miles in length. The least depth of 12.8m is found in the narrowest part of the sound, where the width is 183m.

Moderate-size vessels visiting Hardangerfjorden and the other fjords of this region use Lokksundet when bound N to Bergen. The main channel of Indreleia is joined in Langenuen N of the island of Reksteren.

During calm weather, the current in Lokksundet always flows N, with a velocity of up to 2 knots during S winds. The current may flow S during N winds and has been reported to reach a velocity of 3 knots. There are eddies in the bays on either side of the channel.

Sandoy is on the W side of Lokksundet S entrance. A rock lies, awash, about 0.2 mile NE of its N end. **Hamarhaugflu Light** (60°00'N., 5°44'E.) is shown from a white lantern on piles on the SW side of a reef fringing the E entrance point of Lokksundet. A 7.8m depth lies about 0.4 mile N of Sandsoy.

An 1.5m depth, marked by a perch, lies on the W side of the channel, about 1 mile NNW of Sandsoy; a 3m depth lies about 160m SSE of the perch.

At Nymark, on the W side of the sound about 1 mile NNW of Hamarhaugflu, there is a quay with 5m alongside.

3.37 Storsundet (59°57'N., 5°53'E.), on the SE side of Kvinnheradsfjorden, is entered from the S between **Skorpegavlen** (59°56'N., 5°48'E.) and Heroy. This navigable channel has depths greater than 37m throughout the fairway. It is formed between the mainland and the S and E sides of Skorpo, Snilstveitoy, and Kalven, close-lying islets which extend in a continuous chain from Skorpegavlen to Kalvtangen, 6 miles NE. Storsundet trends ENE for about 6 miles, then continuing in a general N direction for 2.25 miles into Kvinnheradsfjorden. The sound is notorious for squalls.

Flatholmen (59°56'N., 5°51'E.), on the S side of Storsundet, is joined to Neset, a prominent point about 2 miles E of Skorpegavlen.

Skjeret, which is marked by a beacon, lies on the N side of the fairway in a position about 0.2 mile S of Oyeneset, the SE point of Snilstveitoy. A 4.5m depth is located between the rock and the point.

Holmeflu (59°57'N., 5°58'E.), with a depth of less than 1.8m and marked by an iron perch, is on the S side of the fairway and extends about 0.1 mile W from Ytreholme, a small islet lying close off a salient point about 1 mile SE of Oyeneset. Two rocks lie, awash, close NE of Holmeflu; a 6.1m depth is located close SW. Elsewhere in Storsundet, the known dangers are close inshore.

Uskedal (59°56'N., 5°52'E.), on the SE side of Storsundet close E of Flatholmen, has quays with depths alongside of 4 to 6m. Fresh water is available. A quay, with 5m alongside, is located at Dimmelsvik, about 1 mile ESE of Skjeret.

Rosendal (59°59'N., 6°00'E.), located on the E shore of Storsundet, has a quay, with depths up to 6m alongside. Fuel oil is available. Another quay, with depths of up to 6m alongside, is located at Seimsfoss about 1 mile S of Rosendal.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 16
2. Telephone: 47-46-932012
3. E-mail: post@rosendalhamn.no
4. Web site: http://www.rosendalhamn.no

Anchorage.—Small vessel anchorages are found in several coves along the S shore of Storsundet.

3.38 Husavagen (60°00'N., 5°48'E.) indents the NW shore of Kvinnheradsfjorden for nearly 2 miles in a NNE direction. The bay narrows gradually. Kyrkjevag, narrow and rock encumbered, trends NE from the head of Husavagen for about 1 mile. Depths within Husavagen are ample and all known dangers are inside the 9.1m curve, which lies within 183m offshore.

Ulke, on the NW shore of Husavagen close to the head of the bay, has a quay, 21m long, with depths of up to 6.3m alongside.

Anchorage.—Husavagen affords anchorage to vessels of considerable size, in about 40m, soft clay, S of Husa, which is at the head of the bay. About 1 mile S of Husa, anchorage can be taken, in about 35m, sand and clay. Husavagen is exposed to S winds.

3.39 Latrevikklubben (60°04'N., 5°59'E.) is the S extremity of Varaldsoy. Four coves, Latrevik, Ferjevag, Knarrevik, and Akrehamn, are on the SE side of Varaldsoy between Latrevikklubben and a point about 3 miles NE. Akreholme and two above-water rocks W of it, lie close off the entrance of Akrehamn. Three channels lead in among the islet and rocks.

The middle channel is the deepest and leads between Akreholme and the rocks to the W. The E channel, which has a depth of 5.5m, leads N of Akreholme; a rock on the S side of the fairway is marked by an iron perch.

Anchorage.—Small vessels can take good anchorage in Akrehamn, in depths of 7 to 10m, mud.

3.40 Oynafjorden (60°06'N., 5°55'E.), which is formed between Varaldsoy and the mainland to the W, trends N for about 5 miles and then turns NE into Bondesundet. In Bondesundet, Kraka and other nearby rocks lie within 0.15 mile of the NW shore; an iron perch marks the outer edge of these dangers. Other dangers in the sound and some small islets lie close offshore and are generally located within or near the few coves that indent both shores. An overhead cable, with a vertical clearance of 50m, crosses Bondesund 2.25 miles NE of Bundesund Light.

Caution.—Because of the strong currents in Bondesundet, its use is not recommended. Submarine cables are laid SE from Mundheim, at the head of Oynafjorden, to the E shore, and SSE for 2.5 miles and then E to Varaldsoy.

Gjermundshamn (60°04'N., 5°55'E.), located on the SW side of the entrance to Oynafjorden, has a quay with a least depth of 7m alongside. Fuel oil and fresh water are available.

Anchorage.—Small vessels can take anchorage in Gjermundshamn, in 15 to 20m, sand and mud.

Vagen, located on the SW side of Varaldsoy, about 1 mile N of its S extremity, has quays with depths of 4 to 12m alongside.

Two quays, with depths up to 5m alongside, are located at Mundheim.

3.41 Maurangerfjorden (60°06'N., 6°10'E.) trends NE from the NE part of Kvinnheradsfjorden for about 5 miles and then branches. One branch, named Nordpollen, trends NNE for about 2 miles; the other, named Austrepollen, trends ENE for about 2 miles. Great depths prevail throughout the fjord, except that numerous above and below-water rocks extend across Austrepollen within 0.5 mile of its head. The two arms are usually icebound during hard winters.

Bondhusbre, a branch of the large glacier Folgefonn, is on the S side of Maurangerfjorden. Steep cliffs are on both sides of the fjord.

Mountain squalls can be violent towards the head of the fjord, especially during E winds. Because of possible landslides, vessels should avoid approaching the shores of Maurangerfjorden too closely. Several submarine cables are laid across the fjord and its two arms. A cable, with a vertical clearance of 65m, spans the fjord about 4 miles within the entrance, close W of Sundal.

Sundal, on the S shore about 4 miles within the entrance, has a small wharf, with alongside depths of 3 to 4m. Fuel oil and fresh water are available. Eikanes, on the N shore of the fjord about 1 mile WNW of Sundal, has a small masonry quay, with

alongside depths of 3.9 to 5m.

Anchorage.—Anchorage can be taken off the wharf of Sundal, in about 35m. Good anchorage can be taken near the head of Nordpollen.

3.42 Hissfjorden (60°12'N., 6°03'E.) extends N and NE for about 10 miles from the N portion of Kvinnheradsfjorden to its junction with Ytre Samlofjorden in the vicinity of Jondal. The shores of Hissfjorden are mostly steep-to, except along the NW side. In places along this shore small islets and rocks lie up to 0.25 mile offshore. Some of the outermost dangers are marked by iron perches. An overhead cable, with a vertical clearance of 65m, spans Hissfjorden about 2 miles SW of Jondal.

A quay at **Fosse** (60°16'N., 6°02'E.), on the NW shore of Hissfjorden, has alongside depths of 3 to 5m.

Kysnes (60°12'N., 6°07'E.), located on the SE side of Hissfjorden, has a quay, with depths of up to 5m alongside. Torsnes, about 3 miles NE of Kysnes, has a quay with depths of 5 to 6m.

A quay at **Jondal** (60°16'N., 6°15'E.) is 65m long, with depths of 4 to 10m alongside. Fuel oil and fresh water are available.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 16
2. Telephone: 47-53-669510

Anchorage.—Anchorage can be taken off the village of Jondal.

3.43 Ytre Samlafjorden (60°21'N., 6°18'E.) extends NE for about 6 miles from Hissfjorden to its junction with Indre Samlafjorden off of Samlaneset, a salient point on the S shore.

General depths through the main fjord are great, and the fairway is clear. There are some dangers and islets which lie close offshore and within the several bays indenting the shores on both sides.

Herand (60°20'N., 6°23'E.) is at the head of a bay which is entered about 2 miles S of Samlaneset. Herandsholme is the largest of several islets lying close off the SW entrance point of this bay. A quay with up to 4m alongside is located at Herand.

Anchorage.—Anchorage can be taken near the head of the bay E of Herandsholme. Care must be taken to avoid a group of rocks, marked by an iron perch, in the SE part of the anchorage.

Norheimsund is an inlet extending in a NW direction from the NW side of Ytre Samlafjorden. Fairway depths in the outer part of Norheimsund are 18.3 to 48m. The narrow inner part has a least charted depth of 11m in the deeper SW channel. There is a 6-knot speed limit in Norheimsund.

Vikoy is located on the S shore of Norheimsund about 2 miles SE of the head of the inlet. Several rocks, including an above-water rock, lie up to 0.25 mile offshore in the vicinity of Vikoy. A 9m depth lies about 0.3 mile E of the above-water rock. A buoy marks the N edge of a shoal area extending N from the S shore. A quay at a tank installation near Vikoy has a depth of 6m alongside.

Vallandsgrunn, marked by a buoy, lies on the N side of the fairway N of Vikoy. A depth of 7m is charted close E of the buoy. Between Vallandsgrunn and the shore NW, there are a number of rocks, some of which lie above water. A light is shown from near the outer edge of these rocks.

An islet, with foul ground extending about 183m SE, lies in the middle of the inner part of Norheimsundand forms two channels which lead NW to the head of the inlet. The SW channel is the better one. A buoy is moored on the S edge of the foul ground.

Norheimsund (60°22'N., 6°09'E.)**,** is located at the head of the sound. Several quays, with depths alongside of 3 to 6m, are located at Norheimsund.

3.44 Tjuvaholmen (60°22'N., 6°16'E.) is located between Kvamsoy and the mainland to the NW. A rock close S of Tjuvaholmen is marked by an iron perch. Another iron perch marks a group of rocks close off the mainland, NW of Tjuvaholmen. An overhead cable, with a vertical clearance of 28m, spans the channels between the mainland and Tjuvaholmen and between that islet and Kvamsoy.

Oystesevagen (60°23'N., 6°12'E.) trends N for about 1.25 miles from its entrance. Several quays, with alongside depths of up to 7m, are located at Oystese, a village at the head of the inlet.

Anchorage.—Anchorage can be taken close off the head of the inlet. Take caution to avoid the submarine cable along the E shore and a 7.5m shoal 0.5 mile S of the head.

3.45 Fyksesundet (60°25'N., 6°15'E.) trends NNW for about 5 miles from the NW side of Ytre Samlafjorden. The sound varies in width from about 91m to 0.3 mile between steep mountains on either side. It is the narrowest and most gloomy branch of Hardangerfjorden. Squalls occur in the sound, especially during E winds.

A bridge, with a vertical clearance of 26.5m, spans Fyksesundet about 1 mile from the entrance to the sound. Several overhead cables, of which the least vertical clearance is 27m, and several submarine cables cross the inlet throughout its length. An overhead cable, with a vertical clearance of 17m, crosses a small bight of the sound at its N end. Steinsto, on the E shore, close NW of the entrance to the sound, has a quay with 8 to 10m alongside.

A mooring buoy is located a little over 2.5 miles within the entrance. A rock close off the SW entrance to the sound is marked by an iron perch. Rysholme lies in mid-channel, about 0.5 mile within the entrance.

Indre Samlafjorden extends in a NE direction from Samlaneset for about 8 miles to its junction with Utnefjorden.

Ytre Alvik (60°25'N., 6°23'E.), located on the N shore of Indre Samlafjorden, has a small quay, with 5m alongside.

Indre Alvik, also located on the N shore of Indre Samlafjorden about 2 miles further NE of Ytre Alvik, is the site of a ferro-silicon works. It has its own quays, the largest of which is 82m long, with depths of 9 to 10m alongside.

Two 7.5 ton cranes are located on the quay. Two mooring buoys are located about 91m off the quay at Indre Alvik.

Pilotage is compulsory. Pilots should be ordered through SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

The port can be contacted, as follows:

1. VHF: VHF channels 9 and 16
2. Telephone: 47-56-550800
3. Facsimile: 47-56-550950

3.46 Utnefjorden (60°26'N., 6°38'E.) trends about 4 miles in a SE direction from Indre Samlafjorden to its junction with Eidfjorden and Sorfjorden. The fjord is deep and clear in the fairway.

Utne (60°26'N., 6°37'E.), on the SW shore, has a quay, with depths from 4 to 7m alongside. Tingnesflu, marked by an iron perch, lies close offshore about 0.2 mile NW of the quay at Utne. Numerous submarine cables are laid in Utnefjorden.

Granvinfjorden (60°28'N., 6°37'E.) trends in a general NE direction for about 5 miles and in places is reduced to a width of about 0.2 mile. Depths of about 134 to 200m prevail in the fairway up to the anchorage near the head of the fjord.

Granvinfjorden is reported to be ice-free.

Kvanndal lies on the NW side of Granvinfjorden, about 1 mile within its entrance. There are quays, 100m long, with depths of 4 to 11m alongside located at Kvanndal. About 1 mile farther up the fjord, on the W side, there is a quay, with up to 5m, alongside at Folkedal.

Eide, a village at the head of Granvinfjorden, has a quay, 100m long, with a depth of 12m alongside. Fuel oil and fresh water are available.

3.47 Eidfjorden (60°25'N., 6°43'E.) extends ENE from its junction with Utnefjorden for about 11 miles to the village of Eidfjorden. Eidfjorden is very deep and free from dangers in the fairways.

Eidfjorden is spanned by overhead cables, with a vertical clearance of 60m, and a bridge, with a vertical clearance of 55m, between Gangstod (60°28.5'N., 6°50.4'E.), about 0.7 mile NW.

Djonno (60°28'N., 6°45'E.), on the N side of Eidfjorden about 3 miles NE of the entrance, has a quay, with depths of 6 to 10m alongside. Another quay at Vallavik, 2.5 miles ENE of Djonno, has depths of 5 to 6m alongside.

3.48 Eidfjord (60°28'N., 7°04'E.) is a scattered village on the S side of the head of Eidfjorden. A quay at Eidfjorden is 30m long, with depths of 3 to 5m alongside. Good anchorage with clay bottom can be taken by vessels of moderate size 0.3 mile W of the quay, avoiding submarine cables NW of the village; mooring rings are available.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 12
2. Telephone: 47-53-673400
3. Facsimile: 47-53-673401

Ringoy (60°27'N., 6°47'E.), on the SE shore about 3 miles ENE of the entrance to Eidfjorden, has a quay with depths of up to 5m alongside. Fuel oil and fresh water are available. Vessels approaching the quay must avoid a reef extending a short distance from the nearby Ringoynes and which is marked by an iron perch. Brimnes, on the S shore about 4 miles further NE, has a quay with depths of up to 5m alongside.

3.49 Simadalsfjorden (60°30'N., 7°05'E.) extends about 2 miles ENE from Eidfjorden. Vessels are warned against anchoring in this fjord due to rock falls from the steep mountain sides and to submarine cables. The fjord often freezes during the winter.

Osafjorden (60°30'N., 6°55'E.) extends 6.75 miles NE from Eidfjorden to Osa and is deep and free from dangers. Squalls occur in the fjord and are worse during SE winds. During hard winters, the inner part of Osafjorden is icebound. Small vessels can anchor off Osa, in 40m, clay. A mooring buoy is located off Osa. Several submarine cables cross the fjord.

Ulvikfjorden, a smaller inlet, trends N and NE for about 3 miles from the W side of Osafjorden. During hard winters the entire fjord is icebound. Ulvik, on the NW shore about 1 mile from the head of Ulvikfjorden, has an angled quay, with depths off its longest side of 6 to 7m.

Pilotage for Ulvik should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Hetlenes, on the W shore about 0.5 mile within the entrance of the inlet, has a quay, with depths of 5 to 8m alongside. A rock, marked by an iron perch, lies close off the E shore about 0.2 mile SE of Ulvik.

Caution.—A seaplane landing area is situated in Ulvikfjorden.

3.50 Sorfjorden (60°24'N., 6°42'E.) extends SSW from the junction of Utnefjorden and Eidfjorden for about 20 miles to the town and port of Odda, at its head. This fjord is one of the most beautiful branches of Hardangerfjorden. Sorfjorden is narrow and straight. Near its entrance there are extensive farm lands along both sides, but S of Hovland bare rock walls rise almost perpendicularly from the water's edge.

The width of Sorfjorden varies between about 0.2 mile and 2 miles. The narrowest part is within 1.25 miles of the head of the fjord. Throughout the length of the fjord the depths are ample and in places they exceed 366m. There are few dangers and all of these lie within 0.3 mile offshore.

Winds—Weather.—Squalls occur in Sorfjorden and are often very strong. During hard winters, ice forms in the fjord, but a channel is usually kept open.

3.51 Kinsarvikbukta (60°23'N., 6°43'E.) is a clear bay located on the E side of Sorfjorden. Large vessels can anchor here; the best berth, in 12.8 to 31m, lies in a position SW of the quay, which is near the village church at the head of the bay. A rock, marked by an iron perch, lies awash close offshore W of the church. Two quays at Kinsarvik, at the head of the bay, have depths of 5 to 6m alongside.

Ullensvang (60°19'N., 6°39'E.), in a bight on the E shore of the fjord, has quays with depths of up to 5m alongside.

Anchorage.—Anchorage can be taken off Ullensvang, in 25.6m, but vessels must be prepared for sudden violent squalls.

A quay at Lofthus, close N of Ullensvang, has 5m alongside. Fuel oil and fresh water are available. Quays at Lutro and Instanes, on the E shore of the fjord about 2 and 3 miles, respectively, NNE of Lofthus, have alongside depths of up to 5m.

Grimo (60°23'N., 6°39'E.) and Aga, on the W shore of the

fjord about 2 miles and 7 miles, respectively, SSW of the entrance to Sorfjorden, each have a quay, with depths alongside of up to 7m. Na, on the W shore about 3 miles SSW of Aga, has two quays, with depths of up to 5m alongside.

Espe (60°12'N., 6°36'E.), located on the E shore, has quays with depths of 6 to 10m alongside.

Tyssedal (60°07'N., 6°34'E.), located on the E shore, has about 335m of quayage. One 45-ton crane and one 2.5-ton crane are available. Depths alongside the larger of the quays range from 12 to 14m. The largest of the several quays at a zinc works at Eitrem, on the W shore, 1 mile SW of Tyssedal is 73m long with depths from 9 to 11m alongside.

3.52 Odda (60°05'N., 6°33'E.) (World Port Index No. 23240) is located at the S end of Sorfjorden. Facilities of the port are adjacent to the town at the head of the fjord and at Eitrem, about 1 mile NNW. Odda is known for its extensive electro-chemical and electro-metallurgical industries.

Wind—Weather.—During the summer months there is usually considerable haze and rain, much of the haze being attributable to the smog given off by the plants in the town. There is some smoke control. Because the harbor is protected from the winds, such control is inadequate.

Tides—Currents.—The spring tidal rise is 0.6m. A slight tidal current sets outward through Sorfjorden.

Depths—Limitations.—The E and W shores of the harbor are steep-to. The 18.3m curve lies about 0.3 mile N of the head of the fjord and in the NW part of the harbor rounds Eitrheimnes to a position about the same distance S of that point. Shoal water extends about 183m S from Eitrheimsnes.

General depths in the middle part of the harbor are 35 to 50m. Depths in the anchorage area range from 29m to about 44m.

There are quays, with reported depths of 4 to 14m alongside. There are facilities for container and bulk vessels.

Aspect.—The harbor of Odda is formed by the S part of Sorfjorden. It is entered through the narrows, about 1 mile N of the head of the fjord, which is formed by a small peninsula terminating S in Eitrheimsnes and the shore, to the E.

Except for the head of the fjord where the town of Odda is located, the harbor is surrounded by mountains. The E and W shores rise steeply from the water's edge to heights of 1,067m and 1,189m. There are no beaches as such.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For pilot boarding positions, see paragraph 2.6.

Signals.—VHF channel 16 is guarded from 0900 to 1600 and has a range as far as the entrance to Sorfjorden.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-53-648400
3. Facsimile: 47-53-641292

Anchorage.—Vessels can anchor in the W part of the basin N of the town, in 29.3m, clay, well sheltered from all winds. The holding ground is good to the W portion of the basin. Caution must be taken to avoid submarine cables and outfall pipelines.

Caution.—Navigation through the fjords leading to Odda presents no difficulties, but, because of the many fierce squalls, caution is always necessary.

3.53 Bjornafjorden (60°06'N., 5°25'E.) trends E for about 13 miles from Langenuen. It is bound on the S by the N sides of the islands of Reksteren and Tysnesoy and on the N and E by the mainland.

The fairway leading through the length of Bjornafjorden is clear and deep. On the S side of the fjord, a number of islets and rocks lie within 2 miles off the N side of Tysnesoy and about 1 mile off the NE end of Reksteren.

On the NW side islands, islets and rocks lie up to 2 miles off the mainland. Elsewhere, the shores of Bjornafjorden are relatively steep-to. In the side fjords there are some islets and dangers.

Store Vernoy (60°05'N., 5°26'E.) is separated from the NE side of Reksteren by a narrow channel which dries. It is the largest of a group of islets lying within 1.5 miles E of the NE point of Reksteren. Numerous small islets and above and below-water rocks are in this group.

Veaneset (60°03'N., 5°29'E.) is the NW extremity of Tysnesoy. From Veaneset, the N side of Tysnesoy trends very irregularly ENE for about 7 miles to Krossnes, on the W side of the Lokksundet entrance. It is indented by several bays and coves.

Off the N coast of Tysnesoy there are some larger islets, including Store Godoy and Lille Godoy, and many close-lying small islets and above and below-water rocks.

Godoysund, a channel which is navigable by small vessels with local knowledge, separates Store Godoy and Lille Godoy. Iron perches mark some of the dangers in both approaches to Godoysund. A overhead cable and several submarine cables cross the channel.

Tysnesvik (60°03'N., 5°32'E.) is entered about 1.25 miles E of Veaneset. Above and below-water rocks are on both sides of the entrance and within the inlet. Some of the dangers in the entrance to Tysnesvik are marked by two iron perches and a buoy.

Vage, on the W shore of Tysnesvik, has a quay, with depths of 4 to 13m alongside. Two other quays have depths of up to 7m alongside.

Gripnesvag (60°04'N., 5°40'E.) is a small inlet about 1 mile WSW of Krossnes. The entrance channel is narrow and has a least depth of 4.5m.

3.54 Soreidsvik (60°03'N., 5°28'E.) is entered between Veaneset and Raftodden, a projection on Reksteren about 1 mile WSW. From the entrance, Soreidsvik trends S for about 4 miles, and, except at its head, is deep and free from dangers in the fairway.

Many small bays and coves indent the shores of the inlet; small quays are located at several of these places.

Aquay at **Bruntveit** (60°02'N., 5°26'E.), on the W shore of the inlet, has a quay, with a least alongside depth of 5m.

Uggdalseidet, close to the SE head of the inlet, has quays with depths of up to 5m alongside. Fuel oil is available.

Indroy (60°09'N., 5°25'E.), on the N side of Bjornafjorden, lies in a bight of the mainland, with its S extremity about 2 miles ENE of Rotingtangen. Ytroy lies close W of Indroy.

Hauglandssund, between Indroy and the mainland E of it, is entered between Skjerholme and Bjornahaug, the S extremity of the mainland, about 0.5 mile E. A light is shown from a rock

close SW of Bleikja, an islet in mid-channel, about 0.5 mile NW of Bjornahaug.

Hauglandssund is narrow in places but free from dangers in the fairway. A depth of 6m is available through the sound. Vessels must not exceed a speed of 8 knots in Hauglandssund when N of Bleikja.

A quay, 46m long, with depths of 4 to 8m alongside, is located at Halgjem, on the mainland about 0.5 mile N of Bleikja.

Stegleholme (60°09'N., 5°41'E.) is the farthest S of several islets fronting Strandvik to a distance of 0.5 mile off the NE shore of Bjornafjorden. Knapholme and Storholme are other islets in the group. Foul ground extends about 0.1 mile SE from Storholme. Overhead cables, with vertical clearances of 20m and 15m, connect Stegleholme to Storholme and Storholme to the mainland.

3.55 Strandvik (60°10'N., 5°41'E.), which has several quays with depths of up to 8m alongside, is on the mainland NW of Knapholme. A reef extending about 183m SW from Knapholme is marked by an iron perch.

Saevareidfjorden is entered between Storholme and a mainland point about 1 mile E. This side fjord trends N and NE from Bjornafjorden for about 3 miles to Saevareid at its head. Depths through the fairway are ample, and most of the shore is steep-to. A depth of 4.3m is charted about 0.2 mile off the E shore in a position nearly 1 mile NE of Storholme.

Very heavy squalls are experienced in Saevareidfjorden, especially off Mulsodden, a projection on the NW shore about 1 mile NNE of Storholme.

Saevareid (60°11'N., 5°45'E.) has several small quays. The largest is 43m long, with depths of 7.8 to 19.3m alongside. A salmon farm installation is moored at the W end of the quay.

3.56 Lygrepollen (60°04'N., 5°46'E.), located at the E end of Bjornefjorden, is available only to small vessels with local knowledge. The entrance channel is very narrow and is fringed by islets and above and below-water rocks, some of which are marked by aids. The least depth in the fairway is 5.5m.

About 1 mile within the entrance, the basin becomes deeper and broader and then leads off into three separate branches.

Overhead cables, with a least vertical clearance of 20m, span the entrance. Several submarine cables are laid across the entrance and in the N branches.

Anchorage.—Small vessels can take anchorage in various coves inside the bay.

3.57 Fusafjorden (60°10'N., 5°32'E.) is a deep inlet which extends in a NNE direction from the N side of Bjornefjorden.

About 7 miles within the entrance, Eikelandsfjorden branches E for 3.5 miles, and Adlandsfjorden branches NE for the same distance. The fairway is free from dangers. Except for Sandholmane, the islets and dangers in the fjord are close offshore.

Sandholmane, a group of small islets and nearby rocks, lies on the W side of the fairway about 3 miles within the Fusafjorden entrance. A rock, with a depth of 2.5m and marked by a buoy, is located about 0.2 mile NNE of the northernmost islet of Sandholmane.

Raudholmane (60°10'N., 5°28'E.), a group of above and below-water rocks, lies up to 0.3 mile offshore about 1 mile WSW of Sandholmane. Two iron perches mark two detached rocky patches, with depths of less than 1.8m, lying about 183m SW and SSW of Raudholmane.

Another iron perch marks a rock lying, awash, near Ferstadvag, about 0.2 mile SW of Raudholmane. Depths of 2.4m are charted up to 183m offshore in the vicinity of Mobergvik, about 0.5 mile N of Raudholmane.

Os (60°11'N., 5°28'E.) is located on the SW shore of Fusafjorden. An angled quay at Os has a depth of 4m alongside.

Hattevik lies at the head of a small inlet on the W side of Fusafjorden, about 3 miles NE of Os. It has a quay, with 4 to 6m alongside. Anchoring in the cove is not recommended because of submarine cables. Ferry service is maintained between Hattevik and Fusa, across the fjord about 3 miles E.

Fusa, where there is a quay with 4 to 7m alongside, is located in a cove. An iron perch marks a shoal close off the W entrance point of the cove.

Eilelandsfjorden extends in a ENE direction for about 4 miles from Altaneset, the N entrance point.

Gjerdevikflu, awash, marked by an iron perch and with depths of 3 to 4m extending close NE, lies about 1 mile ESE of Altaneset. This shoal and other known dangers along the S shore of the fjord all lie within 0.2 mile offshore.

On the N shore a small islet, about 1 mile NE of Altaneset, lies about the same distance offshore and is connected by a shoal to the shore. Bergsvik, on the S shore of the fjord about 2 miles E of Altaneset, has a quay with depths of 5m alongside. Eikelandsosen, at the head of the fjord, has a projecting quay with depths of up to 4m along its N side.

Small vessels can anchor SSE of the quay, avoiding submarine cables. West winds send in a considerable sea.

3.58 Adlandsfjorden (60°15'N., 5°38'E.) is formed between the SE side of Bogoy and a mainland peninsula which terminates in Altaneset. Adlandsfjorden's entrance is between Altaneset and Holsundskjaer, about 1 mile W. Holsundskjaer, consisting of above and below-water rocks, extends about 0.2 mile SSW from the S end of Bogoy. The southernmost danger is marked by an iron perch; close N of the perch there is a beacon.

Adlandsholme lies in the middle of the fjord about 2 miles NNE of Altaneset. Two other small islets lie between Adlandsholme and Bogoy. Samnoyholme lies about 0.2 mile SW of Adlandsholme, with rocks marked by perches between the islets. A light is shown from the E extremity of Adlandsholme.

Samnoy, a village on Bogoy about 0.5 mile SW of Adlandsholme, has a small quay with depths of 2 to 7m alongside. A narrow 5.5m channel leads to the quay. Three rocks, each marked by an iron perch, lie in the approach to Samnoy.

3.59 Holmefjorden (60°17'N., 5°40'E.) lies at the head of Adlandsfjorden. Iron perches mark some of the dangers in the approach. Two quays have least depths of about 5 and 6m alongside. Fresh water is available.

The entrance to Samnangerfjorden lies between Holsundskjaer and the mainland to the W. About 7 miles above the entrance, Samnangerfjorden divides; one branch continuing N for about 2 miles to Trengeried, at its head while the other trends in a general NE direction for about 4 miles to Arland, at the

head of a basin.

A shoal, marked by an iron perch, lies close NW of Holsundskjaer. Hovdeflu, a 1.8m depth marked by an iron perch, lies close off Hovdanes the W extremity of Bogoy, which point is located about 1 mile NNW of Holsundskjaer.

Two rocks lie awash close off the opposite shore of the fjord in a position about 0.5 mile SSW of Hovdeflu.

A light is shown from Hovdanes.

Bogavik (60°16'N., 5°35'E.) is located on the W shore of Samnangerfjorden, about 1 mile N of Hovdanes. A quay located in a cove at Bogavik has a least depth of 6m alongside.

A light is shown from the W shore of Samnangerfjorden, about 2 miles NE of Bogavik.

Boroy, on the E side of Samnangerfjorden close off the NW side of Bogoy, is separated from that island by Boroysund. A depth of 7.3m can be taken through this very narrow channel, but in it there is a 1.8m depth marked by an iron perch.

A depth of 3.7m is available through Kluresund, the narrow channel separating Boroy from the mainland to the N. Iron perches mark dangers on either side of the fairway through Kluresund. Both channels lead into Tveitevag. This inlet is about 2 miles long and very narrow in places.

Solbjorg (60°18'N., 5°37'E.), located on the W shore of the fjord about 1 mile W of the N extremity of Boroy, has a quay, with depths of 4 to 5m alongside.

Rolsflu, a rock awash and marked by an iron perch, is on the W side of the fjord about 2 miles NNW of the N end of Boroy. It lies near the end of a reef extending about 0.2 mile N of a point extending N from the shore.

A light is shown from Utskot, on the E side of Samnangerfjorden, about 2 miles N of Boroy.

Skjeljavag (60°22'N., 5°40'E.) is located on the NE shore of the NW branch of Samnangerfjorden, about 2 miles N of Utskot. A quay located on the W side of the head of this branch has depths of 5 to 7m alongside. A 10-ton crane is available.

3.60 Gaupholmen (60°22'N., 5°42'E.) lies 183m off the S shore of the E branch of Samnangerfjorden, about 3 miles NE of Utskot. Furoyi is located close off the S shore about 1 mile E of Gaupholmen.

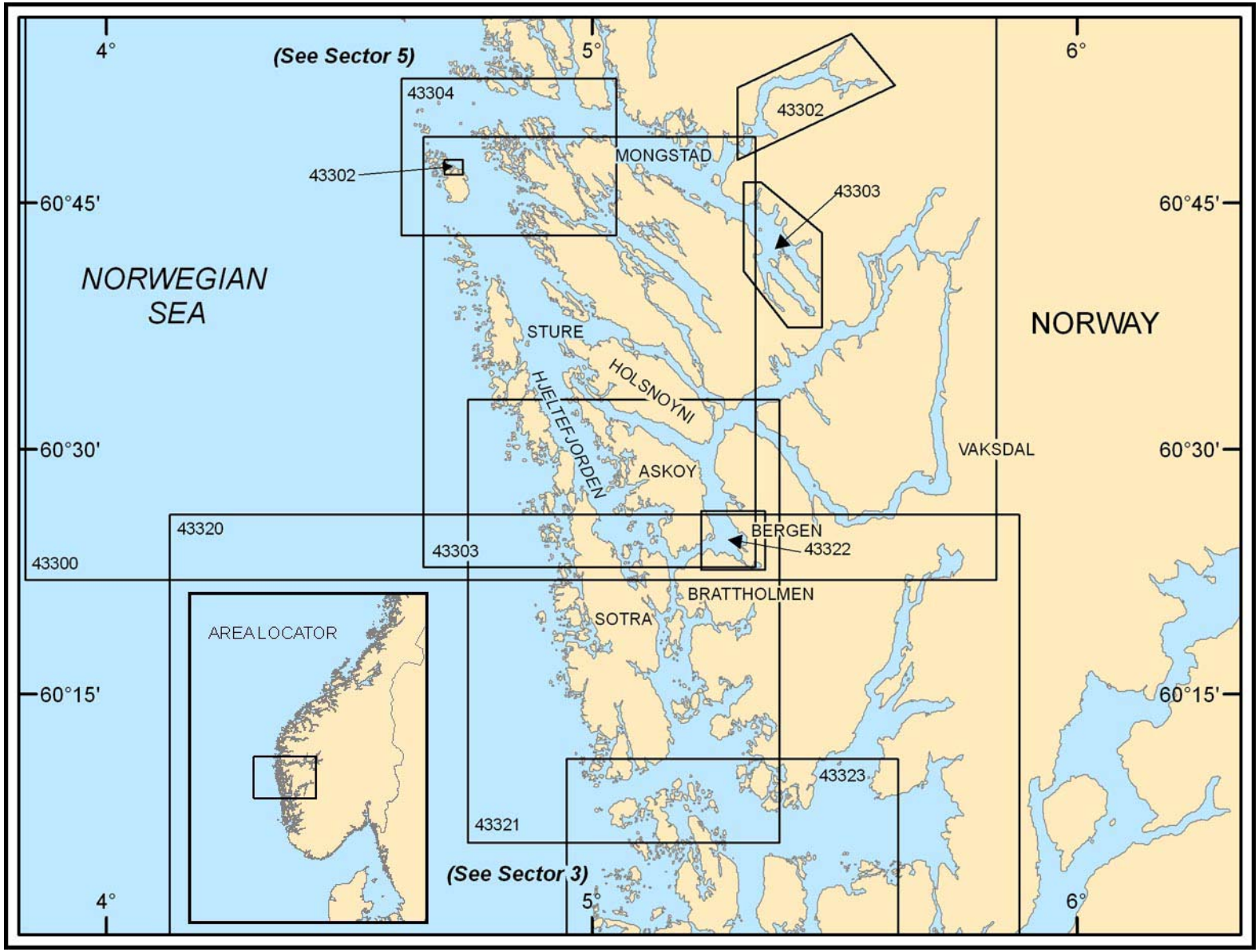
A quay, close to Gaupholmen, has depths of up to 7m alongside. Fuel oil and fresh water are available.

A light is shown from the W side of the fjord, about 0.5 mile W of Gaupholmen.

Tysse, about 0.5 mile E of Furoyi, has a quay, with depths of 3 to 5m alongside. A doctor is available. There is bus and rail transportation to Bergen.

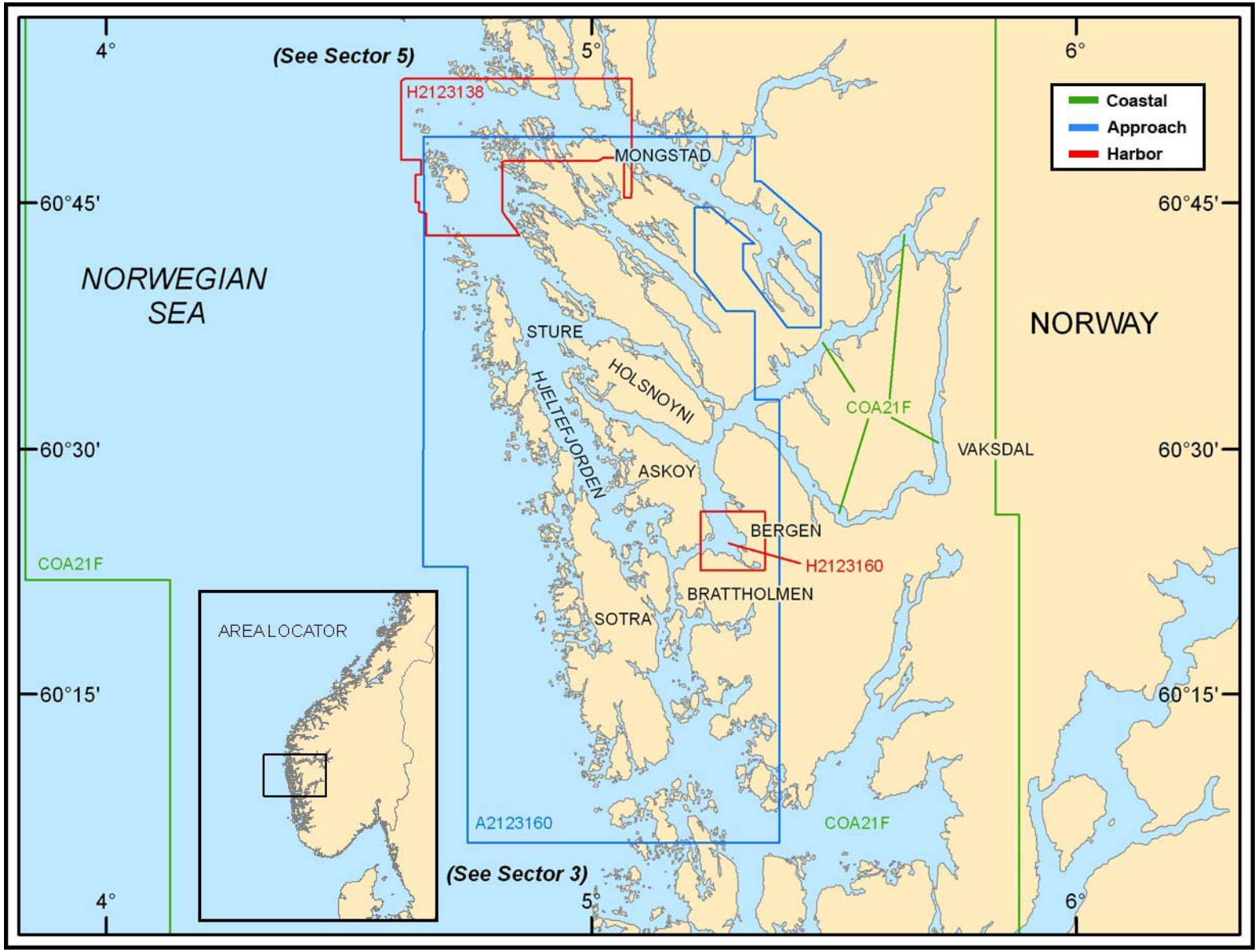
Anchorage.—Moderate-sized vessels can anchor in the area between Furoyi and Tysse.

A rock, marked by an iron perch, lies awash close off the W side of Haukaneset, a prominent point on the N shore nearly 1 mile N of Furoyi.



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

SECTOR **4** — CHART INFORMATION



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SECTOR 4 — DNC LIBRARY INFORMATION

SECTOR 4

NORWAY—KORSFJORDEN TO FEDJEOSEN

Plan.—This sector describes the SW coast of Norway from Korsfjorden to the island of Fedje, which is in the vicinity of Fensfjorden and Fedjefjorden. The description is of the outer islands and islets starting from Korsfjorden and working N; the approaches to, and the port of Bergen; and the inner fjords NE of Bergen.

General Remarks

4.1 Winds—Weather.—Winds, in general, blow from S and SE in winter and from the N and NE in summer, but there are local variations. Fog occurs during summer.

Weather conditions are changeable, varying between the outer islands and the region near Bergen and the head of the main fjord system of the sector. The climate at Bergen is mild, humid, and rainy. Bergen harbor freezes only in very severe winters. At the head of the fjord system there is slightly less rain, and the temperatures are lower in winter.

The climate along the SW coast of Norway is milder than that of other regions so remote from the Equator. The steady run of warm water of the North Atlantic Drift by way of the passage between the Shetland Islands and the Faeroe Islands and the English Channel into the North Sea and the Norwegian Sea results in the water of these seas being, in January, at least 20° warmer than in others at the same latitude. This condition is naturally reflected in the meteorology of the region. Migratory low pressure centers frequent this area in all seasons, accompanied by repeated intrusions of maritime polar air which produce overcast to broken cloud decks, unsettled weather and warm temperatures.

This maritime influence which is responsible for the warm winters is present during the summer months as well, exerting moderating influence on the temperatures, particularly on the coast.

Large variations in temperature occur throughout this region in winter as it is located on the borderline between the cold of the continent and the mild climate of the Atlantic. Sharp temperature contrasts are observed at a short distance inland, according to the direction of motion of the air. With W, SW, and NW winds from the ocean, temperatures are comparatively high. The E, SE, and NE winds, particularly the latter, usher in continental air with the lowest temperatures observed here.

Generally, along the W coast of Norway, the influence of winds on the tide levels is small. This is probably due to the scattering effect of offshore islands and the relatively deep water close inshore.

Ice.—Ice in this area offers no hindrance to navigation and is present only in the upper reaches of the fjords along the coast. Floating ice is met in spring, when small masses, which are soon dispersed, may drift out of Oslofjorden and Kattegat, and occasionally from some of the larger fjords to the W and N or Lindesnes.

Over the entire area the highest frequency of waves is from the W quadrant. Along the exposed coast of Norway 65 per cent of the seas during winter are less than 5 feet in height.

It is significant to note that 9 per cent were observed to be greater than 3.6m high. During the summer, decreased wind velocities associated with the weakening of the Icelandic "Low" results in lower sea heights. Observations along the exposed portions of the coast show 83 per cent of the waves to be less than 1.5m and 4 per cent greater than 3.6m in height.

Swell conditions along the Norwegian coast are generally rough. During the winter, 20 per cent of the swell recorded, for exposed portions of the coast, exceeds 3.6m in height. This swell is generated over the North Atlantic. During the summer, conditions are moderated, with only about 6 per cent of the swells in excess of 3.6m. With 68 per cent of the swells observed to be less than 1.8m in height.

Fog.—Bergen experiences both sea and land fog, the maximum (16 per cent) occurring in July, where a exposed coastal station like Llsta and Skudenes have lower frequency, with the maximum occurring in early summer.

Tides—Currents.—Tides in the North Sea are always semidiurnal, with very little diurnal inequality between the two HWs or the two LWs of each tidal day.

The tide progresses into the North Sea from the Atlantic Ocean, between the Shetland Islands and Norway. Within the North Sea, HW progresses counterclockwise about a nodal point off the S coast of Norway, moving S in the North Sea and W along the S coast of Norway between Kristiansand and the 6th meridian. Along the W coast of Norway the progression is N to about 60°N; N of this, the progression is E.

Along the W coast of Norway, tide ranges gradually increase toward the N, from 0.2m at Mandal to about 0.9m at Bergen.

Currents, in general set at right angles to the coast. In the S half of the sector the set is seaward during the falling tide and toward the land during the rising tide.

In the N half of the sector, the set is NW with the greatest velocity during the falling tide. These currents are not strong, however, except in the narrow passage and are affected by the winds.

Pilotage.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayne Island. For further information, see paragraph 1.1.

Caution.—The N current off the S part of the W coast of Norway tends to set toward this coast. A considerable set toward the coast may be experienced between the entrance of Bomlafjorden and Breisunddybet while the tide is rising at Bergen. This set occurs especially during SW, W, and NW gales.

4.2 The coast between Store Marstein, an islet on the S side of the entrance to Korsfjorden, and the island of Fedje, about 38 miles NNW, is irregular. It consists of numerous inlets and small fjords, and is scattered with many small islands and peninsulas.

The general direction of the fjords is NW; the principal exceptions are Osterfjorden and its continuation, which trends to the NE, and Sorfjorden and Veafjorden, on the E side of Osteroy, which trend to the N. The fjords are deep and vary in width.

Off-lying islands fronting this coastal sector and the peninsulas are lower than 305m in height and are generally rocky with stunted trees. The coast of the mainland, the island of Osteroy, and the Bergen peninsula rise to an elevation of about 610m and have extensive patches of wooded, fertile land in the lowlands.

Passages among the off-lying islands are intricate, narrow. and deep.

There are several anchorages for small vessels and some for large vessels in this sector. Coastal vessels call at the many small landings in the fjords.

The Oseberg Oil Field, the Brage Oil Field, and the Veslefrikk Oil Field are situated in an area centered about 50 miles W of Hellisoy. Numerous submarine pipelines and installations exist in this area. A pipeline extends E to the coast from the Oseberg Field at the S end of the area.

Troll Gas Field (60°44'N., 3°33'E.) and **Huldra Gas Field** (60°51'N., 2°40'E.) lie about 16 miles E and 9 miles NNW of the Veslefrikk Field.

Caution.—Troll A Platform Radar Surveillance Service and the VHF Base Station, located on the Troll A Platform, is controlled by Statoil Trafikkontroll at Sandsli (Statoil VTS). The surveillance service is an advisory service for the coordination of vessel movements by means of gathering, verification, and dissemination of information as to avert hazards and accidents between vessels and the platforms, and between other vessels.

Vessels with intent to navigate across the Entry Zone are requested to inform Statoil Trafikkontroll when passing the limit of the Approach Zone stating their intentions. Vessels in the Approach Zone heading for the Entry Zone will be contacted in due course. If necessary, Statoil Trafikkontroll will request a vessel to increase its passing distance. If this is not possible or the vessel fails to respond, the "Troll A" standby vessel will intercept the unknown vessel and the platform notified. The surveillance service will communicate in Norwegian or English. Three zones have been established around the platform, as follows:

1. Troll A Safety Zone—The Safety Zone is 500m from the outer points of the platform. In certain hazard and accident situations the Safety Zone can be extended.
2. Troll A Entry Zone—The Entry Zone comprises the area within a 3-mile radius centered on the platform (60°38.7'N, 3°43.6'E.).
3. Troll A Approach Zone—The Approach Zone comprises the area within a 15-mile radius centered on the platform.

Vessels passing with a closest point of approach (CPA) of 3 miles or less from the installations must inform Statoil Traffic Control when 1 hour before the time of closest possible approach (TCPA).

Statoil Traffic Control may be contacted 24 hours on VHF channel 16 or 68.

For oil and gas fields located SSW of the above, see Sector 3. For oil and gas fields NW of the above, see Sector 5.

Outer Islands and Islets

4.3 **Store Marstein** (60°08'N., 5°01'E.) lies about 1 mile W of the NE end of Store Kalsoy on the S side of Korsfjorden entrance. A light tower, 17m high and prominent, stands on the summit next to a dwelling.

Marsteinboen lies about 1 mile WSW of Store Marstein Light and is usually awash and marked by breakers.

Hillagrunnane, a shoal with a least depth of 21m, lies 1.5 miles WSW of Store Marstein Light; the sea only breaks in very heavy weather.

Store Marstein Light

4.4 **Tekslo** (60°09'N., 5°01'E.) is on the N side of the Korsfjorden entrance, about 1 mile N of Store Marstein. Foul ground extends about 0.2 mile WNW from Tekslo. Teksleflu-ene, with a least depth of 13m and Hysteinen, a 27m depth, lie about 0.3 mile and nearly 1 mile, respectively, W of Tekslo.

Under good conditions, the Korsfjorden entrance should be identified at a great distance as an opening in the land, the mountains in the background being high and distinctive.

The current flow in Korsfjorden is usually outgoing. The current may be incoming during rising W winds. The outgoing flow in the entrance to Korsfjorden may be very strong during floods.

Pilotage.—The pilot vessel may cruise in the entrance to Korsfjorden, about 1 mile N of Store Marstein, but is usually stationed between the S side of **Viksoy** (60°10'N., 5°03'E.) and Flesa.

4.5 **Lyroddane** (60°10'N., 4°59'E.), consisting of a group of islets and above and below-water rocks about 1 mile in diameter, are centered about 1 mile NW of Tekslo. Nordre Oddane, on the NW side of the group, is 21m high.

Fugloyhamn lies between **Store Fugloy** (60°10'N., 5°01'E.) and Store Vardoy, about 0.3 mile N. Vessels up to moderate size can take good anchorage, in depths up to 20m, sand, in Fugloyhamn. There may be a considerable swell during N or W winds. Entrance can be made from SE, passing E of Tekslo and Seiskjaer, W of foul ground fringing the W side of Naroy for a distance of about 91m, then E of a 2.7m depth marked by a buoy, and W of a rock, marked by an iron perch.

4.6 **Store Sotra** (60°20'N., 5°05'E.), extending about 18

miles N from Korsfjorden, is the largest of the islands in the chain fronting the approaches to Bergen. This chain extends N from Korsfjorden to Fedjeosen, a distance of about 35 miles, and includes a number of other smaller islands and hundreds of close-lying islets and rocks.

From offshore, Store Sotra appears to be a part of the mainland, and, in contrast to the coastal aspect farther N, no off-lying islets can be distinguished. Fordesveten, the highest peak in the S part of Store Sotra, has a steep fall on its N side. The N end of Store Sotra is considerably lower.

A radio mast, painted red and white in bands and with a height of about 165m, stands on the N part of Store Sotra. A white flashing obstruction light is shown from the top.

On nearing the land, Store Lonoy will be easily identified from its height and isolated position. The high land in the S part of Algroy has a jagged outline and from the N has a sawtooth appearance; other hills in the vicinity are round.

Turoy, about 2 miles W of the N end of Store Sotra, is higher than the N part of the larger island. A beacon stands on the 81m summit of Turoy in the N part of that island. Toftevik, on the W side of Toftoy between Turoy and Naroy, about 2 miles N, is easily made out.

Pollen is the name given the continuation of Austefjorden N of its junction with Toftoyosen.

Between Tekslo and the coast of Store Sotra, about 3 miles N, there are a number of islets and rocks which are nearly joined together by foul ground. There are several anchorages for small vessels among the islets; some of the channels leading to them are marked by perches.

Goltaosen (60°13'N., 5°01'E.) provides good anchorage with mooring rings, in depths up to 17m, sand. There is a submarine pipeline crossing the channel close to its S entrance.

Ternneset (60°14'N., 4°59'E.) is a projection on Store Sotra close NE of Lutatangen. From Ternneset, the W coast of Store Sotra trends in a general N direction for about 5 miles to Roksneset, then irregularly ESE for 2.75 miles, and then in a general N direction for about 10 miles to **Vindneskarven** (60°27'N., 5°00'E.), the N extremity of the island.

This side of the island is much indented by inlets and coves and is fronted by several islands; numerous islets and patches of foul ground extending up to 3.5 miles offshore.

Stallen (60°17'N., 4°57'E.) is a point on Store Sotra about midway between Grimsoy and Rocksneset. South and SW of Stallen, the outermost dangers lie from 0.5 mile to 1.2 miles off Store Sotra. Malmen, marked by a beacon, is the largest of a group of islets and rocks lying up to 1.25 miles W of Knappen, a point 1 mile S of Stallen. Teigen, a 7m depth, lies about 1 mile W of Stallen.

4.7 Goltasteinen (60°13'N., 4°58'E.), a small islet, but lofty and easily identified by an iron perch on its summit, lies about 1 mile WSW of Lutatangen, the NW extremity of Golta, an island which lies in a bight on the SW side of Store Sotra.

Telavag (60°15'N., 4°59'E.), a narrow inlet about 1 mile N of Ternneset, trends NNE for about 2 miles from its entrance. Grimsoy is a 55m islet on the NW side of the entrance.

Nordre Stuholme and Sore Stuholme are two smaller islets close off the NE side of Grimsoy.

Valoyane lie on the W side of Telavag approach. A beacon stands on the E end of the largest islet of the group.

Within Telavag, Stekkholme lies in mid-channel, about 1 mile from the entrance. A 3m shoal lies about 183m N of Stekkholme. Other known dangers near the fairway are marked by iron perches. Several overhead obstructions, with a least vertical clearance of 13m, span Telavag. Some quays in Telavag have alongside depths of up to 6m.

Anchorage.—Vessels of moderate draft can anchor in several places within Telavag. Care must be taken to avoid the 3m shoal N of Stekkholme and the submarine cables that cross the inlet. Anchorage can be taken between Nordre Stuholme and Sore Stuholme, E and N of Stekkholme, in sand and clay.

Small vessels can anchor, in up to 22m, in the W end of Rynjelsosen, the channel between the N side of Grimsoy and Store Sotra.

4.8 Hissoyna (60°18'N., 4°56'E.) lies with its SE point about 0.2 mile W of Rocksneset. Between Stallen and Roksneset the outermost shoals and rocks lie within 1 mile W of Store Sotra.

Rabbarosen (60°18'N., 4°57'E.) a small bay which is entered about 0.2 mile S of Roksneset, is available for small craft with local knowledge. The approach from W is deep, but there are dangers near the fairway. The best approach is from SW, passing between Mokalasset and Augnarholme. Myrbaerholme is on the S side of the bay entrance. Augnarholme is a smaller islet close W of Myrbaerholme.

Anchorage.—Small vessels can take good anchorage in the S part of Rabbarosen E of Myrbaerholme, but care must be taken to avoid foul ground extending about 91m from the E shore.

Mokalasset (60°18'N., 4°56'E.) lies above water, about 0.3 mile W of Augnarholme. Sore Mokalassflu and Nordre Mokalassflu, with depths of 9.5m and 5m, lie about 0.3 mile SSW and 0.25 mile WNW, respectively, of Modalasset. Grytebaen, a rock awash, is located about 0.2 mile NW of Mokalasset.

Salen, an above-water rock, is on the N side of the fairway about 0.2 mile N of Augnarholme. A reef extends about 91m SW from Salen; there are depths of less than 9.1m within 183m E of the rock.

Between Hissoyna and **Haveroyna** (60°24'N., 4°56'E.), about 5 miles N, are Lokoyna, Langoyna, Algroyna, and many islets and rocky areas. Overhead cables, with vertical clearance of at least 10m, span the fairways between Hissoyna, Naroyna, Syltoyna, Lokoyna, Langoyna, and Algroyna. An overhead cable, with a vertical clearance of 24m, and a bridge, with a vertical clearance of 15m, span the channel between Langoyna and Store Sotra, about 0.4 mile S of the N extremity of Langoyna. On the E side of the islands above are narrow channels leading into an inner basin, which is formed in a bight on the W side of Store Sotra.

This basin forms the approach to **Fjellspollen** (60°18'N., 5°03'E.). From its narrow and shallow entrance, Fjellspollen trends N for about 2 miles and S for 1.25 miles through the middle part of Store Sotra. Only small vessels should attempt to use the channels leading to these inner basins. Some of the dangers near the fairways are marked by perches.

4.9 Kalsoyane (60°19'N., 4°56'E.), several close-lying islets from 13 to 20m high, lie within 0.5 mile NNW of Hissoy.

Kalsoyflu, with a least depth of 3m, lies about 0.2 mile W of the farthest SW islet.

Store Lonoy, a conspicuous island, is located about 1 mile NW of Hissoy. Several islets lie close off the W and SW sides of Store Lonoy; within 0.75 mile S and NW and 0.5 mile W of the island there are other small islets and foul areas.

Nordre Tjornoy (60°22'N., 4°55'E.), marked by a light, lies about 0.3 mile off the NW side of Algroyna.

A beacon with a cross topmark stands on Ljosoy, about 2 miles N of Norde Tjornoy.

Breidflu, a 9.1m depth, is located about 1 mile WNW of the beacon on Sore Tjornoy. Other detached shoals, with depths of less than 1.8m to 11.9m, lie within 0.6 mile NNE of Breidflu.

Polleflu, an 11m depth, and Landrobaen, a 5.9m depth, lie about 1 mile WSW and 1.5 miles W, respectively, of the beacon on Ljosoy. Numerous other dangers are located between the described dangers and the islands fronting the coast of Store Sotra.

Kartveit (60°23'N., 5°00'E.), a village, lies on the E shore of an inlet extending from Eideosen into the W side of Store Sotra. There are two quays, with alongside depths of 4 to 7m, located at Kartveit. Fuel oil is available.

Approximately 5.4 miles NNE of Norde Tjornoy, the small islet of Ertenskjaer lies about 0.6 mile W of **Sandoyni** (60°27'N., 4°53'E.) and is the W danger of the group of islands and islets in this area. The islets of **Odden** (60°26'N., 4°56'E.) and the shoal Oddefluene lie about 0.6 mile S of Ertenskjaer and Ertensskjerflu.

4.10 **Turoyna** (60°27'N., 4°55'E.) has a beacon on its 81m summit, about 0.25 mile from the N end of the island. Lille Turoyna is close off the SW side of Turoyna. Other smaller islets and many rocks, both above and below-water, lie nearby; a chain of islets and dangers extends nearly 1 mile SE from near Giljeneset, the S extremity of Turoy.

Magoyna, Kvaloyna, and Sandoyni are the principal islets of a group that includes many smaller islets and rocks and lies between 0.7 mile and 1.7 miles W of Turoy.

Vestre Odden, an above-water rock, is near the SW edge of this area. Shoal water extends about 0.2 mile SSW from Vestre Odden.

Svartskjaeri, a small area of above and below-water rocks, is centered about 0.5 mile S of Magoyna.

Svartskjersosen is the basin that lies S and SSW of Turoy. The entrance from seaward is S of Svartskjerosen. Hattholme lies on the SE side of the Svartskjerosen entrance, about 1 mile SSE of Maioy.

Hattholmbaen, a 3.2m depth, and Svartskjergrunnane, with a least depth of 12.8m, lie about 0.2 mile NW and 0.5 mile W, respectively, of the N end of Hattholme.

Vindoysen, the basin E of Turoy, is bound on the N by Store Skarvoy, some nearby smaller islets, and the S end of Toftoy; on the E by the island of Misje, and on the S by Store Vindoy, Lille Vindoy, and Vearoy.

A light is shown from a position close off the NW extremity of Lille Vindoy.

Solsviksund is the narrow channel between the N end of Store Sotra and Misje. Svelgen is the channel between Misje and the SE side of Toftoy. Both channels lead into Hjeltefjorden. Charted depths in these narrow channels are 16 to 21m.

A light is shown from the SW extremity of Misje, close W of the entrance of Solsviksund. A light is shown from a hut on the N extremity of Misje in Svelgen channel. The E end of the channel is also marked by lights. Iron perches mark some of the dangers near the channel fairways.

Solsviksund may be approached from S, but the principal approach is from W through Svartskjerosen and **Hjelmeholsen** (60°25'N., 4°56'E.), passing well S of Lille Hjelmen, the islet at the SE extremity of the islet chain extending from Turoy, and then E of Geitaroy and Bollholme, two islets which are near Store Sotra.

Care must be taken to avoid a 5m depth lying near the fairway in a position about 137m E of the N end of Bollholme.

A bridge, with a vertical clearance of 18m, spans Solsviksund close within its S entrance. Fixed red lights mark the centerline.

A quay, located on the W side of Solsviksund, has an alongside depth of 6m.

A submarine cable runs from Utfall, located on the coast of Store Sotra W of Bollholme, NW past Lille Vindoy, and then W to Turoy. A submarine cable exists in the N portion of Svelgen, passing around the N extremity of Misje.

At Utfall, there is a quay, with depths of up to 9m alongside.

Tides—Currents.—Tidal currents in Solsviksund and Svelgen set N into Hjeltefjorden during the rising tide (beginning about 6 hours 10 minutes after HW at Bergen) and seaward from Hjeltefjorden during the falling tides (beginning about HW at Bergen). The currents set strongly at times.

Anchorage.—Anchorage can be taken in Tjuvvika, a cove on the N side of Svelgen, N of the N extremity of Misje, in 18m, sand. Caution must be used to avoid the submarine cable off the N side of Misje.

Several narrow channels are formed by Store Skarvoy and the islets near it which lie between Turoy and Toftoy. They lead NW from Vindoyosen into the SE side of Tofteviki and are spanned by cables, with vertical clearances of 18m to 32m. Shoals, marked by iron perches, lie in the channel between Turoy and the islets close E, and in **Skarvoysund** (60°27'N., 4°56'E.) fairway, the channel between Store Skarvoy and Toftoy.

4.11 The bay of Toftevika is bound on the S by Sandoy, Knappane, Turoyna, and Store Skarvoy and on the N by Kvannholmen, Froa, Nuroyi, and **Rongoyni** (60°30'N., 4°55'E.). Depths in Toftevika are irregular and, except for a few detached patches, exceed 36m. Navreskjaer, a detached reef which is above-water near its S end, lies in the middle of Tofteviki.

Bjornoy lies near the NW side of Toftoyni, about 2 miles N of Store Skarvoy. Kjempa, a rock marked by an iron perch, is on the outer edge of foul ground extending nearly 0.25 mile SW from Bjornoy. A light is shown from an iron perch located off the NE extremity of Bjornoy, between Bjornoy and Toftoy.

Rongsund is the channel between Toftoyni and **Bjornoyni** (60°29'N., 4°56'E.), on the E, and Rongoy and islets extending S from that island, on the W. It joins Tofteviki with Hjeltefjorden.

Rongsund is narrow; the S approach is intricate. Depths in the fairway are about 18.7 to 48m, but there are nearby dangers. Cables exist in the inlet S of Rongsund and N of Bjorno. Anchorage is not permitted in this area.

4.12 Toftevag (60°29'N., 4°56'E.) indents the W side of Toftoy extending S from Bjornoy. Two quays, with alongside depths of 3 to 7m, are located at Toft close to the head of Toftevag.

Tides—Currents.—Tidal currents in Rongsund have the same characteristics as those in Solsviksund and Svelgen.

Anchorage.—Small vessels can anchor in Torsteinsvik, on the SE side of Rongsund, NE of Bjornoy. The anchorage has depths of 12.8 to 22m and is free from dangers; mooring rings are available. Quays, with depths of up to 4m, are located in the cove.

Kjeldosen, between the N side of Nuroy and two islets named Borsholme and Sjurdholme, affords protected anchorage to small vessels, in 9.1m, in its W part.

The best approach is E of Svelslingen, which lies above water near the SE edge of a shoal that extends 0.25 mile E from a position near the E side of Nuroy.

Ulvsundet, which is entered about 1 mile ENE of **Skarvoy** (60°30'N., 4°50'E.), is the narrow sound between the islands of Ono and Rongoy, on the S, and Ulvoy and Blomoy, on the N.

It leads ENE into Hjeltefjorden and is approached from seaward between Skarvoy and Nessaengen, about 0.2 mile N, and the islets and rocks just E of these two outer islets.

The channel fairway is very narrow, and although some of the dangers are marked by lights or iron perches, its use is limited to small vessels. Power-driven vessels must not exceed a speed of 7 knots in Ulvsundet.

The E part of Ulvsundet is spanned by a bridge, with a vertical clearance of 20m, and a cable, with a vertical clearance of 32m.

Anchorage.—Anchorage can be taken in Ulvsundet close W of an islet at its E end. The depths here are 11 to 16.5m; mooring rings are available.

4.13 Rorsund, between the NW side of Ulvoyni (60°31'N., 4°53'E.) and the SW part of Blomoyni, leads into Blomvag N of Ulvoyni. Small vessels can anchor, in 22 to 26m. Iron perches and lights mark some of the dangers in the approach.

An overhead cable, with a vertical clearance of 26m, spans Rorsund about 1 mile SSE of Blomvag. Several quays, with alongside depths of 3 to 12m, lie in Blomvag. Fuel oil and fresh water are available.

Anchorage.—Good anchorage can be taken in the narrow sound between the W side of Blomoy and the islets Nautoy and Husholme, in about 14.6m, sand. A quay located in the sound has alongside depths of 3 to 10m.

Osunder (60°33'N., 4°51'E.), the narrow sound leading NE into Hjeltefjorden between Blomoy and One, is free from dangers, but is only navigable by small vessels because of its narrow width.

Tides—Currents.—Tidal currents in Osundet set N into Hjeltefjorden during the rising tide (beginning about 6 hours 10 minutes after HW at Bergen) and seaward from Hjeltefjorden during the falling tide (beginning about HW at Bergen). The currents set strongly at times.

Kollsoy lies on the SE side of Osundet entrance. Two smaller islets lie in Osundet approach about 0.1 mile W and 0.2 mile S, respectively, of the W extremity of Kollsoy. Flatskjaer, above water, and Saskjaeri, partly above water, lie within 0.2 mile SW and 0.3 mile SSW, respectively, of the S of the two above islets.

Forskjaer lies above water on the NW side of Osundet approach in a position about 0.2 mile SW of the N islet.

Husmannsflu, a 12m depth, lies in the fairway between Flatskjaer and Forskjaer.

Kvalosen (60°34'N., 4°50'E.) is the S and broadest part of the sound between One and Skogsoyni, to the W.

Anchorage.—Anchorage can be taken, in 40m, about 1 mile N of Forskjaer. Small vessels can anchor farther N in depths decreasing from 18.3 to 9.1m S of an above-water rock in the vicinity of Breidvik, close inside the N entrance to the sound.

A mole and a bridge cross the passage between One and Skogsoy close S of Breidvik. The mole and bridge prevent further progress N to all but small craft.

Breidvik has quays, with alongside depths of 4 to 5m. Fuel oil is available.

4.14 Storodden (60°33'N., 4°48'E.) is the largest of several islets and rocks lying within 0.25 mile of the SW side of Skogsoy. Tenen, a detached above-water rock, is located about 0.2 mile S of the W extremity of Storodden.

Herdlevaer is an island close NW of Skogsoy. Rossoy and some smaller islets and rocks lie on foul ground extending about 0.3 mile S and SW from Herdlevaer.

Nordre Seiskallane, a detached 7.5m depth, lies about 0.3 mile SW of the W extremity of Rossoy. Sore Seiskallane, with a least depth of 1.5m, and Borsklakken, a 14m depth, are located about 1 mile SSW and 0.7 mile W, respectively, of the same point.

Straumsundi (60°35'N., 4°51'E.) are the channels between One and Alvoyni, to the N, which lead from seaward into Hjeltefjorden and Indreleia. Islets, rocks, and bridges somewhat obstruct the passage.

Entrance from the W can be made N of Geitingen. Straumsoy, with the islet of Galten close SW of it, lies in the E end of the passage and divides it into two narrow channels, named Nordre Straumsund and Sore Straumsund.

Flatskjaer, marked by an iron perch, is on the N side of the fairway, about 0.2 mile N of the N extremity of Herdlevaer. Senholme lies on the S side of the fairway within 0.25 mile NE of the same extremity. Foul ground, marked by an iron perch, extends about 0.2 mile SE from Rotevaagoy, which lies on the N side of the fairway about 0.3 mile NE of Senholme.

A 4m rocky patch lies on the N side of the fairway, about 183m SSW of the SW extremity of Rotevaagoy. There are other dangers near the fairway of Nordre and Sore Straumsund, some of which are marked by iron perches.

Tides—Currents.—Tidal currents in Straumsundi set N into Hjeltefjorden during the rising tide (beginning about 6 hours 10 minutes after HW at Bergen) and seaward from Hjeltefjorden during the falling tide (beginning about HW at Bergen). The currents set strongly at times.

4.15 Alvoyni (60°38'N., 4°50'E.) trends about 3 miles N between its S extremity, the NW entrance point of Nordre Straumsund, and **Aadneset** (60°36'N., 4°48'E.), the N extremity of the island.

The W coast of Alvoyni is about 2 miles long and is fronted by numerous islets and above-water rocks, all of which lie within 1.3 miles of the larger island. The channel among the is-

lands and islets can be used only by small vessels.

Hjartoyni (60°38'N., 4°50'E.) is reported as the largest island off the W coast of Alvoy. Alvheimsund, a very narrow channel, especially in its S part, is marked by Iron perches and lights.

A quay, with depths of 3 to 6m, is located at the village of Alvheim on the NE shore of the sound.

Small vessels can take good anchorage, in depths up to 18m, off Alvheim.

Langoysund (60°37'N., 4°48'E.), between Alvoyni and Langoyni, provides good anchorage for small vessels, in 13 to 20m; mooring rings are used. The S entrance is the broader one and more clear of dangers than the N entrance. Care must be taken to avoid a 3m shoal near the middle of the sound.

The channel that passes the W side of the island of **Forhjelmo** (60°40'N., 4°48'E.) and the S side of Store Lyngoy, and leads into Hjeltefjorden, is entered from W between Myklebaen, on the S, and the dangers extending S from Store Lyngoy. From Myklebaen, a 2.5m depth, the channel leads SE of Lamholmflu, a 3.5m depth.

Care must be taken to avoid both Lamholmflu and Siefluene, where the channel turns NE and leads between Tikje and the SE islet of Skreiskjaerene. Care must be taken to avoid the foul ground extending from both of these islets.

After passing these dangers, vessels may enter Hjeltefjorden, passing or rounding **Robbeganstangen** (60°41'N., 4°48'E.), the N extremity of Forhjelmo, at a prudent distance.

Nordoy (60°43'N., 4°44'E.) lies on the S side of Fedjeosen, the principal approach from seaward leading into the channels of Indreleia, which continue S to Bergen.

Approach to Bergen from South

4.16 Lysefjorden (60°12'N., 5°19'E.) is a continuation of Korsfjorden from its junction with Langenuen and Fanafjord. The fjord is entered between Korsen, the SW point of Krossnes and Fluaneset, the W point of Skorpo, 2.25 miles SE.

The outer 2 miles of the fjord is deep and clear, except for islets and rocks which lie within 0.6 mile offshore on both sides. Lysoya is the largest number of islets at the head of the fjord. A conspicuous tower stands on Lysoya.

Caution.—Submarine cables lie E of Lysoya and close W of the mainland. Mariners are advised not to anchor or trawl in the vicinity.

Good anchorage for small vessels is available in several places along the shores of Lysefjorden, but local knowledge is required for entering these anchorages. Two anchorages are available at the head of the fjord and are best seen on the chart.

Fanafjorden is entered between Korsen and Leroy-Buaroy, 1.5 miles NW. The fjord trends NE for about 5 miles to the town of Fana, at its head. With the exception of some islets and dangers lying close to the shores and those at the head of the fjord, it is clear and deep.

Iron perches and a buoy mark a narrow channel between Leroy and Bjelkaroy. Perches also mark some of the dangers along the shores of Fanafjorden.

Small vessels can anchor in most of the bights on the SE side of Fanafjorden and also near the head of the fjord. There are quays with depths of 4 to 5m at the head of the fjord near Stendaholmen.

4.17 Leroyosen (60°14'N., 5°10'E.) is entered from the S between Bornestangen and the islet of Leroy-Buaroy, about 10 miles NNE. Leroyosen is the principal channel used by large vessels approaching Bergen from the S. Both sides of the channel are comparatively steep-to.

A light is shown on Bornestangen and Tangaflu. A light is also shown from an islet close off the SW side of Leroy.

On the W side of the channel, good anchorage with mooring rings can be obtained by small vessels close W of Svinstangen.

Klokkarvik (60°13'N., 5°10'E.) lies about 1 mile NNW of Svinestangen and offers anchorage to small vessels, in 7.3m. A small quay is located in the port.

On the E side of Leroyosen there are several anchorages which are suitable for vessels with local knowledge.

Temporary anchorage can be taken, in 14.6 to 16.4m, off the W end of Leroy-Buaroy. Anchoring and fishing are prohibited in the area of Leroyosen that is best seen on the chart.

Raunefjorden (60°16'N., 5°10'E.) lies just N of Leroy and Bjelkaroy. The fairway through Raunefjorden leads W of a group of islands and islets and has ample depths for large vessels. Rauneskjaerene Light is shown on the SW end of a reef which lies in the middle of Raunefjorden.

A beacon lies about 0.1 mile E of the light. A light is shown on the NW side of Flatoy, which lies 0.5 mile E of the above light. Large vessels can anchor in the vicinity of Flatoy. Care must be taken to avoid a shoal E of the islet.

4.18 Vatlestraumen (60°19'N., 5°12'E.) trends N and NNW on the E side of Bjoroy for about 4 miles and is the preferred passage from the N end of Raunefjorden to the channel N of Bjoroy which continues farther N into Byfjorden.

The fairway through Vatlestraumen is deep and free from dangers. A light marks a rock on the E side of the fairway near its S entrance point. A light is shown on a small point about 2 miles N of the above light. A number of other navigational aids can best be seen on the chart.

Small vessels with local knowledge can anchor in the bight off Flesland, in depths of 7.3 to 26m. Larger vessels can anchor in depths up to 46m in a bay N of Tangen, avoiding a 4m patch close off this small point. A quay, with depths of from 4 to 6m alongside, is located in this bay.

Grimstadfjorden (60°19'N., 5°14'E.) lies on the E side of Vatlestraumen. The fjord extends 1.5 miles E and then divides into two arms; one trends 1.25 miles NNW to Mathopen while the other trends SSE to Dolvik. Tidal currents of up to 5 knots have been reported (2008) in the N branch of the fjord. The fairway through most of Grimstadfjorden has depths exceeding 37m.

A light is shown on shore at the E extremity of the fjord and also on the NW shore of Store Bogoy. The N part of Grimstadfjorden contains a restricted area surrounding Transverse Naval Base, which can best be seen on the chart. Stamneset lies on the S side of Grimstadfjorden. A quay at an oil tank installation on the E side of Stamneset has a depth of 14m alongside.

A mooring buoy lies close E of the quay. Nordasstraumen leads E from the S arm of Grimstadfjorden and connects the fjord with the inner basin of Nordasvatn. The channel is very narrow and can only be used by small vessels. The least depth

in the fairway is 3.4m. A cable with an overhead clearance of 25m spans Nordasstraumen at its narrowest part.

Anchorage.—A bight on the E side of Store Bogoy provides good anchorage for small vessels, in 12.8m. Such vessels can also anchor in, 14.6 to 20.1m, in the N arm of Grimstadfjorden, about 1 mile NNE of the S end of Store Bogoy. Depths of 4 and 4.9m lie in mid-channel about 0.2 mile S of the anchorage.

Anchorage is found in the S arm off Dolvik; anchorage is also available in a small cove on the S side of Grimstadfjorden about 0.3 mile W of Stamneset. A 6.1m patch lies just N of the cove entrance.

4.19 Kobbaleida (60°19'N., 5°09'E.) is an alternate passage leading N from Raunefjorden. The passage is bounded on the W by the island of Store Sotra and on the E by the islands of Tosoy and Bjoroy. Depths in the fairway through Kobbaleida are ample for large vessels, but caution is necessary because of nearby dangers.

There is a submarine cable across Kobbaleida about 2 miles N of its S entrance. Liholmane, a group of islets, lie on the E side of the fairway about 0.5 mile NW of the N extremity of Tosoy. A light is shown from the W side of the S islet of the group. The dangers on the E side of the fairway are well marked by navigational aids and can best be seen on the chart. There are no recommended anchorages in Kobbaleida.

From the junction of Vatlestraumen and Kobbaleida, a deep, clear channel trends N for about 2 miles to Stangsnes, a mainland projection at the SW end of Byfjord. Depths in the fairway are from 64 to 97m. A depth of 1.8m lies on the W side of the fairway, about 0.1 mile N of the beacon marking Fuglaskjaer.

Alvoyvag (60°21'N., 5°11'E.) lies on the E side of the above channel, about 1 mile NNE of Fuglaskjaer. A 3.6m patch lies in the middle of the narrow entrance to Alvoyvag.

A small quay, with a depth of 4m alongside, is located at Alvoen, a small town on the NE side of Alvoyvag. Stongi Light marks a rock on the E side of the channel close W of Stangsnes. A bridge, with a vertical clearance of 50m, crosses the channel close N of Stongi Light.

4.20 Brattholmen (60°21'N., 5°10'E.) (World Port Index No. 23180), a small settlement on the W side of the channel on Litlasotra, lies about 1 mile N of Fuglaskjaer. A pier close to the settlement has a depth of 4m alongside. Anchorage is available for small vessels, in a depth of 11.8m, off the settlement.

The W entrance to Byfjorden lies between Stongi Light and Hjelteskjaer Light, nearly 1 mile to the NNE. This SW reach separates the S side of Askoy from the mainland and trends NE for 2.25 miles to Kvarven, which shows a light, and then continues E for about 1 mile to the W limits of the port area of Bergen at Olderneset. Both sides of this reach are steep-to, with a few existing dangers within 183m of the shores. Depths in the fairway are ample and in most places exceed 183m. Submarine cables cross the fjord at Storebuneset and about 0.5 mile farther NE.

The **Askoy Bridge** (60°23.7'N., 5°12.9"E.), with a vertical clearance of 62m, crosses the SW arm of Byfjorden in the approach to Bergen.

Skardholmen (60°24'N., 5°13'E.) is located about 0.2 mile NE of Storebuneset. A tanker wharf, with depths of from 10 to 24m alongside, is located at Skardholmen. A cove close NE of Skardholmen affords good anchorage, with mooring rings for small vessels at its N end.

A large oil tank installation in Klampevik has a quay, 76m long, with depths from 11 to 16m alongside, and a shorter quay, with depths of up to 19m alongside.

Caution.—A suspension bridge extends SSE from Skardholmen to Brysteneset. It had a reported (1992) vertical clearance of 60m.

4.21 Skalevik (60°24'N., 5°14'E.), about 0.2 mile SSW of Kvarven, has two oil quays, the W and E of which are approximately 79 and 46m long and have least depths of 15 and 6.4m alongside, respectively. A rock, marked by an iron perch, lies close off the W entrance point of Skalevik. Storholmen, an islet, lies about 0.5 mile N of Kvarven. A quay on the W side of the islet is 85m long, with depths of 14 to 17m alongside. There is a small quay on the E side of the islet, with an alongside depth of 9m.

Anchorage.—Marikoven has good anchorage in a nearby cove, in a depth of 30m, sand. This is a good temporary anchorage for deep-draft vessels. There are mooring rings in the outer part of the cove.

Approach to Bergen from North

4.22 Fedjeosen (60°44'N., 4°44'E.) is the principal N approach to Bergen. It affords direct access from sea into the channels of Indreleia, which continue S to Bergen for about 30 miles. It is about 1 mile wide between the island of Fedje and the islets to the S.

On the S side of the channel, Bolleflesi, a rock lying on foul ground which breaks, is located about 1 mile NW of Nordoyni. A racon is situated at the lighted beacon standing on the rock. A light is shown from the NW end of Nordoy.

On the N side of the channel, Ostre Hellisoy is situated close to the SW side of Fedje. A prominent light tower, 3m high, stands on the island. A racon is situated at the light tower.

In addition to the above, at night, the lights at **Onglesundet** (60°43'N., 4°52'E.) and **Vardholmen** (60°46'N., 4°52'E.) may be of aid to navigation in the channel.

Hakeskallen, a 14m patch, lies about 1 mile NW of Bolleflesi and reduces the navigable width of the channel to about 1 mile. Other dangers S and W of Hakeskallen may best be seen on the chart.

Vessels from the N proceeding to Bergen can pass through the length of Hjeltefjorden and then through the SW reach of Byfjorden, the channels of which lead W and S of Askoy. An alternative route leads from the N part of Hjeltefjorden into Herdlefjorden, through that fjord, and then through the N reach of Byfjorden. These two routes are the ones generally used.

Pilotage.—Pilots are transferred by helicopter at the Hordaland-Fedje pilotage station. Pilotage rules and information are, as follows:

1. Pilot boarding places are, as follows:
   a. Fedje Vest (60°46.0'N., 4°27.9'E.).
   b. Holmengra Vest (60°51.0'N., 4°25.9'E.).
2. Pilot services for vessels which exceed 30,000 gt and are classified to carry hazardous or polluting cargo as mentioned in Annex 2 of Regulation 1129/23 December 1994, on

Hellisoy Light

the Obligation to Use a Pilot in Norwegian Waters, will be provided exclusively from the pilot boarding places mentioned in paragraph 1 above. The same applies when vessels carry no cargo. Fedje Traffic Control Center may decide that other vessels should also be serviced from the pilot boarding places mentioned in paragraph 1 above.

3. Vessels as mentioned in paragraph 2 above will be offered pilot transfer by helicopter. Such offer will be given to the vessel or the agent when the initial pilot booking is made. Vessels/agents that do not immediately accept pilot transfer by helicopter will have up to 12 hours prior to commencement of the pilotage assignment in which to make a decision.

4. Vessels that receive a helicopter shall comply with the rules set out in "Guide to Helicopter/Ship Operations," issued by the International Maritime Pilots Association.

5. Vessels as mentioned in paragraph 2 above, which cannot or do not wish to have a pilot transferred by helicopter, will have a pilot transferred by pilot boat when this can be done safely. The pilot will be transferred to the new pilot boarding places mentioned in paragraph 1 above. It should be noted that to decline use of a helicopter in cases where it is not safe to use a pilot boat will result in waiting time.

6. Fedje Traffic Control Center shall not clear vessels mentioned in paragraph 2 above for entry until the pilot has embarked. Such vessels shall not be cleared for departure with a pilot on board until it is confirmed that the pilot can disembark as intended.

7. If helicopters are available, other vessels than those mentioned in paragraph 2 above may also be offered pilot transfer by helicopter provided the vessels in question satisfies the requirements of paragraph 4 above. The vessels will in the event be provided with a pilot at the new pilot boarding places.

8. The helicopter company will bill the agent for the particular vessel for all costs incurred in pilot transfer by helicopter.

9. The above measures will be implemented immediately and shall apply until further notice.

Vessels not encompassed by these measures will continue to be provided with a pilot by pilot boat at the pilot boarding places in Fedjeosen and off Holmengra. State pilots shall be booked in advance, giving 24 hours notice to Fedje Traffic Control Center.

4.23 Fedjefjorden (60°45'N., 4°47'E.) lies E of Fedjeosen and the Holmengra group, and W of many islets and rocks extending 3 miles NW from Fosnoy. On the W side of Fedjefjorden, there are no known dangers more than 183m off Fedje.

Hjeltefjorden (60°35'N., 4°55'E.) is the principal part of the N inner approach to Bergen. The fairway through Hjeltefjorden favors the W side of the fjord and passes within 0.5 mile of the outer islets and dangers on that side. Between Geitanger and the entrance of Byfjorden the fairway width is considerably reduced. Buoys or iron perches mark some of the outer dangers, and there are some beacons and a few lights.

Toska (Toskoy), a narrow island, lies on the E side of Hjeltefjorden abreast of Seloy. A small inlet which is entered from Hjeltefjorden nearly divides Toska into two parts.

The N part of Toska is known as Uttoska. Norde Flesi, marked by a buoy, lies about 0.5 mile NW of the NW extremity of Uttoska. Stureholmen, which shows a light, lies on the W side of Hjeltefjorden.

The direct Hjeltefjorden route is used by large vessels. Small vessels and vessels of moderate size usually prefer the route through Herdlefjorden, which is almost free from dangers in the greater part of its length, but narrows at its N end.

4.24 Sture Oil Terminal (60°37'N., 4°52'E.) is a major facility for the export of oil received by pipeline from the Oseberg Oil Field. The terminal is located close N of Stureholmen Light and consists of two jetties, with associated mooring dolphins, extending E from the shore 0.4 mile and 0.8 mile, respectively, NNW of the light tower. A short breakwater projects S from the shore close S of the root of the N jetty to protect the tugs.

Depths—Limitations.—Tankers up to 300,000 dwt and 23m draft can be accommodated at the terminal.

Aspect.—A conspicuous water tower, 64m in elevation, and a conspicuous flare tower, 52m in elevation, stand in the vicinity of the oil terminal and may be seen from a considerable distance.

Pilotage.—Pilotage is compulsory for all vessels over 4,000

gt carrying cargo to and from the terminal. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Regulations.—Berthing and unberthing takes place during daylight hours only.

Vessels should sent their ETA 72 hours in advance, including the following information:

1. Vessel name and call sign.
2. Flag/nationality.
3. Master's name.
4. Owners.
5. Shipper.
6. Cargo number.
7. Gross tans.
8. Summer dwt.
9. Draft fore and aft.
10. Last port of call.
11. ETA (local time and date).
12. Technical information as required by the terminal.

Vessels should obtain permission from the terminal prior to proceeding to the jetty.

Contact Information.—The terminal can be contacted, as follows:

1. VHF: VHF channel 9
2. Telephone: 47-56-386000
   47-56-386111 (main control room)
   47-56-386222 (shift supervisor)
   47-56-386333 (emergency)
3. Facsimile: 47-56-389420
4. E-mail: skiftleder.sture@hydro.com

Caution.—Helmferdflu, a rock with a depth of 3m, lies about 0.5 mile NNW of Stureholmen and close N of the S tanker berth; it is marked by a lighted beacon. Sandvikflu lies about 1 mile NNW of Stureholmen and close SW of the S end of the N tanker berth; it is marked by an iron perch.

4.25 Mangersfjorden (60°37'N., 5°00'E.) lies on the E side of Hjeltefjorden and is entered about 10 miles SE of the seaward entrance of Fedjeosen. The fjord is deep and clear in the fairway. All dangers lie within 300m of the shores. The fjord trends about 4 miles to the E and shows a light at its head.

Skjeljanger Light (60°37'N., 4°57'E.) stands on the NW end of Holsenoy. Kvernane, two above-water rocks, lies about 0.6 mile WNW of Skjeljanger Light. A beacon stands on Kvernane. Mefjordbaen Light lies about 1 mile WSW of Skjeljanger Light. An iron perch marks the NW end of Mefjordbaen.

Herdla, an island enclosing the NW end of Herdelfjorden, lies on the E side of Hjeltefjorden, with its W extremity about 2 miles S of Skjeljanger. A white church on the W slope of the island is a good landmark. A bank, with depths of less than 5.5m, extends about 0.3 mile N from the island.

4.26 Herdlesund (60°34'N., 4°58'E.), between Herdla and the N end of Askoy, is a narrow channel leading from Hjeltefjorden into the N end of Herdlefjorden. A light is shown on the NW point of Askoy. A bridge, with a vertical clearance of 16.2m, spans Herdlesund. Red fixed lights beneath the bridge indicate the center of the fairway.

Herdlefluene, a group of shoals extending S from Herdla, are marked by an iron perch at their E end, which dries, lying 0.2 mile SW of the bridge.

Between Krabbejoneset and the Byfjorden entrance, about 11 miles SE, the fairway of Hjeltefjorden continues to be deep and clear, and for the most part favors the W side of the fjord. Both shores are irregular, and most of the detached islets and dangers are on the E side, lying up to 1.5 miles off the W side of Askoy.

Store Jona lies on the W side of the fairway of Hjeltefjorden, about 1 mile E of Krabbejoneset. Store Jona consists of two close-lying islets. A light is shown on the S islet.

Rongsund (60°30'N., 4°56'E.), on the W side of Hjeltefjorden, is entered between Rongoy and Toftoy, about 1 mile S of Store Jona. Vikavag, on the E side of Toftoy, has mooring rings. The largest of several quays, situated on the E side of Vikavag, has depths of up to 7m alongside.

Hanoy and Hauglandsoy, on the W side of Hjeltefjorden, are the largest islets in an archipelago which extends about 2 miles from the W side of Askoy and forms the NW side of a basin named Hauglandsosen.

Lights and iron perches mark several intricate channels among the islets. A light is shown from a rock N of Hillesoy.

An overhead cable, with a vertical clearance of 22m, extends NE from **Ramsoyni** (60°26'N., 5°03'E.) to Hanoy. A causeway and bridge have been constructed between Hanoy and Ramsoy.

Nordre Brattholme (60°24'N., 5°06'E.), which shows a light, lies on the W side of the fairway, 2 miles S of Hanoy. Store Brattholme, marked by a beacon, lies close W of Norde Brattholme. Faeroy, an island, lies about 1 mile E of Nordre Brattholme Light. A small boat harbor, protected by a mole, is located at Follese, which lies on the SW side of Askoy.

4.27 Agotnes (60°24'N., 5°01'E.) (World Port Index No. 23195) is a supply and servicing base for offshore industry.

Port of Agotnes Home Page
http://www.coastcenterbase.no

Depths—Limitations.—Berthing details are shown in the accompanying table titled **Agotnes—Berthing Information**.

Agotnes—Berthing Information

Berth Name	Length	Depths Alongside
No. 1	50m	7m
No. 2	52m	7m
No. 3	105m	21m
No. 10	30m	7m
No. 11	70-80m	10-50m
Ro-Ro	110m	12m
No. 31	60m	10m
No. 32	60m	10m
LNG	43m	10m
ANP	40m	7m

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. Pilots are available at Korsfjorden or Fedje.

Vessels should contact the Floro pilot station on VHF channel 16 at least 2 hours prior to arrival. If the station does not respond, either the Rogaland or Floro Coastal Radio Station will reply and relay details to the pilot station.

The pilot boards for the S entrance in position 60°08.6'N, 5°00.9'E, about 0.7 mile N of Store Marstein. Pilot boarding for the N entrance is covered under Fedje (see paragraph 5.3).

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 10
2. Telephone: 47-56-323000
3. Facsimile: 47-56-335191
4. E-mail: ccb@coastcenterbase.no

Anchorage.—Anchorage can be obtained 0.25 mile N of Agotnes, in depths of 29 to 74m. Large vessels and semi-submersible drilling platforms must anchor only in positions appointed by the Port Authority.

Tranvagen, a small port, lies about 0.5 mile NW of Agotnes.

A quay in the port has depths of 5 to 7m alongside. A lighted buoy marks a 6m patch 183m W of Tranneset. Vessels of considerable size can anchor 0.3 mile N of Tranneset.

Vessels should use care when anchoring to avoid a submarine cable which exists between the shore W of this anchorage and the head of Tranvagen. Near the anchorage, there is a quay, with 3 to 7m alongside.

There area number of anchorages between Krabbejoneset and the entrance to Byfjord. These anchorages, except as noted, are suitable only for small vessels with local knowledge, and can best be seen on the chart.

A protected area has been established around the oil terminal. Berthing and unberthing are only permitted during daylight.

4.28 Herdlefjorden (60°32'N., 5°05'E.) is a deep clear fjord separating Holsnoy and Askoy. From the N entrance, it trends ESE for about 9 miles, where its joins with the N part of Byfjorden at Askeneset. The few islets and dangers in Herdlefjorden all lie within the several inlets on either side or close to the shores.

An area in which anchoring and fishing is prohibited lies within the entrance to Herdlefjorden between Nesodden and Ypso. Small vessels with local knowledge can obtain anchorage in Herdlefjorden.

The N entrance to Byfjorden is entered between Askenset and Galteneset, 1 mile to the NNE. This entrance is at the junction of Byfjorden, Herdlefjorden, and Salhusfjorden. This reach is very deep and all known dangers lie close off its shores. Submarine cables cross the reach in two places and can best be seen on the chart.

4.29 Radoyfjorden (60°35'N., 5°11'E.) lies between Holsnoy and Radoy. The fjord is free from dangers in the fairway, except in the vicinity of Saeboholmane. A quay, with depths of 3 to 6m alongside, is situated about 1 mile NNW of Saeboholmane.

Bongnestraumen, between the NE side of Bongno and Radoy, is a narrows connecting Radoyfjorden with Mangersfjorden. A light is shown on the N side of Bongno. A cable, with a vertical clearance of 37m, spans Bongnestraumen. This channel has a least depth in the fairway of 21.9m and, although narrow, is free from dangers.

From abreast the E extremity of Bongno, Radoyfjorden trends in a general SE direction for about 5 miles and joins Kvernafjorden in the vicinity of Tjuvholme. The fairway through the fjord is deep and clear, but there are some nearby dangers.

Kvernafjorden trends SE for about 2 miles to the N end of Hagelsund. Navigation is prohibited to all but local vessels between Flatoy and Holsnoy. A light marks a shoal on the SW side of Kvernafjorden, about 0.3 mile SSE of Tjuvholme.

Three cables span the channel between Flatoy and Holsnoy and can best be seen on the chart.

Salhusfjorden trends SSW from its junction with Hagelsund for about 3 miles to its junction with Herdlefjorden and the N reach of Byfjorden. Salhusfjorden is very deep and has a fairway clear of dangers. Foul ground extends about 183m SW from a projection on the E side of the S entrance of the fjord. A submarine cable crosses the fjord 0.5 mile within its entrance. Salhus, on the E side of the fjord, has two small quays. At Frekhaug, 1 mile NW of Salhus, there are quays. with depths of from 3 to 6m alongside.

A bridge and racon, with a vertical clearance of 32m, crosses Salhusfjorden from the SW extremity of Flatoy to Klauvneset, about 0.8 mile SE.

4.30 Lurefjorden (60°42'N., 5°07'E.) is approached from Fedjeosen and the S end of Fedjefjorden by passing N of Store Sandholme and the dangers E of this islet and then through Hoplandsosen and Fosnstraumen. The S approach is made from Kvernafjorden by way of Alversund, Radsundet and Lureosen. A light marks the N side of the NW entrance of Hoplandsosen. Taren, awash in places and marked by an iron perch, lies on the S side of the Hoplandsosen entrance.

Kraka is an above-water rock on the SW side of Hoplandsosen. Fosnstraumen is the narrow channel between the N side of Radoy and the S end of Fosnoy and connects Hoplandsosen with the NW end of Lurefjorden. The fairway has a least charted depth of 20m. Two overhead cables, with a minimum vertical clearance of 15m, span the channel.

Lurefjorden trends about 9 miles SE to the narrow Rylandspollen. Seimsfjorden continues about 3 miles SSE from Lurefjorden. Both of these fjords are clear and deep in their fairways. Numerous lights mark the channels leading N and S from Lurefjorden. The dangers in these channels are also marked by iron perches or beacons.

Alverstraumen (60°34'N., 5°14'E.), which leads 1.5 miles NNW from Kvernafjorden, is spanned near the S end by a bridge, with a vertical clearance of 27m. The fairway N of the bridge is well marked by navigational aids.

There are quays, with least depths of 3m alongside, on the E side of the channel at the village of Alversund, near the bridge.

There is anchorage for small vessels in several places N of a submarine cable which lies across the channel 0.25 mile N of the bridge, care being taken to keep clear of the fairway. The S part of the channel is spanned by an overhead cable with a vertical clearance of 28m; the N part of the channel is spanned by

Bergen Harbor—Vagen from SE

an overhead cable with a vertical clearance of 36m.

Radsundet has a length of about 5 miles from its S entrance at Alverstraumen to its N entrance at Bruknappen. The W side and both ends of Radsundet is well marked by lights.

There are quays at Skardsvag and Notlevag. Quays at Sandvik, situated 1 mile SSW of Skardsvag, and Askeland have depths of 7m alongside.

Bergen (60°24'N., 5°19'E.)

World Port Index No. 23160

4.31 Bergen is often called the capital of West Norway and has been a city for over 900 years. It has a population of more than 210,000. Known for shipping and fishing in the past, it is now identified as a servicing and supply base for the offshore oil and gas fields of the North Sea in the vicinity of SW Norway as well.

Located on the NW side of the Bergen peninsula and on the SE part of Byfjorden, the city's harbor includes bights and inlets which lie E of a line running N for about 3 miles from Olderneset to Hella.

Passenger, ro-ro, tanker, bulk, and general cargo vessels can be handled. In addition, the port has drydocks and shipyard facilities for the offshore oil industry.

Port of Bergen Home Page

http://www.bergenhavn.no

Winds—Weather.—Generally, the wind direction is from S to SE during the winter and from N to NE during the summer.

Weather conditions vary between the outer islands, the region near Bergen, and in the fjords of this sector. The climate at Bergen is mild, humid, and rainy.

Bergen harbor freezes only during very severe winters. Fog occurs during the summer.

Tides—Currents.—The mean HW interval at Bergen is 10 hours 17 minutes.

Tidal currents in the port are negligible, except in Damsgardssund, where a slight set may be encountered during both the rising and falling tides.

Depths—Limitations.—Puddefjorden, the outer roadstead, has general depths of 9 to 37m. Close offshore the depths are less. On the SE side, at the head of Puddefjorden, Damsgardssund leads into Solheimsvik.

Berthing details are shown in the accompanying table titled **Bergen—Berthing Information**.

A bridge, with a vertical clearance of 26m, spans the entrance into Damsgardssund. Numerous mooring buoys are moored in Damsgardssund. Store Lungegaardsvn is entered from the NE side of Solheimsvik through a narrow passage spanned by a lift bridge.

Aspect.—Puddefjorden is the outer roadstead. Vagen is an inlet entered on the NE side of Puddefjorden; it is usually congested with ships moving in the harbor. Sandvik, a harbor basin, is entered about 0.5 mile N of the entrance to Vagen and is used by seaplanes. Nyhaven and Breidvik are small harbor basins close N of Sandvik.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

The pilot boards in the S entrance in position 60°08.6'N, 5°00.9'E, about 0.7 mile N of Store Marstein. Pilot boarding for the N entrance is covered under Fedje (see paragraph 5.3).

See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for additional information.

Bergen—Berthing Information			
Berth Name	**Length**	**Depth**	**Remarks**
Breviken Quay	15m	6.9-9.7m	
Hegreneset Grain Terminal			
GrainBerth	75m	10.0m	Grain
Skolten Terminal			
N Berth	330m	9.2m	Cruise
S Berth	330m	9.2m	Cruise and ferry
Festningskaien Terminal			
Festiningskaien	377m	4.5m	Passengers
Bradbenken Wharf	149m	6.0m	—
Deggekaien Wharf	98m	5.0m	—
Bryggen Wharf	312m	5.3m	—
Bergen Harbor Pleasure Craft Berths			
Zachariasbryggen	70m	5.4m	Pleasure craft
Torrgutstikker	170m	4.4m	Pleasure craft
Fisketorget	48m	3.8m	Pleasure craft
Blomstertorget	85m	4.0m	Pleasure craft
Strandkaiem Terminal			
Strandkaiem	191m	4.7m	Passenger
Holbergskaien Wharf	168m	5.9m	—
Munkerbryggen	203m	8.0m	Bunkering
Nykirkekain	286m	17.0m	—
Tollboden	217m	6.8m	Offshore
N Nostekai Quay	210m	4.0m	—
Hurtigruten Terminal			
Hurtigruten Quay	160m	9.0m	General cargo and passenger
Jekleviken Container Terminal			
Jekleviken Container	495m	12.2m	General and container cargo
Jekleviken Ro-Ro	185m	12.0m	Ro-ro and cruise
Dokkeskjaerskaien Terminal			
Dokken SW Quay	241m	10.8m	General cargo and cruise
Dokken Inner Quay	189m	10.2m	Ro-ro and cruise
Freieneskaien	210m	9.2m	General cargo
Mohlenpriskaie	298m	6.0m	Bulk and general cargo
Damsgardskaien	47m	4.0m	—

Bergen—Berthing Information			
Berth Name	**Length**	**Depth**	**Remarks**
Tanker Berths			
Lil Rotevaagoy-Statoil			
East Berth	61m	—	Vessels up to 19,304 dwt, with a maximum loa of 171m and a maximum draft of 8.0m, can be accommodated
West Berth	85m	—	Vessels up to 47,300 dwt, with a maximum loa of 203m and a maximum draft of 10.6m, can be accommodated
Skardholmen			
No. 1	70m	12.0m	Vessels up to 35,560 dwt, with a maximum loa of 200m and a maximum draft of 11.5m, can be accommodated
No. 2	40m	11.0m	Vessels up to 32,000 dwt, with a maximum loa of 140m and a maximum draft of 9.3m, can be accommodated
Skalevik			
Essa Oil	83m	—	Vessels up to 35,560 dwt, with a maximum loa of 228m and a maximum draft of 12.0m, can be accommodated

Bergen—Contact Information		
	Port Authority	**Port Control**
Call sign	—	Bergen Port Control
VHF	—	VHF channels 12 and 16
Telephone	47-55-568950	47-55-568980
		47-55-568981
Facsimile	47-55-568986	47-55-321203
E-mail	bergen.havn@bergen.kommune.no	skolten.havnevakt@bergen.kommune.no

Regulations.—A printed English translation of harbor regulations may be obtained at the harbor office. Regulations concerning explosives and lights are very stringent. Vessels arriving at Bergen without having been assigned an anchorage or mooring shall anchor in Puddefjorden until a berth has been designated by the harbor authorities.

Vessels should send their ETA to Port Control at least 1 hour prior to arrival. The ETA message should include the following information:

1. Vessel name and call sign.
2. Length overall, beam, and draft.
3. Flag.
4. Purpose of port call.
5. Name of agent.
6. Last port-of-call and next port-of-call.

A speed limit of 5 knots is the maximum permissible speed in the inner part of Eidsvagen.

Contact Information.—See the table titled **Bergen—Contact Information**.

Anchorage.—Vessels of considerable size may anchor in Puddefjorden, except W of a line extending 0.5 mile NW from the W end of Dokkeskjerskaien. A submarine pipeline is laid E of this line on the NE side of Dokkeskjerskaien leading about 0.5 mile N to Georgernes. The fjord is exposed to NW winds, but the holding ground is good. The prominent spire of a church, situated 0.25 mile NNE of the bridge at the entrance to Damsgardssund, is a useful mark for anchoring.

Skutevik affords anchorage to vessels of moderate size, in depths of 27 to 36m, but stern mooring is necessary as the bottom shelves steeply. The quarantine anchorage is in Florvag. There is anchorage for small vessels in Nyhavn and Breidvik.

Anchorage is prohibited in Vagen and also W of the lighted buoy in the entrance to Vagen.

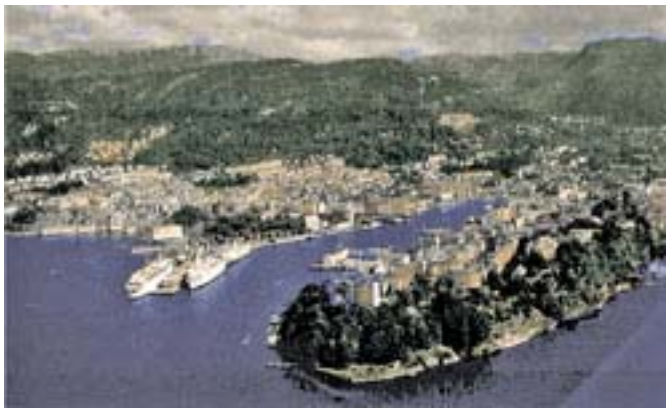
Inner Fjords Northeast of Bergen

4.32 Osteroy, a large island, lies about 6 miles NE of Bergen. The island is completely shut in by the mainland and is encircled by Sorfjorden and Osterfjorden. Both of these fjords have deep fairways and have comparatively few dangers.

Bergen Harbor

Bergen—Vagen from NW

Bergen Harbor



Bergen Harbor

Sorfjorden (60°31'N., 5°22'E.), the southernmost of the inner fjords, is entered between **Hammersnes** (60°33'N., 5°20'E.) and Hordvikneset, about 2 miles to the SW. Depths in the fairway exceed 183m, except for 1.25 miles in the NE part where it narrows, the depth is 12.8 to 33m.

The few shoal areas lie close offshore and the entire fjord is well marked by lights. It has been reported an overhead cable, with a vertical clearance of 60m, spans the fjord about 5 miles within the entrance.

Votloy (60°28'N., 5°28'E.), an islet, lies about 6 miles within the entrance near the middle of the fjord. A light is shown on the islet.

Arnavag, which branches S from Sorfjorden, is entered 0.5 mile SSW of Votloy. There are a number of quays for small vessels inside the entrance to Arnavag.

A bridge, with a vertical clearance of 53m, crosses Sorfjorden about 3 miles SE of Votloy.

Vaksdal (60°29'N., 5°44'E.) (World Port Index No. 23140), an industrial center, is located on the E side of Sorfjorden, ENE of the light on the islet of Ulsnesoy. Large vessels can berth at the largest quay, which is 145m long, with depths of 7 to 21m alongside. There are several small quays in the port.

Dokkeskjskaien

Vessels bound for the port must first call at Bergen for customs clearance and a pilot. A conspicuous mill and silo stand in the vicinity of the quay.

Anchorage.—Good anchorage can be obtained by small vessels in Veavik, on the W side of Sorfjorden, 4.5 miles N of the entrance to Dalevagen. Stamneshella, on the N side of Vikafjorden close within the entrance, is an anchorage with mooring rings W and E of the main quay, which is 64m long and has depths of up to 5m alongside.

Good anchorage can be obtained by small vessels in Kallandsbukt close NE of Kallandsholmen, in depths of 10 to 18m, sand.

4.33 Eidsfjorden (60°43'N., 5°47'E.) trends NNE for about 3.25 miles from the N end of Sorfjorden. It is narrow and, except for a shoal lying within 1 mile of its head, has fairway depths of 30 to 106m. The depths close offshore are between 12.8 and 20.1m.

Mellesdalsund is the winding channel leading in a general NW direction for about 3 miles on the N side of Osteroy and connecting the N end of Sorfjorden with Romarheimsfjord.

The fairway through Mellesdalsund is deep and clear of dangers. Romarheimsfjord, entered between Langeneset and the E side of Haukoy, leads 3 miles NE to Mofjorden, which continues NE for another 6.5 miles.Osterfjorden is entered between Hammersnes and a mainland point, about 2 miles to the W. The fjord trends in a general NE direction for about 13 miles and joins the S end of Romereimsfjord. Fairway depths through the fjord are ample and the fjord is clear. The only dangers are found within the side inlets and coves or lie within 183m of the sides of the fjord.

4.34 Lonevagen (60°33'N., 5°27'E.), on the SE side of Os-

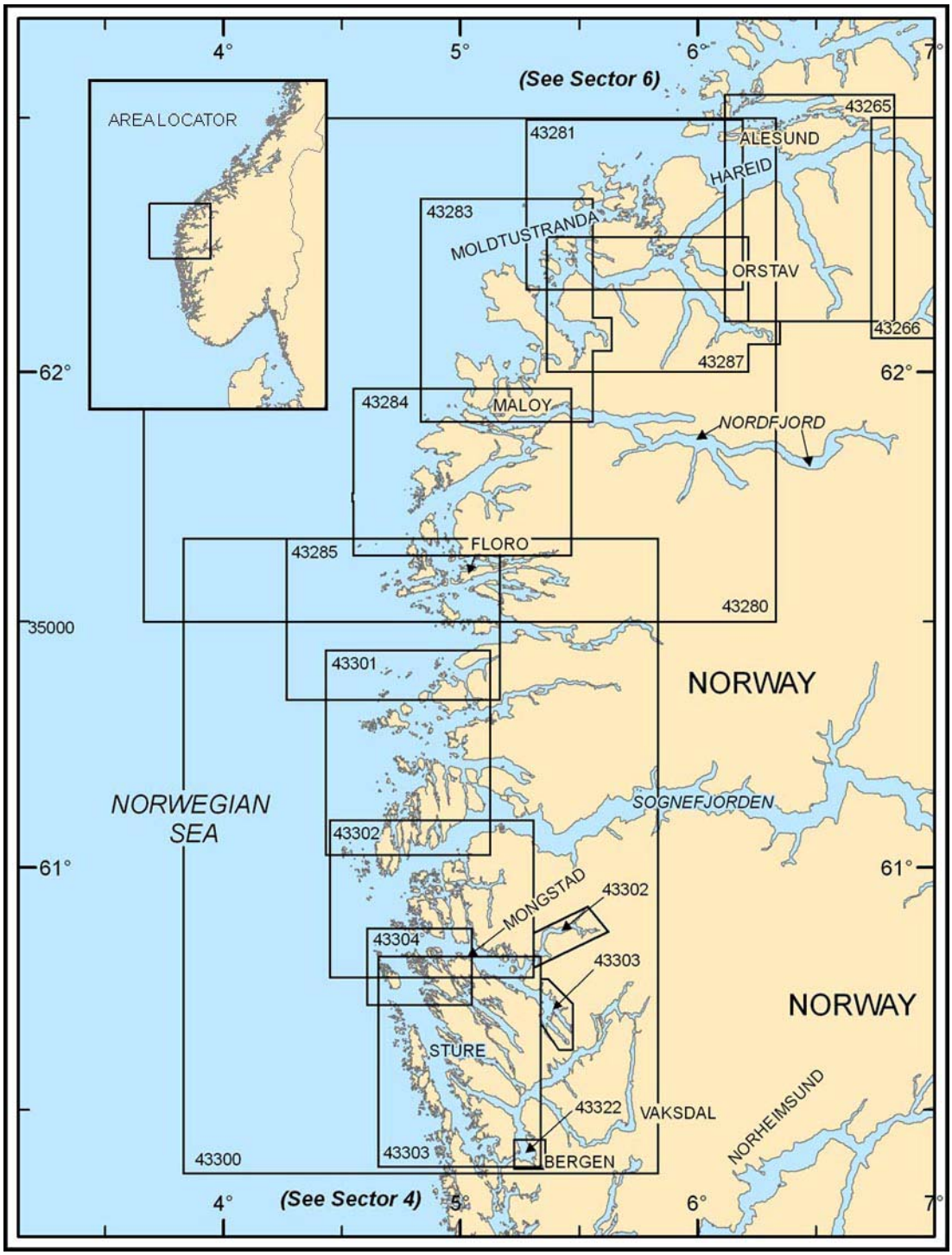
terfjorden, is entered 3 miles ENE of Hammersnes and extends about 3 miles SE. The entrance is narrowed to a width of 183m by submerged rocks, marked on the NE side of the entrance by an iron perch.

On the SE side of Osterfjorden, small vessels can anchor in Lonevagen between some islets and the W entrance point. The inlet has several quays, with depths of from 3 to 5m alongside.

At Ostereidet, on the NW side of Osterfjorden, there is anchorage for small vessels W of a quay, which has a depth of 3m alongside.

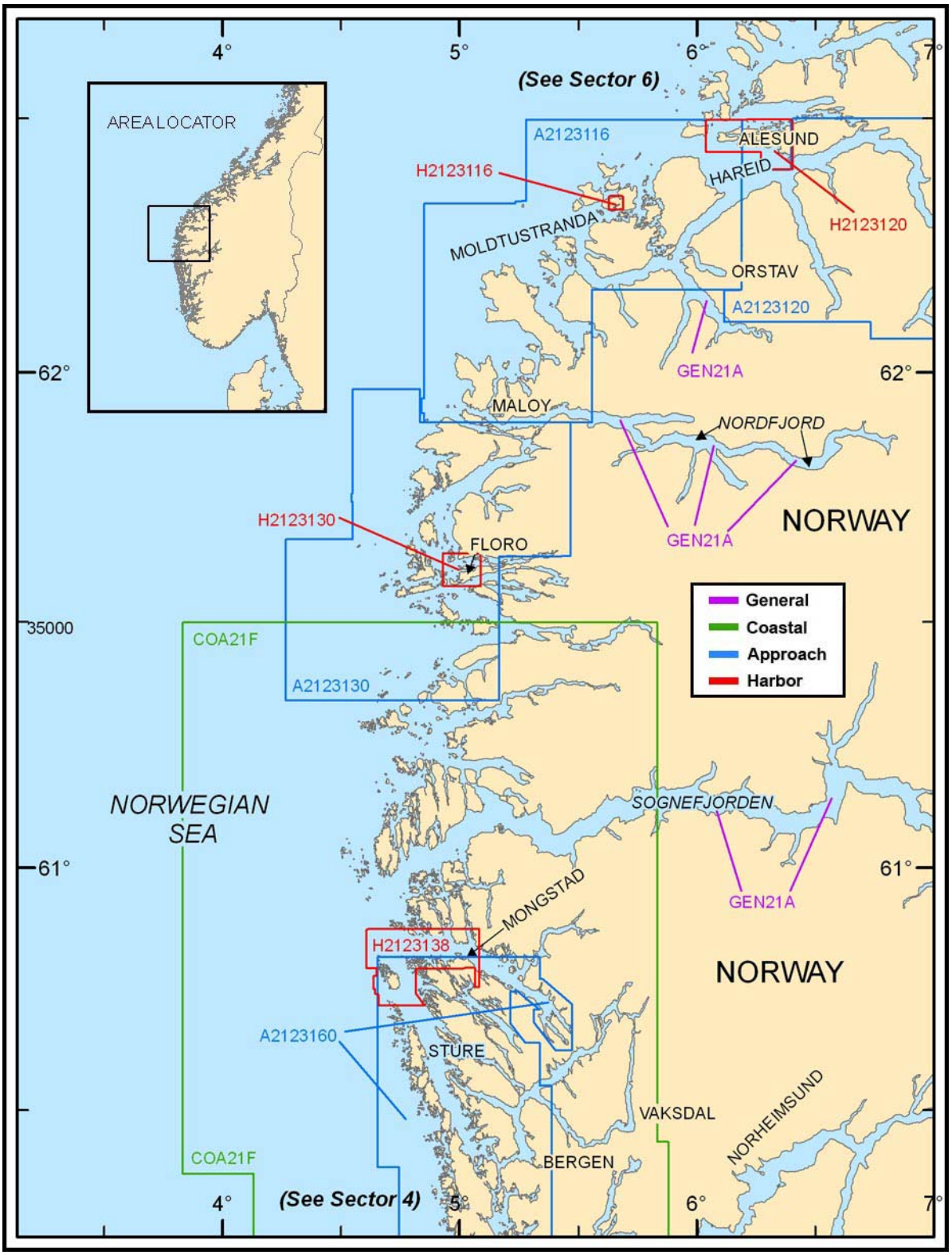
At Kleppsvag, on the S side of Osterfjorden, good anchorage is available to small vessels at its head, in depths of 20 to 30m; it has mooring rings. There is a rock, awash, near the middle of the entrance to this inlet.

There are a number of other anchorages for small vessels in Osterfjorden that can best be seen on the chart.



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

SECTOR **5** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 21 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 5 — DNC LIBRARY INFORMATION

SECTOR 5

NORWAY—FEDJE TO ALESUND

Plan.—This sector describes the outer coast from Fedjeosen N to the approaches to Alesund. The Indreleia, or Inner Route, from Fedje to Alesund, is also described, as are the various fjords along this route.

General Remarks

5.1 Winds—Weather.—The direction and strength of the winds in any period in this sector are controlled by the prevailing depression track. The average wind strength is 11 to 27 knots, but about 10 per cent of observations reach 34 to 40 knots.

Most of the strong gale force winds are from S and tend to follow the direction of the coastline. The frequency of gales increases in the N.

Winds are lighter from May to August. The direction is more variable at this time, with more frequent N winds tending to follow the coastline.

During gale force winds, a shift of the wind from S or SW to NW or N is liable to raise a heavy sea.

The unusual irregularities of the coastal topography cause large variations in the direction and strength of the wind.

Deflection and funneling increase onshore winds above the average strength. Severe katabatic squalls come down from steep mountain slopes and cause local hazards, with little warning of their approach.

There is a marked tendency for the wind to blow out of the fjords toward the open sea in winter and into the fjords in summer; however, the chain of offshore islands reduces the wind strength in some sections of the coast.

South of Ytteroyane, the weather conditions on the coast are frequently unsettled and stormy during the autumn, winter, and spring. The least rainfall is in spring and summer, and the visibility is generally good at that time. The heaviest fog occurs during the summer months.

The weather during autumn, winter and spring, on the coast between Ytteroyane and Alesund, is frequently unsettled and stormy also. At sea, the prevailing wind during this period is SW; however, close to land SE and E winds prevail. During the summer, the wind is most frequently from N to NE. The least rainfall and the clearest weather will be found during the spring and the greatest amount of fog occurs during the summer. In many of the fjords on this part of the coast, heavy squalls will be experienced from off, and in the vicinity of hills.

During the winter months, S winds prevail, changing to N in the summer. Most rain is generally accompanied with SW winds.

The amount of rain along this coast varies. The wettest places are those nearest to high mountains. Greater amounts occur at higher levels inland.

The period from September to January is the wettest while the period from April to early June is the driest. There is no set pattern of variations from normal in any particular month. The total amount of rainfall varies from year to year. Because of the topography, the amount of precipitation in one area may differ considerably from another area within a short proximity.

Snow usually begins in October. It is most frequent in March and infrequent in April and May. There is no snowfall from June to August along the coast.

Snowstorms at the approaches to fjords and around the offshore islands may cause hazards to coastal vessels due to poor visibility and to ice forming on the superstructure as wet snow freezes.

Fog is most common with mild S to SW winds. The highest frequency of fog occurs over the sea in summer. Coastal areas exposed to those winds are often obscured, but visibility over water is normally improved when the wind veers.

Most fog in the approaches to the fjords occurs in summer, with the penetration of sea fog varying according to the degree of exposure to onshore winds. Sea fog offshore may drift over the coastline with the sea breeze as the land began to cool in the evening. Better visibility is found on the lee side of the land barriers.

Radiation fog often forms over low-lying land at the head of fjords, mostly during long clear winter nights.

Arctic sea smoke or frost smoke may form temporarily over the inner part of the fjord when extremely cold air drifts over relatively warmer water on winter nights.

Visibility is seriously restricted in snow, heavy rain, or thick drizzle. Good visibility prevails over the region for most of the time in all seasons. Mirages are reported along the coast at times.

Tides—Currents.—The tidal currents may be very much influenced by the winds and floods; in turn they may influence the general flow along the coast.

In the narrower channels between the islands, the tidal current often runs with considerable strength; because of strong currents great caution must be exercised by vessels navigating in Indreleia, the passage along the coast inside the off-lying islands and reefs.

Due to the constant coastal current, the NE flood current is usually stronger; during the rising tide there may be a set toward the islands and reefs.

The velocity and direction of tidal currents, including temporary wind influences, are described with specific fairways and ports, as required.

During settled weather, the tidal currents on the coast between Ytteroyane and Alesund set NE with the rising tide and SW with the falling tide, attaining their greatest velocity at a distance of 30 to 50 miles from the coast. During continuous W winds, the tidal currents set constantly NE with considerable velocity, especially during the rising tide.

On this part of the coast, the tidal currents set more strongly and constantly NE than in the opposite direction, especially at the distance from land mentioned above.

Statthavet has long been known as an area with very severe weather, and many have identified the area as dangerous. The depths vary from approximately 60 to 150m.

It is indicated that winds, especially from the SW to N, create rough seas. In those circumstances, the waves go straight in from the sea. The current in the waterway has been estimated at between 2 and 4 knots and when the ocean waves meet it, strong, steep waves develop and the swell becomes choppy.

Pilotage.—Kvitsoy Pilot Center organizes and engages pilots along the W coast of Norway from Egersund in the S leading N to the parallel of 65°08'N. Pilots should be requested 24 hours in advance. The ETA should be confirmed 2 hours prior to arrival at the pilot station.

See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Off-lying Dangers

5.2 **Alwyn North Oil Field** (60°48'N., 1°44'E.) is situated 86 miles W of Holmengra Light, about midway between the coast of Norway and the Shetland Islands. A drilling and accommodations platform and a production platform stand in the field.

Ninian Oil Field (60°51'N., 1°28'E.), with three production platforms, is located 8 miles NW of Alwyn Field. Lyell Oil Field and Heather Oil Field lie about 8 and 15 miles, respectively, NW of Ninian Oil Field.

Brent Oil Field (61°05'N., 1°43'E.) is situated 82 miles W of Utvaer Light and about 15 miles N of Alwyn North Field. Four production platforms, a vent structure for burning excess gas, and a moored tanker loading and storage facility stand within the field.

Hutton Oil Field, North West Hutton Oil Field, and South Cormorant Oil Field lie 8 miles W, 12 miles WNW, and 18 miles WNW, respectively, of Brent Oil Field.

North Cormorant Oil Field (61°15'N., 1°09'E.), with a production platform, is situated about 19 miles NW of Brent Oil Field and 64 miles NE of Muckle Flugga Light (Shetland Islands).

Tern Oil Field, Eide Oil Field, and Osprey Oil Field lie 7 miles WNW, 7 miles N, and 6 miles NE, respectively, of North Comorant Oil Field.

Statfjorden Oil Field (61°15'N., 1°51'E.) is situated about 78 miles WNW of Utvaer Light and 7 miles NNE of Brent Oil Field. There are three production platforms and two SPM loading platforms in the field. In addition, there is an offshore loading system (UKOLS), by which a tanker is moored to a subsurface buoy. The largest drilling rig in the world, the Statfjord C can be found in the vicinity of this oil field.

Gullfaks Oil Field (61°12'N., 2°12'E.), with two platforms and two loading systems, lies 10 miles ESE of Statfjorden Oil Field. Dunlin Oil Field and Snore Oil Field lie about 7 miles W and 18 miles NNE, respectively, of Statfjorden Oil Field.

Magnus Oil Field (61°37'N., 1°20'E.) lies about 97 miles W of Ytteroyane Light and 28 miles NW of Statfjorden Oil Field.

Statfjorden Oil Field—Platform C

A very large production platform stands in the field.

Don Oil Field and Murchison Oil Field lie 11 and 18 miles, respectively, SE of Magnus Oil Field. Thistle Oil Field and Deveron Oil Field, close W, lie 17 miles SSE of Mangnus Oil Field.

Fedje to Utvaer

5.3 From the island of **Fedje** (60°46'N., 4°43'E.), the N entrance point to Fedjeosen, the channel at the N approach to Bergen, the coast trends about 19 miles NNW to Utvaer Light. Utvaer Light is located on one of the larger islets of the NW group of Utvaer Islets. This part of the coast is indented by Sognesjoen, a deep and unencumbered passage leading S of Utvaer and then E to Sognefjorden.

Between Utvaer Light and Ytteroyane Light, about 33 miles NNE, the coast is fronted by islands and rocky islets; the continuity of the inner passage is interrupted, in places, by channels leading directly in from the open sea to Indreleia.

The Ytteroyene group of islands lies within the vicinity of Ytteroyan Light. Ytteroyan Light is abreast the port of Floro.

Between Buelandet, a group of about 350 islands, islets, and skerries about 15 miles N of Utvaer Light, and Ytteroyane, there are many banks, with depths of 18.3 to 27m, which are dangerous in bad weather. Under these conditions, there is a confused sea within the 200m curve. In this area the off-lying islets are thickly interspersed with rocks completely or nearly

awash. Unless a vessel is standing in to enter one of the fjords, it is advisable to navigate at least 10 miles W of the larger islands.

North of Ytteroyan Light, the coast trends for about 40 miles to the NW end of Stadttlandet, one of the most remarkable promontories on the coast of Norway. This coast is also fronted by islands, islets, and rocks. Indreleia is reached through a number of channels within this area. Except when making one of the fjords, it is advisable to keep an offing of at least 10 miles W of the larger islands.

Between Buholmen Light at Stadttlandet and the approach channels leading to Breisund and Alesund, the outer coast trends about 25 miles in a NE direction. The coast is indented by a number of fjords and again the mainland is fronted by many islands, islets, and dangerous rocks. The islands are high and steep on the seaward side, and the mainland backing them is also high. In places, the dangers extend a considerable distance seaward from the islands. When Breisund is approached, it will appear as a conspicuous and fairly wide opening.

The main channel of Indreleia, leading N between the N approach to Bergen and the port of Floro, continues from Fedjeosen through Sognesjoen and then through Krakhellesund to Atleoy and Vilnaesfjorden.

From Atleoy, there are alternative routes available to vessels of moderate size; the W route passes W of Atleoy, while the E route continues through Granesund at the inner end of Vilnaesfjorden. These routes unite to the N at Stavenes Light, and the track then leads N to Floro.

5.4 From offshore, between Fedje and Utvaer, Sognesjoen appears as a wide opening in the land.

Utvaer, 30m high, and the islets close E are low, but farther E the islands of Sula are high and conspicuous, and appear to be a promontory of the mainland.

Holmengra Light

Vessels approaching the coast, intending to enter Indreleia or the fjords N of Fedjeosen, usually stand N of **Holmengra Light** (60°51'N., 4°39'E.), about 4 miles N of Fedje. The island is small and relatively high. The light tower is 16m high and is equipped with a radiobeacon and a racon. Rocks, above and below-water, extend about 1 mile W from the island. About 2 miles NNW is Bergskallen, a rock covered by 17m of water. This sunken rock is the farthest S of a chain extending about 5 miles NW of Holmengra.

Fedjefjorden lies to the SE, and Fensfjorden lies to the E of Holmengra, and leads for a distance of about 25 miles.

Sognesjoen, the approach to Sognefjorden from seaward, leads about 15 miles NE from the S end of Ytre Sula, an island about 9 miles N of Holmengra, and E of Utvaer. Small islets lie off the entrance to Sognesjoen farther N.

The approach to Indreleia or the fjords in this vicinity N of Holmengra is usually done by keeping in mid-channel between Holmengra Light and the light over Bergskallen.

At night, enter and keep in the white sector of **Grimeskjaret Light** (60°51'N., 4°45'E.), bearing between 092° and 104°, which leads between Holmengra and Bergskallen. A racon is located at the light tower.

5.5 **Pollatind** (61°06'N., 4°52'E.), 542m high, situated on Sula about 11 miles ENE of Utvaer, is conspicuous. It rises gradually from a base which extends about 3 miles in a N-S direction.

On the island of Alden, about 13 miles NNW of Pollatind, a conspicuous saddle-shaped hill stretching E and W rises to a height of 480m. This hill can be seen in clear weather at a distance of 32 to 40 miles. Alden will be immediately recognized as an island.

Fensfjorden is entered between **Rongevaer** (60°49'N., 4°47'E.), 1.75 miles SSE of Grimeskjeret Light, and Roytingja, an island 2.25 miles NNE.

Fensfjorden presents no difficulties to navigation, but vessels should give both shores a fair berth and the dangers near the entrance must be avoided. This fjord extends E and SE for 15 miles, then becomes Austfjorden, which continues SE for 15 miles; it forms the approach to Mongstad Oil Terminal. From the outer part of the fjord, several passes lead N to Sognesjoen; from its inner part Masfjorden branches NE for 12 miles. Hindnesfjorden and Vagane are arms which branch S from Austfjorden.

Krakeflui, Mefjordbaen, and Boskallane are three shoals lying in the fairway of the entrance to Fensfjorden; they lie 0.8 mile W, 1 mile WSW, and 1 mile SW, respectively, from Grimeskjeret Light.

Rongevaerskallen (60°50'N., 4°46'E.), 0.9 mile SSE of Grimeskjeret Light, has a least depth of 6m.

Fringing dangers, branch inlets, and the lights of Fensfjorden can best be seen on the chart.

Fedje Vessel Traffic Service

5.6 The Fedje Vessel Traffic Service (VTS) is in operation in the approaches to Mongstad and Sture Oil Terminals. Participation is compulsory for the following vessels:

1. Vessels with a length of 24m or greater (vessels pushing another vessel and vessels that are pushed are considered a single vessel).
2. Vessels towing an object that is longer or wider than 24m.
3. Vessels involved in towing operations where the total length exceeds 35m.
4. Vessels carrying dangerous and/or polluting liquid

cargo in bulk, irrespective of length.

The VTS area is bounded by lines joining the following positions:

a. 60°40'31.2"N, 4°47'42.6"E. (Rubbegamstana Light)
b. 60°40'31.2"N, 4°26'00.0"E.
c. 60°56'51.0"N, 4°18'00.0"E.
d. 60°56'51.0"N, 4°45'45.0"E. (Sogneoksen Light)
e. 60°56'45.0"N, 4°57'12.0"E. (Spafoten Light)
f. 60°48'00.0"N, 5°11'18.0"E. (Terneskjaeret Light)
g. 60°46'24.0"N, 5°09'42.0"E. (Langoyna Light)
h. 60°50'03.0"N, 4°48'24.0"E.
i. 60°47'09.6"N, 4°47'50.4"E. (Senuksen Light)
j. 60°23'57.6"N, 5°14'28.8"E. (Kvarven Light)
k. 60°13'15.0"N, 5°11'42.0"E.
l. 60°12'07.8"N, 5°10'12.6"E. (Bornestangen Light)

All vessels carrying dangerous cargoes or pollutant cargoes are required, as far as is possible, to navigate within the limits of the fairways. Such vessels should report their ETA at the limit of the operational area 6 hours in advance.

The VTS area is divided into two sectors, as follows:

1. Northern Sector—North of Jona Light (latitude 60°31'12.6"N).
2. Southern Sector—South of Jona Light.

All vessels wishing to navigate within the VTS area must request sailing clearance from the Fedje VTS at least 1 hour before their arrival at the limit of this area. This requirement includes vessels intending to leave a quay, berth, or mooring within the VTS area.

When requesting sailing clearance for the VTS area, the message should include the following information:

1. Vessel name and call sign.
2. Sailing Plan and destination.
3. ETA at the outer limit of the VTS area and the ETA at the port, mooring, or anchorage—for vessels located outside the operational area of the VTS.
4. ETD from the VTS area—for vessels inside the area.
5. Any other information requested by the VTS, such as vessel type, nationality, and port of registration.

Vessels should send position reports to Fedje VTS, as follows:

1. When passing the limits of the VTS area when heading into the VTS area.
2. When passing between VHF channel sectors.
3. Before moving with the VTS area (leaving the wharf, berth, or mooring facility).
4. When being towed.
5. When at anchor.
6. When involved in an accident.
7. Immediately if the vessel is in difficulty and likely to result in a change of voyage plan.

All vessels must maintain a continuous listening watch on the appropriate VHF channel for the area. All communication with the VTS shall be in a Scandinavian language or, if not using a pilot, in English.

Fedje VTS—Contact Information	
Fedge VTS	
E-mail	fedje.vts@kystverket.no
Northern Sector	
VHF	VHF channels 16 and 80
Telephone	47-56-164432
	47-56-676920
Southern Sector	
VHF	VHF channels 16 and 71
Telephone	47-56-164430
	47-56-676920

5.7 Mongstad (60°49'N., 5°02'E.) (World Port Index No. 23138) is a coastal port situated on the S shore of Fensfjorden, about 8 miles within its entrance. It is the site of a refinery and is designed to handle incoming crude and to load the finished products. The port is approached through the channel N of Holmengra and from the channel SSE of Fedje.

Tides—Currents.—The tidal currents off Mongstad terminal in Fensfjorden have, in general, a constant W set, but unsettled winds may cause them to set E.

Depths—Limitations.—Berthing details are shown in the accompanying table titled **Mongstad—Berthing Information**.

Mongstad—Berthing Information					
Berth	**Length**	**Depth Alongside**	**Maximum Vessel LOA**	**Maximum Vessel Draft**	**Remarks**
Mongstad Refinery					
No. 1	124m	26.6m	350m	23.0m	Maximum vessel size of 380,000 dwt.
No. 2	69m	17.5m	240m	14.5m	Maximum vessel size of 90,000 dwt.
No. 3	36.5m	7.4m	130m	6.5m	Maximum vessel size of 7,000 dwt.
No. 4	50m	8.9m	115m	8.4m	Maximum vessel size of 7,000 dwt.
No. 7	100m	20.6m	285m	19.7m	Maximum vessel size of 180,000 dwt.
No. 8	80m	17.3m	235m	16.4m	Maximum vessel size of 60,000 dwt.
No. 9	80m	17.3m	235m	16.4m	Maximum vessel size of 50,000 dwt.

Mongstad—Berthing Information					
Berth	**Length**	**Depth Alongside**	**Maximum Vessel LOA**	**Maximum Vessel Draft**	**Remarks**
No. 10	60-95m	6.8-10.3m	See Remarks	10.3m	Maximum vessel size of 10,000 dwt; for dry cargo and equipped with a ro-ro ramp 36m in length. Maximum ro-ro loa is 60m, with a depth of 10.3m. All others can use main jetty, which has a length of 95m and a depth of 6.8m.
No. 11	62m	—	—	—	Harbor craft.
No. 12	50m	—	—	—	Coal.
No. 14	131m	28.0m	380m	25.0m	Maximum vessel size of 440,000 dwt; also capable of handling up to a 127,000 dwt shuttle tanker for ship-to-ship (STS) transfers.
Mongstad Base					
BOH Quay	82m	11.6m	—	—	Maximum vessel size of 150,000 dwt.
No. 1 A	75m	10.4m	—	—	Offshore supply.
No. 1 B	75m	10.4m	—	—	Offshore supply.
No. 1C	75m	10.4m	—	—	Offshore supply.
No. 2	140m	9.7m	—	—	Offshore supply. Ramp at N end of pier.
No. 3	90m	10.6m	—	—	Offshore supply.
No. 4	108m	10.1m	—	—	Offshore supply.
No. 5	97m	13.1m	—	—	Offshore supply.

Pilotage.—Pilotage is compulsory for all vessels over 4,000 gross tons carrying dangerous cargo to and from the terminal. Pilots board, as follows:

1. Fedjeosen No. 2—position 60°44.1'N, 4°44.0'E.
2. Fedjefjorden No. 3—position 60°45.7'N, 4°46.1'E (by appointment only).
3. Holmengra No. 2—position 60°51.4'N, 4°39.0'E.
4. Fensfjorden No. 3—position 60°51.4'N, 4°45.2'E (by appointment only).
5. Vessels over 30,000 gross tons carrying hazardous or polluting cargo to the terminal:
   a. West Fedje—in position 60°46.0'N, 4°27.9'E (Pilot transfer by helicopter, if required).
   b. West Holmengra—in position 60°51.0'N, 4°25.9'E (Pilot transfer by helicopter, if required).

Pilots should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Regulations.—Vessels should send an ETA 72 hours in advance and confirm their arrival 48 and 24 hours prior to arrival.

The 72-hour ETA should contain the following information:

1. Bunkers required.
2. Cash transactions.
3. Personnel.
4. Bonded stores.
5. Any special requirements.
6. Information required for the refinery's guidance.

Tankers of 40,000 tons or more, when within territorial waters, display a black cylinder by day and exhibit three red lights, disposed vertically, at night, to indicate that other vessels must not impede their navigation.

In addition, tankers may use a sound signal of one long blast, followed by two short blasts at any time.

All vessels underway, anchored, or at a quay within the limits of the operational area should maintain a continuous listening watch on VHF channels 16 and 80.

Contact Information.—The terminal can be contacted, as follows:

1. Call sign: Mongstad Port Control
2. VHF: VHF channels 11, 12, and 16
3. Telephone: 47-56-345529
4. Facsimile: 47-56-344660
   47-56-344729
5. Telex: STATOIL MONGSTAD

Anchorage.—Anchorage for Mongstadis available in Fonnesflaket, W of Havarden. Permission should be requested via the Fedje VTS Center; further instruction may be obtained from the pilot.

5.8 Fedjefjorden, the continuation of Indreleia to the NNW from Bergen, leads E of Fedje to Fensfjorden and is free from dangers in the fairway. The NE side of the channel should be avoided as rocks extend about 0.7 mile offshore.

The E side of Fedje is free from dangers at a distance of about 183m.

Ytre Langoyflui (60°47'N., 4°49'E.), on the E side of the fjord, about 2 miles ENE of the E extremity of Fedje, has a depth of 3m or less, and is marked on its N end by an iron

Mongstad

Mongstad

perch.

The lights and dangers in the fjord may best be seen on the chart.

Vetegjograskjaer Light (60°49'N., 4°45'E.), 2.5 miles NNE of Fedje Light, stands at the NE end of Fedjefjorden.

Directions.—When a vessel desires to pass through Indrelia N of Fedjefjorden, vessels pass W of a 1.8m patch, marked by an iron perch, situated 0.25 mile WNW of Vetegjo Graskjaer Light; W of the dangers lying W of Grimeskjeret Light; and then into the W end of Fensfjorden.

From the W end of Fensfjorden, the deep water track leads about 15 miles N to Sognesjoen, which leads to Sognefjorden.

Vessels desiring to pass through Indrelia N of Fedjefjorden, pass W of the 1.8m patch, described above, and then into Fensfjorden, continuing N at the outer end of that fjord.

From the NW end of Fensfjorden, Indreleia passes W of **Roytingkalven** (60°52'N., 4°47'E.), marked on its SW side by a light, and E of a light about 0.2 mile W of Roytingkalven Light. A rock, with a depth less than 1.8m, marked by an iron perch, lies on the W side of the preferred channel, 0.3 mile NW of Roytingkalven Light.

After passing the above rock, the track leads in a general N direction, passing W of the light on **Sogneuksen** (60°57'N., 4°46'E.), into Sognesjoen, the broad deep channel forming the E continuation of Indreleia.

An alternative track from Fensfjorden to Sognesjoen turns N at **Vikingneset** (60°51'N., 4°56'E.), the SE extremity of Byrknesoy, and then passes between the island of Mjomna on the W and Sandoy on the E, about 2 miles NNE of the light on Vikingneset.

A bridge, with a vertical clearance of 30m, connects Mjomna and Sandoy, about 3.4 miles NNE of the light on Vikingneset.

Caution.—Vessels crossing the cautionary area for VLCC, from seaward of Holmengra into Fensfjorden, must not impede vessels displaying signals required of tankers of 40,000 tons and larger.

Sognefjorden

5.9 Sognesjoen (60°52'N., 4°40'E.) extends about 17 miles NE to its junction with Sognefjorden, from a position about 7 miles NNE of Holmengra. The fairway is deep and has a least width of 1.75 miles.

Storsvalene and Smasvalene are two groups of islets and rocks lying off the SW entrance to Sognesjoen. The S end of Storsvalene lies about 6 miles N of Holmengra Light; the two groups then extend about 2 miles N.

An island, in position 60°56'N, 4°37'E, and marked by a beacon, lies near the S end of Storsvalene.

At the S end of the approach to Sognesjoen, on the E side, are numerous islands, islets, and rocks.

Mebaen (60°54'N., 4°42'E.), an unmarked danger with depths of less than 1.8m, is the farthest W of these dangers. It lies about 3 miles NNE of Holmengra Light. A similar unmarked danger lies about 0.2 mile N of Mebaen. These dangers are covered by the red sector of Sogneuksen Light.

When approaching Sognesjoen from the WSW, the most prominent visible feature is the 722m high mountain **Brosviksata** (61°02'N., 5°10'E.). There is a conspicuous radio mast on the mountain. The mast is over 50m in height.

Kvaereknapp (60°59'N., 4°42'E.) is the S extremity of Ytre Sula. This extremity, on the N side of Sognesjoen, is marked by a light.

Storholmen (61°01'N., 4°47'E.) and some smaller islets and rocks lie within 0.5 mile S of Tungodden, the S extremity of Steinsundoy, 2.75 miles NE of Kvaereknapp. These dangers are covered by the green sector of Sogneuksen Light.

Guleskjer, situated 1.75 miles NNE of Storholmen, is an above-water rock in the middle of the entrance to a fjord that is mostly foul.

Gronholmen (61°02'N., 4°53'E.) lies close off the SW end of Nesoy. A light is exhibited on Gronholmen.

A light is exhibited on the SE point of Sula, 2 miles ENE of Gronholmen.

5.10 Rossoy (60°59'N., 4°48'E.), situated on the S side of Sognesjoen, 2.5 miles NNE of Sogneuksen Light, is marked by a lighted beacon. The dangers S of Rossoy are covered by the red sector of Sogneuksen Light bearing more than 197°.

Bunesholmane is situated 1 mile ENE of Rossoy Light and Hamnesholmen is situated about 0.3 mile farther E. A rock, marked by an iron perch, lies 183m N of Hamnesholmen.

A beacon stands on the NE end of Nord Glavaer, 1 mile ENE of Hamnesholmen; it marks the W side of the N entrance to Rossosen.

Dingenes (61°02'N., 5°02'E.), reported to be 4.5 miles ENE of Nord Glovaer, is marked by a light.

Islets and rocks lie within 1.25 miles to 1.5 miles W and NW of Dingenes Light. Stabben, the farthest N of these dangers, has a depth of 1.5m, and is marked by an iron perch. These dangers are covered by the green sector of Dingenes Light.

Rutletangen Light (61°05'N., 5°10'E.) is exhibited from the NE point of Fjaeroy, about 6 miles NE of Dingenes. A beacon stands on a rock close NW of the point.

Torsholmane are a group of dangers situated on two shoals on the N side of Sognesjoen, within 1 mile SW of **Hansneset** (61°07'N., 5°06'E.), the SE extremity of Losna.

When about 1 mile SSW of Kvaereknapp Light, shape a course to pass about midway between Storholmen and Rossoy.

From this position, steer to keep in the white sector of Krakeneset Light, until in a position about 1 mile SW of that light, then steer to pass midway between Krakeneset Light and Stabben.

From this position, steer in the white sector of Rutletangen Light bearing between 068° and 102° until N of Stabben and then steer a mid-channel course between the light and Torsholmane, and then into Sognefjorden, passing N and then SE of Rutletangen Light.

Caution.—The area extending from Holmengra to Sognesjoen and to Rossoy is foul with many shoals.

With an ebb tide, the current runs W. The outward current in Sognefjorden will increase significantly during the snowmelt period and during periods of heavy precipitation, which is strongest on the N side of the fjord.

Interaction between waves and current, as well as refraction of waves over shallow areas, causes choppy seas. High, steep waves have been observed in the area.

When nearing the land to the S of Utvaer, in clear weather, Eldsfjell will be seen farthest S. This is a high rounded hill on the island of Holsnoy rising to 324m, in a position about 31 miles SSE of Utvaer Light.

Utvaer to Ytteroyane (including Floro)

5.11 The lighthouses on Utvaer and Ytteroyane are 31m high and form good landmarks. Utvaer Light is equipped with a radiobeacon.

From **Utvaer Light** (61°02'N., 4°31'E.), 12.5 miles NNW of Holmengra Light, to Ytteroyane Light, a distance of about 33 miles, three fjords indent the coast. From S to N, these three fjords are Buefjorden, Stavfjorden, and Rekstafjorden.

Buefjorden (61°15'N., 4°40'E.) is the open fjord which separates Ospa and Buelandet. The middle waters of the fjord are clear, but on both the N and S sides rocks and shoals extend well out into the fjord. North of Buefjorden, from W to E, lies

Utvaer Light

Buelandet, 41m high; Vaeroy, 163m high; and Alden, 480m high.

To the S, at the N end of Ytre Sula, are numerous islets and rocks, some of which are above water. At its end is Krakestein Light.

Gasvaer, and the groups of islands in its vicinity, are low-lying islands, islets, and rocks situated about 7 miles NE of Nordholmene, the farthest N of the Utvaer Islets. **Gasvaer** (61°11'N., 4°42'E.), the largest and highest of the islands, is 18m high,

The waterway extending from Gasvaerosen N via Buefjorden to the Geita light can be dangerous. Winds especially from W to NW cause heavy seas in the area. Rough seas and large waves come mainly in from the W, and the outgoing tidal current of between 1 and 2 knots causes choppy swell. High steep waves have been observed in this waterway.

5.12 Ospa (61°13'N., 4°45'E.), an island which rises to a height of 110m near its center, is situated on the S side of Buefjorden.

A light is located close off its NW side. This island is foul on all sides, and rocks and shoals extend about 1 mile N from the island. The islands of Drevoy and Faeroy lie E of Ospa; navigation through the numerous shoals N of them is possible only with local knowledge.

Bulandet consists of over approximately 350 islands, islets, and skerries. The landscape is gentle, low, and rich in vegetation. It is located about 6 miles NNW of Gasvaer.

Foul ground extends 0.75 mile S and W from the islets. The group of islets should not be approached without local knowledge.

Loftsteingrunnen, SW of Bulandet, is a group of shoals, with depths of 15 to 17m, which can be dangerous in rough weather.

Vvryygrunnen is a group of shoals, with depths of 23 to 34m, which lies about 4 miles W of Buesteinane.

Buesteinane is conspicuous with its black color and ragged peaks.

5.13 Sandoy Light (61°18'N., 4°36'E.) is exhibited on Sandoyna and is easily identified by its close settlement and the light on its highest peak.

Vaeroy (61°18'N., 4°44'E.), 2.75 miles E of Sandoy Light, is the principal island on the N side of Buefjorden; it attains a height of 163m, and its two round knolls, of about equal size, resemble haycocks.

Islets and rocks extend about 1 mile S of Vaeroy and three islands are located in the fairway SE of that island. Geita, the farthest SE of these three islands, is marked by a light.

Directions.—The light on Geita leads from seaward into Buefjorden, clear of the dangers, to within about 2 miles of the light. Using the chart as the guide, no difficulty should be experienced in passing E of Vaeroy and S of the light on **Raudoy** (61°18'N., 4°55'E.), about 4 miles E of Vaeroy, then into Vilnesfjorden. The main track of Indreleia continues N from this fjord.

5.14 Svineflu (61°20'N., 4°33'E.), with a depth of 14m, lies at the seaward end of numerous rocks and shoals 3 miles NNW of Sandoy Light. Hasteinosen separates these dangers from the N side of Buelandet and the NW side of Vaeroy. An extensive reef, which is awash, lies 1.5 miles E of Svineflu.

Hasteinen, situated 4 miles NNE of Sandoy Light, is a dense group of small islets with many off-lying rocks.

Teinegrunnen (61°24'N., 4°29'E.), with a least depth of 13m, lies about 4 miles NNW of Svineflu. This depth is covered by the red sector of Sandoy Light bearing more than 151.5°.

Temba is a fishing ground, with a least depth of 13m, situated 4 miles N of Teinegrunnen.

Stavfjorden (61°27'N., 4°53'E.) lies E of these dangers; the main track of Indreleia leads across this fjord, then through Brufjorden to Floro.

Rekstafjorden is entered on the S side of **Kinn** (61°34'N., 4°46'E.) and can be approached from the offing by passing on either side of Jonsgrunnfalla, by keeping in the white sector of the light on Sandoya. The white sectors of the light bearing between 056° and 059°, and between 066° and 068°, lead S and N of Jonsgrunnfalla, respectively.

Indreleia continues N from the inner end of Rekstafjorden, into Nekkoyosen.

5.15 Sverslingosen, the channel between **Ytteroyane** (61°35'N., 4°41'E.) and Sverslingane, 1.25 miles N, should always be used when approaching Skorperfjorden.

Hoydalsnakken, a 13m patch, lies at the outer end of a chain of shoals extending 2 miles WSW from Ytteroyane.

Havfluene, lying at the outer end of many shoals which extend up to 3 miles WSW from Sverslingane, has a least depth of 11m.

Ternehaug (61°35'N., 4°41'E.), on the S side of the fairway, lies 0.3 mile NE of Ytteroyane; it is marked by a light.

Ertreskjert, 0.8 mile NE of Ternehaug, is easily identified; it lies on the NW edge of a group of islets and rocks which extend 0.7 mile SE.

Kvitingane, above-water, and Kvitingsfalla, awash, lie in a group of shoals on the N side of the fairway 1.5 miles NE of the light on Ternehaug.

Skallefluene (61°35'N., 4°46'E.), on the NE side of the fairway, 1 mile SE of Kvitingane, has depths of 2m or less. These

rocks and a 4m patch, 0.3 mile SSE, are covered by the red sector of Kinnasund Light, situated on the NE side of Kinn, bearing more than 167°.

For vessels entering Sverslingosen from seaward, the 387m height on Skorpa in line with Ertreskjeret bearing 079° will lead to a position about 0.4 mile N of Ternehaug Light; then change course to the NE to pass 0.2 mile N of Ertreskjeret.

From Ertreskjeret steer E until the white sector of Kinnasund Light bears between 157° and 167°, which course will lead to the W end of Skorpefjorden.

Skorpefjorden, an E continuation of the entrance from Sverslingosen, is formed between Skorpa and Ytre Annoya on the N and Reksta and Nordre Nekkoya on the S. It extends about 5 miles ENE.

Flategrunnane (61°35'N., 4°50'E.), awash, lies on the S side of the fairway, 0.4 mile S of the S extremity of Skorpa. It lies at the W end of Hestholmane, which has another rock awash, 0.3 mile ENE of Flategrunnane.

Klungreskjeret lies on the S side of the channel, 0.3 mile SW of the SE extremity of Skorpa. A light marks the E end of foul ground 0.4 mile ENE of the SE end of Skorpa.

Foul ground lies on the S side of the fairway, about 183m S of Ytre Annoya.

Annoyskjeret Light (61°36'N., 4°56'E.) is situated close off the S side of Indre Annoya and about 0.2 mile E of Ytre Annoya.

To navigate between the dangers in Skorpefjorden from W to E, bring the white sector of Annoyskjeret Light ahead, between the bearings of about 074° and 077°. Pass S of that light into Indreliea, which leads N from Nekkoyosen.

5.16 Floro (61°36'N., 5°02'E.) (World Port Index No. 23130) is an administrative town, with its principal industries primarily associated with fishing.

Floro Port Authority Home Page
http://www.flora.kommune.no

Tides—Currents.—The tidal range in Floro is about 1m.

Depths—Limitations.—The general depths in the harbor are 29 to 50m, although a 7.7m patch lies 0.15 mile ESE of Floro Light and a 6.4m patch lies about 160m farther E; the latter patch is marked by a buoy. Inside the mole there are two rocks, with a depth of 2.6m over them, which lie close offshore, 183m E of the mole.

Berthing details are shown in the accompanying table titled **Floro—Berthing Information**.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Vessels should contact the Floro pilot station on VHF channel 16 about 2 hours prior to arrival at the pilot boarding position. Vessels that call on VHF channel 16 will be connected to the Kvitsoy Pilot Booking Center via Floro or Rogaland Coast Radio Station if the station does not respond.

All direct communications with the pilots and the pilot vessel will take place on VHF channel 13.

Pilots board, as follows:

1. Vessels over 30,000 gross tons or vessels with a freeboard greater than 8m—position 61°43.0'N, 4°23.5'E. (via helicopter by appointment)
2. West of Kvannhovden Light—position 61°42.2'N, 4°45.5'E.
3. In bad weather, by appointment:
   a. Hellefjorden—position 61°39.1'N, 4°51.2'E.
   b. Froysjoen—position 61°45.0'N, 4°56.6'E.

Regulations.—The vessel's ETA is required 24 hours before arrival.

Contact Information.—The port can be contacted, as follows:

VHF: VHF channels 12 and 16

4. Telephone: 47-57-756740
5. Facsimile: 47-57-740916
6. E-mail: hamn@flora.kommune.no

Anchorage.—Anchorage in Floro is charted about 0.1 mile NE of the mole. Depths in the anchorage are about 50m.

Floro—Berthing Information

Berth Name	Length	Depth Alongside	Remarks
Fugleskjerskaia			
West Berth	140m	11.0m	Containers and frozen fish.
Ro-ro Berth	140m	10.7m	Ro-ro.
East Berth	185m	6.0-8.0m	—
Fjord Base (Offshore Supply)			
Quay A	95m	10.0m	Fuel, cement, and other supplies.
Quay B	55m	19.0m	—
Quay C	60m	10.0m	—
Quay D	36m	10.0m	—
Quay E	100m	10.0m	—

Floro—Berthing Information			
Berth Name	**Length**	**Depth Alongside**	**Remarks**
Fugleskjerskaia			
Felleskjoepet	80m	7.5m	Grain and molasses.
Norwegian Sandstone Export	180m	—	Granite.

Ytteroyane to Stadlandet

5.17 From **Ytteroyane Light** (61°35'N., 4°41'E.), the coastline extends for about 40 miles in a N direction to the NW end of Stadlandet, one of the most remarkable promontories on the Norwegian coast.

The mainland is fronted by islands, islets, and rocks, which lie up to 12 miles offshore, and is frequently interrupted by channels leading from the open sea to Indreleia. There are no off-lying islands or islets in the vicinity of Stadlandet. Except when making for one of the fjords, it is advisable to keep an offshore distance of at least 10 miles W of the larger off-lying islands.

The principal fjords along this coast are, from S to N, Hellefjorden, Froysjoen, Nordfjorden, Fafjorden, and Vagsfjorden; the latter two connect with Nordfjorden S of Stadlandet.

Kvanhovden Light

The most important lights for making a landfall between Ytteroyane and Stadlandet are **Ytteroyane Light** (61°34'N., 4°41'E.)**, Kvanhovden Light** (61°42'N., 4°50'E.), and Hendanes Light (61°58'N., 5°02'E.), on the W side of Vagsoy, and **Krakenes Light** (Kraakenes) (62°02'N., 4°59'E.), on the NW extremity of Vagsoy.

The most conspicuous island among the islands in the vicinity of Ytteroyane is **Kinn** (61°34'N., 4°46'E.). It is 316m high and lies 2 miles ESE of Ytteroyane Light. This dome-shaped island has two hills separated by a deep ravine with steep sides. On the N end of the island there is a church which is visible at a distance of 8 miles.

During the winter months, with long nights and frequent bad visibility, when approaching the land during W winds, vessels should avoid being set N of the entrances to the channels.

Krakenes Light on NW point of Vagsoy

Skorpa, about 3 miles ENE of Ytteroyane Light, rises to a height of 393m. The island of Batalden, 1.5 miles NNW of Skorpa, rises to a height of 491m.

From offshore, W of Floro, **Alden** (61°19'N., 4°48'E.) should be visible to the SE and Kinn should be visible to the E.

Batal Den, a good landmark 4 miles N of Kinn, is 491m high and precipitous.

5.18 **Sendingane** (61°39'N., 4°34'E.), a group of above-water rocks, and Loynefallet, a 4m shoal, 0.6 mile WSW, lie 5.75 miles NW of Ytteroyane, at the W end of a chain of rocks extending W from Batalden.

Bremangerlandet (Bremangerland), an island which rises to a height of 910m at **Hornelen** (61°51'N., 5°14'E.), appears to be part of the mainland.

Stadlandet projects NW from the mainland E of Vagsoy for a distance of about 14 miles. **Kjerringa** (62°11'N., 5°08'E.), at the NW end of Statdandet, is 497m high. Radio masts, which are prominent, stand near the summit of Kjerringa.

The waterway near Haugsholmen and Stalrevet, a shoal with a depth of 20m, as well as several shoal areas between them, have been mentioned as areas with particularly heavy seas.

5.19 Skorpefluene and **Bataldfluene** (61°54'N., 4°48'E.), with a least depth of 10m, lie 5 and 4.5 mile SW, respectively, from the N extremity of Bremangerlandet. These two dangers, which break when a swell is running, are the farthest W in the approach to Fafjorden and Vagsfjorden. Veststeinen, an islet 44m high, lies 2.75 miles W of the N extremity of Bremanger-

landet. The islet is surrounded by foul ground to a distance of 0.6 mile.

Toytemulen, awash and always marked by breakers, lies 1.25 miles NNW of Veststeinen. There is a 5m patch 0.3 mile NNE of this rock.

Several dangers lie in the general area between Veststeinen and Klovningen. Seiabaane, with a least depth of 4m, lies about 2 miles NNE of Veststeinen, and Brunebaen, a rock, awash, lies about 2 miles ENE of the same islet.

Several shoals, which reportedly break in a swell, lie S of Brunebaen. Their positions may be seen on the chart.

Harfluene, with a least depth of 19m, lies about 2 miles NW of Klovningen. Between this patch and the islet is Norefluene, covered by a least depth of 8m. Klovningskjer, which covers 1.5m, lies at the NNW end of the foul ground 0.3 mile from the N end of Klovningen.

Skoringane, a chain of small islets, lies 0.5 mile E of Klovningen. Svarteskjera are above-water rocks 0.3 mile farther E.

5.20 **Basundskjera** (61°56'N., 5°00'E.), a group of above-water rocks marked by a light, lies on the N side of the approach to Vagsfjorden, in a position 0.75 mile NW of Hovdeneset Light.

Mehuken, in the NW part of Vagsoy, is 433m high and steep on its N side.

Havfruskallen (62°03'N., 4°51'E.), a 4.5m shoal, lies 3.75 miles WNW of the NW extremity of Vagsoy.

Vessels making for the open sea S of Kraka can alter course when Krakenes Light is open N of Skongenes Light and bearing about 271°. The white sector of Skongenes Light, bearing astern, leads between Torsflu and **Noreskallen** (62°03'N., 4°52'E.), 2.75 miles WSW.

The white sector of this light, astern, leads between Kraka and Melsfluene, and about 0.5 mile SW of Oddeskallane, a 12m depth, 2 miles NW of Kraka. When Svinoy, about 7 miles NNE of the N end of Stadlandet, is open W of the NW extremity of Statdandet bearing about 030°, course should be altered NNE.

5.21 Hellefjorden, a passage extending from seaward in a SE direction to Indreleia and Floro, leads SE from the approach to Froysjoen. The islands of Aralden and Batalden lie on the SW side of the seaward entrance to the fjord and Hovden lies on the NE side. Hellefjorden is about 7 miles in length and 1.75 miles in width at its narrowest part.

On the N side of the approach to Froysjoen are many dangers; some of them break. These dangers extend to a distance of about 3 miles S and 8 miles W of Froya. Shoals also extend about 8 miles W of the entrance to Hellefjorden, on the S side of the approach to Froysjoen.

From **Aralden** (61°41'N., 4°46'E.), the NW entrance point of Hellefjorden, shoal water extends about 0.7 mile N; vessels must keep well clear. A light, with a racon, is displayed from the islet.

From the offing, vessels can stand in toward Frojsoen through a deep channel clear of all dangers, with Skarekina, the 310m high hill on the NW end of Hovden, bearing 090°.

The white sector of Kvanhovden Light, close W of Skarekinna, leads from seaward through the fairway to within 1 mile of the light.

The inner part of Hellefjorden is free from dangers in the fairway except for **Risholmflua** (61°38'N., 4°53'E.), awash, on the W side of the fairway about 3 miles NW of Stabben Light, and two shoals. The two shoals have least depths of 9.4 and 11m. They lie in the fairway about 1 and 2 miles SE, respectively, from Risholmflua.

To enter the N end of Hellefjorden, steer in the white sector of Stabben Light. This course will lead close W of Dombeskjaerene Light, which is situated on the SW side of Hovden.

When near Stabben Light, steer S in the white sector of Nekkoyosen Light and continue S into Indreleia or steer E in the white sector of Floro Light and proceed to Floro.

Skarekinna (61°42'N., 4°51'E.) attains an elevation of 310m on the NW part of Hovden. Hovden lies 1.25 miles NE of Batalden; they are separated by Hellefjorden. Froya rises to a height of 379m, 5.5 miles N of Skarekinna.

5.22 Froysjoen is a deep channel about 15 miles long and not less than 1 mile wide. The tidal currents usually set E and N with the rising tide and W and S with the falling tide. Froysjoen may be entered from seaward or from the S through Indreleia.

The approach from the offing may be the same as that directed for Hellefjorden. When within 1 mile of Kvanhovden Light, steer in a NE direction in the white sector of Smorhavn Light. When within 1.5 miles of that light, steer a mid-channel course in a NE direction.

The passage from Floro to Froysjoen through Hellefjorden is the preferred track. However, a passage for vessels of moderate size leads N through Naeroyfjorden, then into Froysjoen. The channel through Naeroyfjorden, though more protected, is much obstructed by shoals.

Naeroyfjorden lies between Sore Naeroy and Nordre Naeroy, on the W side, and the mainland. The S entrance is about 2 miles NNE of Stabben Light.

Speed restrictions have been established in Naeroyfjorden. Mariners are advised to contact the local authorities for details.

Vessels running for Naeroyfjorden from Floro alter course N, after passing S of Floro Light and enter the white sector of **Arebrotsneset Light** (61°38'N., 5°00'E.). This track will lead W of Sandvoeret, 1.25 miles NW of Floro and Naeroyflua, a 6m shoal 0.5 mile WNW.

When NW of Sandvoeret, enter the white sector of **Dragjaskjaerflu Light** (61°39'N., 4°59'E.) ahead, which leads between Nordre Naeroy and the dangers on the E side of the fairway. A vessel may steer in the white sector of the light 1 mile N of Dragjas Kjaerflu Light. This also leads through the channel and E of Dragjaskjaerflu Light. When NE of Dragjaskjaerflu Light, alter course NW and bring that light astern showing white.

This track leads E of **Hollendarane** (61°41'N., 4°56'E.), awash, and Rognane, 1.5 miles farther N, and into the white sector of Smorhavn Light; the track then leads into Froysjoen.

Between **Fiskholmen** (61°46'N., 4°56'E.) and the entrance to Berlepollen, 6.5 miles ENE, the fairway of Froysjoen is defined by the white sector of Smorhavn Light, situated on the SW extremity of Fiskholmen, bearing between 240° and 332°, astern, which marks the N shore. The S edge is marked by **Olaskjaer Light** (61°44'N., 4°57'E.).

Skongenes Light on NE point of Vagsoy Island

When abeam the Berlepollen entrance, keep within the white sector of Hornelen Light bearing between 061° and 078°, ahead. When not less than 0.5 mile from Hornelen Light, alter course to the E until in the white sector of **Haukedalsholmen Light** (61°52'N., 5°16'E.), which leads between the E coast of Bremangerlandet and Maroy, 0.5 mile E, and into the E entrance of Skatestraumen.

Skorperauva (61°46'N., 4°40'E.), a 6.5m shoal, lies at the W end of several rocks and dangers extending WSW from Froya. A 19m patch lies 1 mile W of this shoal; a depth of 24m is charted 2.5 miles farther WSW.

Skorpefluene (61°55'N., 4°46'E.), the W rocks off the NW side of Bremangerlandet, have a least depth of 5m, and are sometimes marked by breakers.

Vetrungane (61°56'N., 4°49'E.), a group of rocks partly above water, lies 1 mile NNW of Toytemulen. Fallet, covered by a least depth of 2m, lies 0.6 mile N of Vetrungane.

Klovningen (61°56'N., 4°57'E.), an islet, 84m high, surrounded by foul ground, lies just over 1 mile N of the N extremity of Bremangerlandet. Both Veststeinen and Klovningen can be distinguished from a distance of 10 to 12 miles.

5.23 Maloy (61°56'N., 5°07'E.) (World Port Index No. 23125) is situated on the SE side of Vagsoy. It is a center of the fishing industry. There are several quays in the harbor.

Depths—Limitations.—The Inter-Comtermnalen is the main quay and includes two deep-sea berths, 159m long and 127m long, with depths of 8.1 to 13.1m and 7 to 10m, respectively, alongside. A local traffic quay is 40m long, with a depth of 8m alongside. There are facilities for ro-ro vessels. The fishing harbor has a pier, 110m long, with depths of 10 to 17m along both sides, and a quay, 206m long, with depths of 10 to 12m alongside.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Vessels should contact the Floro pilot station on VHF channel 16 at least 2 hours prior to arrival. If the station does not respond, either the Rogaland or Floro Coastal Radio Station will reply and relay details to the pilot station.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-57-852620
3. Facsimile: 47-57-852621
4. E-mail: post@nordfjord.havn.no

Anchorage.—Anchorage may be taken, in 30 to 40m, sand and mud or rock, about 0.1 mile off the quays. Anchorage is prohibited in the fairway E of a line joining Maloy North Light and **Goteberghamaren** (61°57'N., 5°08'E.), a point 0.6 mile N, and W of a line joining the N light on the E side of Maloysundet to Trolleboflu Light.

Ulvesund, between Vagsoy and the mainland, leads N for 4 miles to Sildegapet, and has few dangers. There is a speed limit of 10 knots in the central and N part of the channel.

5.24 Ulven Light (61°58'N., 5°09'E.) is exhibited from a pile of rocks in the center of Ulvesund, about 2 miles N of Maloy.

At Hagevik, 0.3 mile ESE of Ulven Light, there is a quay, with a depth of 6m alongside. On the opposite shore at Barstadvik is a quay, 110m long, with depths of 5 to 8m alongside.

There are lights, in range, which lead to Olvesund from the N.

The usual track of Indreleia is on either side of Trolleboflu, then into the white sector of Ulven Light, passing on either side of that light. When passing through Ulvesund, vessels keep about 91m from Trolleboflu and Ulven. North of Ulven the shore should not be approached nearer than 183m. The dangers and lights in Ulvesund are best seen on the chart.

From Ulvesund, several channels lead through Sildegapet to the open sea.

Seaward bound vessels in Sildegapet can pass through the southernmost channel between Breidflu, a 10m bank about 2 miles W of **Skongenes Light** (62°02'N., 5°08'E.), and Melsfluene, 0.25 mile NE. Skongsnes Light is situated on the NE extremity of Vagsoy.

Further N, vessels can pass through the channel between Melsfluene, which has a least charted depth of 11m, and Kraka, which is well above water.

It is reported that the channels S of Kraka should be used only in fine or moderate weather. A 16m bank, which breaks in heavy weather, lies NW of Kraka.

Skongenes Light

A broad channel leads N between Kraka and the shoals extending SW from Stadlandet. Ramseflu, an 8.6m patch, lies at the S extremity of these shoals, about 2 miles SSW of the SW extremity of Stadlandet.

5.25 **Torsflu** (62°04'N., 4°57'E.), a small isolated bank with a charted depth of 13m, lies 2 miles NNW of Krakenes Light. This bank, which occasionally breaks in bad weather, should be avoided.

In bad weather, northbound vessels should always stand out to sea through the channel between Kraka and the dangers off Stadlandet.

From a position about 0.5 mile SW of Ulvesund Range Light, vessels can steer about 021° until Ulvesund Range Lights, in line astern, lead between the fringing dangers on either side of the fairway to the seaward channel N of Kraka.

This course passes about midway between Toren and **Ytstebaan** (62°09'N., 5°04'E.), with a depth of 5.5m, situated 1.25 miles off Stadlandet. Ytstebaan breaks in bad weather.

When W of Ytstebaan, about 1 mile distant, steer a N course to pass W of **Bukketjuvane** (62°11'N., 5°04'E.) about 0.5 mile distant. Bukketjuvane is a partially submerged reef lying about 1 mile SW of the NW extremity of Stadlandet.

Vessels can proceed N past Bukketjuvane until Dollstein, a hill at the W end of Sandsoy, about 7 miles ENE of Stadlandet, bears about 067°, when course can be altered NE for the N end of Skorpa, to pass N of Stadlandet, then into Vanylvsgapet and Indreleia.

Buholmen Light (62°10'N., 5°05'E.) is off the W side of Stadlandet, on the SE islet.

Stadlandet to Alesund

5.26 The coast from **Stadlandet** (62°12'N., 5°08'E.) to Alesund is indented by fjords and is fronted by many islands, islets, and dangerous rocks. This section is about 25 miles long and runs in an ENE direction. The appearance of the coast is rugged, bare, and gray. The two main openings are Vanylvsgapet, on the NE side of Stadtlandet, and Breisunddjupet, NE of Runde.

Runde (62°25'N., 5°35'E.) is a bare gray island, with a height of 331m at Rundesundet, in the E, and 293m at Branden, in the W. On the seaward side it is steep-to, except on the S where cultivated land is seen.

Rundesundet (Rundo Sund) lies between Runde and Rimoya, 0.5 mile S. The islands are connected by a causeway leading to a bridge in the S with a vertical clearance of 24m. A red light marks the N pillar of the bridge and a green light marks the S pillar, with a 118m horizontal distance between them; a white light marks the center of the bridge. Rundesund Light stands on Saeviksteinen.

The summits of **Sauehornet** (62°14'N., 6°09'E.), 1,303m high, 28 miles E of Kjerringa, on Stadlandet, and Slogen, 1,564m high, 15 miles farther ESE, may be used in the approaches from seaward, and on the fishing grounds farther seaward.

Statthavet (62°12'N., 5°06'E.) has long been known as an area with very severe weather, and many have identified the area as being dangerous.

It has been indicated that heavy sea is created particularly by winds from SW to N. In these cases, the waves come straight in from the ocean. The current in the passage has been estimated at between 2 and 4 knots, and when the ocean waves meet this current, strong precipitous breakers are developed.

The swell becomes choppy.

The passage near Haugsholmen and the shoal of Stzlrevet, as well as several small shoal areas between these, have been mentioned as areas with particularly heavy seas.

Vessels intending to pass in the vicinity of Stadlandet may request a 2-day wind/wave warning forecast from the following stations:

1. Vervarslinga:
   a. Telephone: 47-55236600
   b. Facsimile: 47-55236603
2. Maloy Harbor Office:
   a. Telephone: 47-57851278
   b. Facsimile: 47-57850634
3. Svinoy Light:
   a. Telephone: 47-70132544
      47-94662647 (mobile)
   b. Facsimile: 47-70132544

Vessels should supply the following information when making the request:

1. Vessel name.
2. Vessel type.
3. Area and time of passing.
4. Intended course (passing N or S, etc.).
5. Return address (complete with facsimile number).

The currents on this part of the coast, irrespective of the tide, usually set in a NE direction and are known to have a velocity, at times, of more than 1 knot. At a distance of 30 to 60 miles from land, a vessel will be set to the NE.

Pilots cruise NE of Runde; vessels enroute to Alesund or Bergen may embark a pilot here. During N gales, the pilot may be forced to seek shelter at Nerlandsoy.

5.27 **Sandsoy** (62°15'N., 5°26'E.), lying 5.5 miles ENE of Stadlandet, rises to a height of 370m. There is a height of 227m, shaped like a haystack, at the W end of the island. This height is easily identified from SW or NW, but merges into the background when viewed from the W.

Numerous dangers extend up to 2 miles W of Sandsoy. The

farthest NW of these dangers is **Skjeggene** (62°16'N., 5°20'E.), a group of rocks with a least depth of 0.5m over its N end; they are usually marked by breakers.

A group of shoals, with a least depth of 24m, lies about 3 miles W of Skjeggene.

Svinoy (62°20'N., 5°16'E.), 6 miles W of Skorpa, is easily identified by its remote position although it is comparatively small. A light is shown from a tower 11m in height, standing on the SE side of the island. Due to numerous dangers, the passage between Svinoy and Skorpa should not be attempted without local knowledge.

Skorpa (62°20'N., 5°30'E.) and Nerlandsoy, close NE and 4 miles NE of Skorpa, respectively, stand out clearly from the background.

Juklebaen (62°22'N., 5°24'E.), a 2m patch lying 4.25 miles ENE of Svinoy, usually breaks.

Heroyfjorden lies between Sandoya and **Gurskoya** (62°15'N., 5°40'E.), on the S, and Skorpa, Nerlandsoy (62°21'N., 5°33'E.), and Bergsoya (62°20'N., 6°38'E.).

Goldnes Light (62°22'N., 5°34'E.) is situated on the N extremity of Nerlandsoy, 4.25 miles ENE of Juklebaen.

Geitmaren, a 5m patch, lies 1.75 miles NNW of Goldnes Light. The sea occasionally breaks over it in quiet weather, though seldom during calms or offshore winds.

5.28 Rundoy Light (62°25'N., 5°36'E.) is situated on the NW extremity of Runde (Rundoy), 2.5 miles NNE of Goldnes Light. Numerous dangers extend 1.75 miles ENE from a rock, awash, 0.9 mile NW of Rundoy Light. Some of these dangers are above water.

Langenes Light stands on the NE extremity of Runde. A line of rocks and islets extends from Treholmane, 0.6 mile E of Langenes Light, to Grasholmen, 3 miles NE. The sea sometimes breaks over a spit, which extends 0.5 mile ENE from Grasholmen and terminates in Breiflu, an 8m patch.

Grasoyane Light (62°26'N., 5°46'E.) stands on Grasholmen.

The channels through the dangers between Langenes Light and Grasoyane Light are navigable only with local knowledge.

Florauden Light (62°26'N., 5°50'E.) is situated on the central islet of Florauden, a group of islets lying 2 miles E of Grasholmen. A racon is located at the light tower.

5.29 Breisundet (62°27'N., 6°00'E.), between Hareidlandet on the S and Godoya, gives access from the sea to Alesund and Indreleia. It is deep and clear of dangers except close inshore.

Vessels entering Breisundet steer for a position 1.5 miles N of Florauden; a mid-channel course will then lead to a position 0.7 mile NW of Eltraneset, the NW extremity of Sula.

Heissafjorden leads E from this position to Alesund. Sulefjorden leads SE from the above position.

Hogsteinen Light (62°28'N., 6°02'E.) is situated off the SE extremity of Godoya, on the NE side of Breisundet.

5.30 Alesund (62°28'N., 6°10'E.) (World Port Index No. 23120) is situated on the islands of Norvoya, Heissa, and Aspoya. These islands are interconnected and are also connected to the mainland by fixed bridges. The waters of Alesund Havn comprise the harbor at Alesund.

Alesund is a major commercial and fishing port. Products include clothing and dairy products, as well as furniture and fish products. It has a population of about 37,000 people.

Alesund Port Authority Home Page

http://www.alesund.havn.no

Depths—Limitations.—Berthing details are shown in the accompanying table titled Alesund—Berthing Information.

The port area has mooring facilities for the lay-up of vessels of all sizes. Vessels up to 508,000 dwt have been accommodated at lay-up here. The port is open year round.

Vessels may, draft permitting, transit the channel which lies between Aspoya and Heissa. There is a least depth of 5m in the channel, but depths of 4.2m are charted near the range line.

A fixed bridge, with a navigable width of 50m and a vertical clearance of 17m, spans the channel. The port is open all the year.

Pilotage.—Pilotage is compulsory for all vessels over 500 gt and all vessels carrying dangerous cargo. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Vessels should call the pilot station 2 hours prior to arrival on VHF channel 16. If the station does not respond either the Rogaland or Floro Coastal Radio station will reply and relay details to the pilot station.

Pilots board in Breidsundet, in position 62°27.0'N, 5°58.9'E, weather permitting; by request, the pilot can also board in Breidsunddjupet, in position 62°31.0'N, 5°40.9'E.

When entering into or departing from the pilot boarding position in Breidsundet, vessels are requested to navigate inside the Recommended Fairway, bounded, as follows:

a. 62°31.8'N, 5°44.4'E.
b. 62°30.2'N, 5°45.8'E.
c. 62°27.5'N, 5°55.1'E.
d. 62°27.5'N, 5°57.2'E.
e. 62°26.5'N, 5°57.2'E.
f. 62°26.5'N, 5°53.5'E.
g. 62°29.5'N, 5°43.3'E.
h. 62°29.5'N, 5°38.2'E.
i. 62°31.8'N, 5°44.4'E.

Alesund—Berthing Information

Berth Name	Length	Depth Alongside	Remarks
Bulk and General Cargo Berths			
Flatholmen 1	50m	7.0m	—
Flatholmen 2	50m	7.0m	—

Alesund—Berthing Information			
Berth Name	**Length**	**Depth Alongside**	**Remarks**
Flatholmen 3	—	12.0m	Ro-ro.
Flatholmen 4/5	270m	12.0m	Containers and bulk cargo.
Skanse N	195m	10.0-13.0m	—
Skanse W	60m	4.0-8.0m	—
Skanse S	130m	4.0-5.0m	—
Brunholm	100m	4.0m	—
Skansegata	200m	6.0m	—
Sjogata	190m	8.0m	—
Stornes E	85m	6.0-14.0m	—
Stornes S	153m	10.0-13.0m	Passengers.
Stornes W	85m	6.0-14.0m	Ro-ro.
Prestebrugga S	220m	13.0-16.0m	Passengers. Maximum vessel loa of 373m. Maximum vessel draft of 11.0m.
Prestebrugga W	40m	5.0-13.0m	—
Skutvitka	203m	10.0-16.0m	Containers.
Gjosund-Vigra	110m	10.0-16.0m	Off-shore pier. Ro-ro and project cargo.
Tanker Berths			
Eastern Jetty	65m	—	Maximum draft allowed is 12.1m.
Western Jetty	65m	—	Maximum draft allowed is 12.1m.
Bunker Jetty	65m	—	Maximum draft allowed is 12.1m.
Hessa CBM	75m	—	Used for bunkering vessels with a maximum loa of 180m, a maximum draft of 9m, and a maximum size of 30,000 dwt.
Norske Shell	200m	—	Maximum vessel loa of 200m. Maximum draft of 10.3m. Located 3 miles ENE of Alesund.

Alesund—Berth Signals			
	Quay 1	**Quay 2**	**Quay 3**
Skanskaien	One green	One green and one white (at W end)	One green and one white (at E end)
Storneskaien	One red	Two red	Three red
Prestebryggen	One green	Two green	—
Skutevikkaien	One white	Two white	Three white

The pilots can be contacted on VHF channel 16.

Regulations.—Within the harbor area of Alesund, the following regulations are in effect:

1. Within the harbor area, powered vessels are not to exceed the minimum speed required for good seamanship and maneuverability, or to proceed at such a speed as to cause damage or danger to vessels or harbor installations from wash.
2. When, near the entrance to Indre Havn or Steinvagsundet, a risk of collision exists between inbound and outbound vessels, the inbound vessel must wait at a suitable distance off the entrance until the outbound vessel is well clear of the breakwater at Indre Havn or of the lights in Steinvagsundet.
3. In Indre Havn, Skutevika, or Steinvagsundet, vessels are not permitted to swing to their anchors, or to anchor in such a way as to obstruct the harbor entrances or the approaches to alongside berths.

Vessels should advise Port Control of their ETA; the following information should also be included:

1. Vessel name.
2. Flag.
3. Port of registry.
4. Call sign.

Approaches to Alesund

5. IMO number.
6. Gross tonnage, loa, actual draft, and maximum summer draft.
7. Last port-of-call and next port-of-call.
8. Dangerous cargo information, if any.

For the requirements for non-military vessels entering Norwegian internal waters, see Pub. 180. Sailing Directions (Planning Guide) Arctic Ocean.

Signals.—Signals are exhibited at night, from signal masts on Skanskaien and Storneskaien, using fixed red, green, and white lights to give berthing instructions and to indicate an arriving vessel's berth. Such signals should be acknowledged by a blast on the whistle. The berth signals are given in the accompanying table titled **Alesund—Berth Signals.**

By day, a red flag is displayed at the berth allocated to the vessel.

The general night signals are, as follows:

1. Fixed red, green, and white—All berths occupied.
2. Flashing red—Continue into harbor.
3. Flashing green—Anchor and await orders.
4. Flashing white—Close to hailing distance.

Contact Information.—Port Control can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-70-163410
   47-99-853400

The Port Authority can be contacted, as follows:

1. Telephone: 47-70-163400
2. Facsimile: 47-70-163401
3. E-mail: havnevesenet@alesund.havn.no

Indreleia and the Inner Fjords

5.31 Indreleia is a navigable inner route and is, to some extent, protected by offshore islands. The route is continuous from Fedje to Alesund. At times it extends to near the coast.

Sognefjorden, the continuation of Sognesjoen E from **Rutletangen** (61°05'N., 5°10'E.), is the longest and deepest fjord in Norway. The inner recesses of the fjord are more than 100 miles from the open sea, but in few places is it as much as 2.5 miles wide. The mountains rise almost vertically from the water's edge in many places, and exceed an elevation of 1,800m near Aurlandsfjorden, where their summits are always covered with snow. There are numerous waterfalls and cascades, and the scenery is grand, but somber.

The principal branches of Sognefjorden are Aurlandsfjorden and Naeroyfjorden, on the S side; Fjaerlandsfjorden, Sogndalsfjorden, and Lustrafjorden, on the N side; and Ardalsfjorden, an extension of Songnefjorden, at the E end.

The tidal currents in Sognefjorden usually set W and run strongest along the N side; they are, however, irregular and may be found setting W under one shore and E under the other.

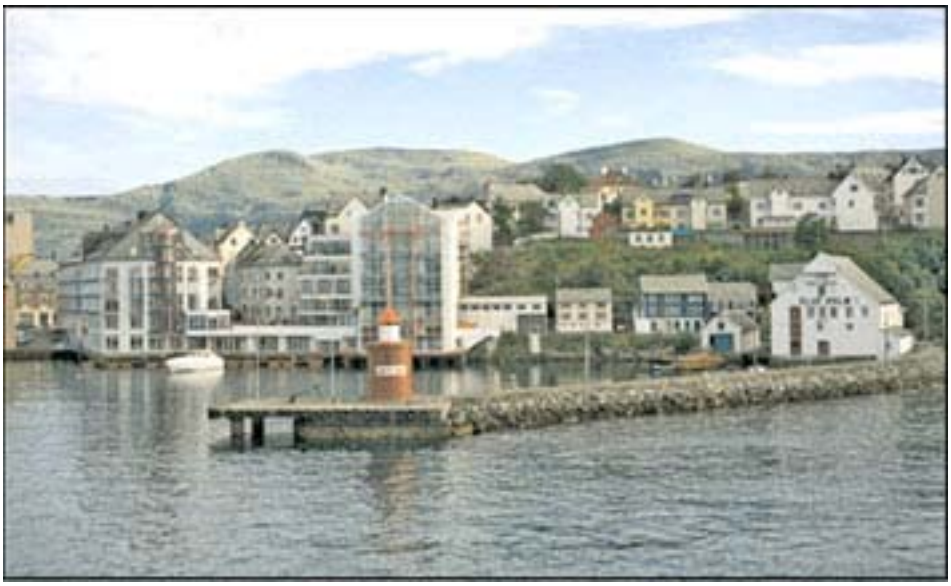
In the middle of the entrance the current is rotary, counterclockwise, and weak; the spring rate in all directions is 0.25 knot.

There are few anchorages in Sognefjorden, but at the heads of nearly all the branches there are banks formed by the deposit from the various rivers that flow into it. These banks, consisting generally of soft mud or sand, afford excellent holding ground, but they are continually changing in shape and increasing in size.

Alesund Harbor

Alesund Harbor

Alesund



Alesund—Inner Harbor

Sognefjorden is fringed with a number of towns, the most important one being Ardal at the head of Ardalsfjorden.

5.32 Bofjorden (61°07'N., 5°20'E.), situated on the N side of Sognefjorden, close within its W entrance, affords anchorage to vessels of moderate size. Vessels anchor 0.25 mile NNE of the light, in 30 to 40m, good holding ground. An iron perch, reported 0.15 mile WNW of the light structure, marks a rock off the E edge of a bank. A light is exhibited from a rock 0.2 mile N of the anchorage.

A marine farm is situated 0.7 mile WSW of Bofjord Light. There are other marine farms situated 0.85 mile SSE and 2 miles SSE of the same light.

Risnefjord provides good anchorage for moderate size vessels off the W shore, 0.5 mile S of Ortneset. Vessels anchoring in Risnefjord should avoid a submarine cable crossing the fjord. A marine farm is located in position 61°00.6'N, 5°28.4'E.

A bay at **Vikum** (61°10'N., 5°43'E.), on the N side of Sognefjorden about 22 miles E of Bofjorden, is one of the better harbors for vessels of moderate size in this fjord.

Vessels anchor in the N part of the bay, in about 30 to 40m, clay. There is a quay in the bay, with depths of 4 to 5m alongside.

Hoyanger (61°13'N., 6°04'E.), situated at the head of Hoyangsfjorden, 10.5 miles ENE of Vikum, is an industrial town and an administrative center. There is a mooring buoy off the largest quay, which has a least depth of 8m alongside.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For further information, see paragraph 5.1.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 6, 9, and 16
2. Telephone: 47-57-715287
3. Facsimile: 47-57-715377

Alesund—Inner Harbor

West side of Alesundhavn

5.33 Ardal (61°14'N., 7°43'E.) (World Port Index No. 23136) is a coastal harbor situated at the NE extremity of Ardalsfjorden. This ice-free port is directed by the Bergen Customs District.

There are a number of quays in the port. Quay I is 220m long and has a depth of 9.25m alongside. Quay II is 100m long and has 11.5m alongside. The largest vessel that can be accommodated is 220m long with a 9.6m draft.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. For further information, see paragraph 5.1.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 9 and 16
2. Telephone: 47-57-660122
3. Facsimile: 47-57-660125

Directions.—Vessels, when in transit of Rekstafjorden from the WSW, may, when within 0.75 mile of **Sandoya Light** (61°33'N., 4°46'E.), alter course to the E to pass 0.25 mile S of that light.

When E of Sandoya Light, steer in its white sector, astern, and continue to the E end of Rekstafjorden and enter the white sector of Nekkoyosen Light, as directed above, which leads into Nekkoyosen.

5.34 The better Indrelia track for large vessels passes from the E end of Sognesjoen, and then turns abruptly N leading through Krakhellesund between the islands of Sula, on the W, and Losna.

Klauva Light (61°07'N., 5°02'E.) is situated on the SW extremity of Losna and on the E side of the S entrance to Krakhellesund.

A light is situated on the W side of Losna, about 2 miles NNW of Klauva. A light is situated on a rock on the W side of Krakhellesund, 0.5 mile farther NNW.

An overhead cable, with a vertical clearance of 70m, crosses Krakhellesund about 1 mile NNW of Klauva Light.

The channel of Krakhellesund, about 5 miles long, is free of dangers in the fairway, except for a rocky patch lying 183m SSE of the salient point on the W side of the S entrance and a reef lying close off the rock marked by a light about 2 miles N. The tidal currents in the channel nearly always set N.

Klauva Light, showing white, leads N from Sognesjoen into the entrance of Krakhellesund. The white sector of the light situated on the rock on the W side of the channel leads through the fairway of the S part of the channel.

After passing E of this light, vessels can keep in the white sector of the light, astern, which will lead W of the island Skorpa then into Afjorden.

Losneosen, between the E side of Losna and the mainland, connects Sognesjoen and Sognefjorden with Krakhellesund through Tollesund, which separates Losna from Skorpa. Losneosen connects with Afjorden through Storakersundet E of Skorpa.

These channels are deep and free of dangers. An overhead cable, with a vertical clearance of 70m, crosses the SE end of Tollesund.

Afjorden trends about 6 miles ESE from its confluence with Storakersundet, and branches into Hylestadfjorden and Sorfjorden, at its head.

5.35 **Sakrisskjer** (61°14'N., 4°57'E.) is the NW entrance point of Afjorden. From the W end of Afjorden the track of Indrelia takes a N direction past the W sides of the islands Sakrisoy and Lutelandet, and Lammetu. From the W end of Vilnesfjorden the direction is E through that channel to the W end of Dalsfjorden, then N into Granesundet. A light is situated on Sakrisskjer.

Midtfjordskjer (61°16'N., 4°54'E.), marked by a light, is situated in the S entrance to Vilnesfjorden, 3 miles NNW of the light on Sakrisskjer. Araldeflu is a 4m patch 0.25 mile N of Midtfjordskjer.

Morpolsa, a rock, awash, is situated at the extremity of the foul ground extending W from Lammetu. It lies about 0.7 mile ENE of the light on Midtfjordskjer.

Ytste Taren (61°17'N., 4°55'E.), a 5m shoal, lies 0.3 mile N of Morpolsa.

Vessels enroute from Krakhellesund to Vilnesfjorden can keep in the white sector of the light on Sakrisskjer until about 1 mile from the light. Vessels may then steer W to pass S of the light and then enter the white sector of the light on Raudoy. This sector will lead W of Morpolsa and E of Midtfjordskjer, into the SW entrance Vilnesfjorden.

5.36 Vilnesfjorden is a broad channel which extends about 4 miles E from the light on Raudoy.

Haskallen (61°18'N., 4°57'E.), with a least depth of 14m, lies in the fairway just over 1 mile ESE of Raudoy Light, and close S of the dangers E of Raudoy.

Einingsflu, lying on the S side of the fairway 1 mile SSE of Haskallen, has a depth of 2.3m.

Mokalasset (61°18'N., 5°01'E.), a reef, awash, is situated on the N side of the fairway, about 1 mile W of Vilnesfjorden Light. There is an 11m patch 0.25 mile SW of the beacon situated on Mokalasset. Several rocks and shoals lie between Mokalasset and Atloy.

Vilnesfjorden Light (61°18'N., 5°04'E.) is situated on the S side of the E end of Vilnesfjorden.

Vessels in transit of Vilnesfjorden from W to E may steer in the white sector of Vilnesfjorden Light to within 0.5 mile of the light. Haskallen lies in this sector. The white sector of Langenes Light, 1.25 miles NNE of Vilnesfjorden Light, leads S of Flatoyflu, then into the white sector of Vilnesfjorden Light, astern, which leads to the S entrance of Granesundet.

Dalsfjorden continues ENE from Vilnesfjorden for 17 miles to the vicinity of Bogstad.

5.37 Granesundet, separating the E side of the island Atloy from the mainland, is about 4 miles long and has a least width of 0.25 mile. It is nearly free of danger in the fairway.

Flatoyflu (61°19'N., 5°03'E.), awash, lies 0.3 mile S of Flatoy in the SW approach to Granesundet. It is marked by two iron perches.

Flatoy, an islet at the S end of Granesundet, lies on the W side of the entrance 1 mile N of Vilnesfjorden Light. The islet is surrounded by a shore reef to a distance of about 0.1 mile

Langenes Light is situated about 0.8 mile E of Flatoy; another light is situated on the SW side of Prestoy, 0.45 mile NNE of Flatoy. Both of these lights are on the E shore of Granesundet.

A depth of 9.5m lies nearly in mid-channel about 0.3 mile WNW of Langenes Light. A 12m patch lies 0.15 mile WSW of the light on Prestoy.

Englandsflu is a 4m patch situated on the W side of the fairway, 0.8 mile NW of the light on Prestoy.

Granebaen (61°23'N., 5°01'E.), a 3.5m shoal, lies on the W side of the fairway in the N entrance to Granesundet.

A light is exhibited on Trettenes, on the E side of the N end

of Granesundet.

Vessels entering Granesundet should keep in the white sector of Vilnesfjorden Light, astern, until it intersects the white sector of the light on the W side of Prestoy, which will lead between the dangers in the S entrance of Granesundet. Alter course to the NNW when the white sector of Langenes Light, astern, bears between 118° and 122°. Continue in this sector until the white sector of the light on Trettenes bears between 350° and 356.5°. Alter course to the N to keep in this sector which leads through the fairway of Granesundet, into the white sector of the light on Prestoy, bearing astern, which leads between Trettenes and Granebaen.

The white sector of Trettenes Light, bearing astern, leads toward Stavfjorden.

An alternate route from the W end of Vilnesfjorden to Stavenes Light, is to pass through Aldefjorden, W of the island of Tvibyrgje and Tussen Light and then to the E on the S side of Heggoyane.

Aldefjorden, the passage between Alden and Tvibyrgje, is situated on the E and S sides, respectively, of these islands.

5.38 Midfjordflu (61°19'N., 4°49'E.), a 10m patch, lies 0.8 mile SW of the SW point of Tvibyrgje. Senholmtaren, an unmarked 4m shoal, lies about 0.6 mile ESE of Midfjordflu and an 8m patch marked by a buoy lies 0.5 mile N of Midfjordflu.

There are other dangers in Aldefjorden which may best be seen on the chart.

Alden is saddle-shaped and rises to a height of 480m in its E part. Tvibyrgje lies about 1 mile NE of Alden and about 0.5 mile W of Atloy. The island resembles two haycocks; the one farthest W is 192m high.

Tussen (61°23'N., 4°50'E.) lies 1 mile N of Tvibyrgje. It is marked by a light and a beacon. A reef projects about 183m NW from Tussen; a 14m bank lies 0.3 mile W of the light.

Heggoyosen is the channel between Heggoyane on the N and Atloy on the S.A light is shown from the S extremity of Heggoyane, in a position about 3 miles ENE of Tussen.

A light is shown from the NW extremity of Raudoy, an island lying 1 mile E of Heggoyane, and on the W side of the N entrance of Granesundet.

5.39 Vessels from the S desiring to pass through the W part of Vilnesfjorden then into Aldefjorden may do so by keeping in the white sector of the light on **Raudoy** (61°18'N., 4°55'E.) as previously suggested, until within 0.5 mile of that light, when course should be changed to the NW.

With the white sector of the light on Raudoy, astern, proceed until within the white sector of the light on Geita. Navigate with Geita Light, astern, which leads W of Midfjordflu and the 8m patch 0.5 mile N of it, until abeam of Tussen, about 1 mile distant. A 14m depth is charted 1.25 miles W of Tussen Light.

To enter Heggoyosen from the white sector of Geita Light, steer in the white sector of the light on Raudoy, passing no less than 0.25 mile N of Tussen Light. When the white sector of Stavenes Light bears between 017° and 032°, steer in that sector to clear the dangers N of Raudoy and E of Heggoyane. This course will join the track leading NNW from the N entrance of Granesundet.

Kjerringholmen (61°24'N., 4°58'E.), an islet 19m high, lies W of the fairway leading NNW from Granesundet and E of the fairway leading NNE from Heggoyosen, in a position 0.45 mile N of Raudoy. The islet is surrounded by shoal water to a distance of 183m. Melsholmen, an islet 21m high, lies 0.6 mile NW of Kjerringholmen.

Stavenes Light (61°25'N., 4°59'E.) is situated on an islet on the E side of Indreleia, in a position 1.75 miles NNE of the light on Raudoy.

From Stavenes Light, the main track leads across Stavfjorden between **Baane** (61°29'N., 4°59'E.) and Trefotskjeret, about 0.6 mile E; it then leads between Askrova Light, on the E end of the island Askrova, and Leieskjera, about 0.1 mile SSE.

This narrow passage has a least charted depth of 14m and should be navigated with caution.

5.40 Folvagfluene (61°25'N., 4°58'E.) is a group of rocks, awash, which lies on the W side of Indreleia, 0.5 mile SW of Stavenes Light. yes, above water, lies on the same side of the track, within 0.25 mile N of Folvagfluene.

Ryggene, reefs marked at their E end by a buoy, are situated 0.75 mile NNW of Stavenes Light.

The white sector of Stavenes Light, bearing astern, leads across Stavfjorden from a position E of Ryggene; the white sector of **Askrova Light** (61°31'N., 5°00'E.) then leads through the fairway E of Baane. An 11.5m patch lies on the E limit of this sector 0.2 mile WSW of Trefotskjeret.

When within 0.2 mile of the light, alter course NNE to pass between it and Leieskjera, and then into Brufjorden.

Oddane (61°33'N., 5°00'E.) is marked on its E extremity by a light. Andalsskjera, 1.25 miles NE of Oddane, is also marked by a light.

5.41 To continue across Brufjorden, from a position close E of the light on Askrova, steer N with the white sector of this light bearing more than 179°, astern, and keep the light on Andalsskjera ahead, which leads E of Oddane.

When entering the white sector of **Nekkoyosen Light** (61°35'N., 4°57'E.), alter course NW to keep in this sector, which leads NE of Oddane and out of Brufjorden to the entrance of Nekkoyosen.

Nekkoyosen, a continuation of Indreleia, is entered between Sore Nekkoya and **Nordre Nekkoya** (61°35'N., 4°56'E.), on the W side, and Faeroya and Faeroykalven, on the E side.

Mortingbaen, 1 mile NNE of Nekkoyosen Light, is marked by a light. It lies on the E side of the channel. Annoyholmbaen, with depths of 2m or less, lies on the W side of the fairway 0.3 mile SW of the light on Mortingbaen.

Stabben Light (61°36'N., 4°57'E.) is situated on the E end of foul ground, in a position just over 1 mile NNE of Nekkoyosen Light. There is a least depth of 3.4m on the foul ground WSW of the light.

Grasskjeret Light is situated on the W part of a reef, about 0.3 mile ENE of Stabben Light.

5.42 Floro Light (61°36'N., 5°01'E.) is situated on the N side of the channel, 1.25 miles E of Grasskjeret Light. A 6m patch lies 183m W of the light.

Vessels en route through Nekkoyosen to Floro keep Stabben light structure bearing about 005°, which leads between Nordre

Nekkoya and Faeroya. Enter the white sector of Nekkoyosen Light, astern, which will lead W of Mortingbaen.

When NW of the light on Mortingbaen, enter the white sector of Floro Light. When within 0.35 mile of Floro Light, steer a mid-channel course between the light and the shoal water about 183m to the S,. This course will lead into Floro.

An alternate track from Nekkoyosen for approaching Floro is with the white sector of Nekkoyosen Light bearing astern. It leads between Mortingbaen and Svartskjeret, marked by a beacon, which is situated 0.3 mile E of the light on Mortingbaen, into the white sector of Grasskjeret Light, then into the white sector of Floro Light as indicated above.

Froysjoen

5.43 Vessels may approach Fafjorden and Vagsfjorden by keeping in the white sector of **Hovdeneset Light** (61°56'N., 5°01'E.), which leads N of Skorpefluene, Bataldfluene, and Veststeinen, and S of Toytemulen and Seiabaane to within about 3 miles of the light.

Vessels heading for Fafjorden then enter the white sector of Kvitnes Light, which leads to the white sector of Fafjorden Light. Enter the white sector of Fafjorden Light ahead, which leads into Fafjorden.

Vessels approaching from the NW may keep the summit of **Ronelden** (61°55'N., 5°01'E.), a steep conical hill 321m high, in line with the summit of Klovningen, bearing 115°, which passes NE of Fallet and SW of Harfluene and Norefluene.

When E of Fallet, steer in the white sector of Kvitnes Light and proceed as directed above.

Vessels approaching the entrance from the N should keep Hornelen, the 889m hill on the E end of Bremangerlandet, bearing about 124°. When N of Klovningen, alter course S and enter the white sector of Fafjorden Light.

Care must be taken to avoid Jokkulflu, an 11m depth, 0.7 mile NNE of Klovningen.

Alternative routes lead, respectively, N and S of Jokkulflu and then between Basundskjere and Svarteskjera.

5.44 Fafjorden, a narrow inlet, is the farthest S of two seaward entrances to Nordfjorden. It leads between Bremangerlandet and Husevagoy and connects with Vagsfjorden by a shallow channel at the E end of Husevagoy. Farther E is the channel that leads N from Froysjoen.

Ribba (61°54'N., 5°00'E.), awash, lies on the W side of the fairway 0.6 mile WSW of Kvitnes Light; between this danger and the shore to the S are some above and below-water rocks.

Spenfluene, situated on the N side of the fairway 0.4 mile S of Kvitnes Light, consists of a group of sunken rocks, awash, at their E end.

To transit Fafjorden, keep the white sector of Fafjorden Light ahead, which leads between the dangers of Ribba and Spenfluene. When about 0.3 mile distant from Fafjorden Light, steer a mid-channel course in an ESE direction and pass on either side of Bjornoy, an island 2.5 miles ESE of Fafjorden Light. The white sector of **Skaten Light** (61°52'N., 5°13'E.) leads through the fairway N of Bjornoy; another white sector of the light leads S of Bjornoy.

Approach to Vagsfjorden

5.45 When E of Bjornoy, a vessel may continue E and join Indreleia and proceed through Skatestraumen or proceed N to Nordfjorden by passing between the islands of Gangsoy and Risoy. When vessels pass between these two islands, they should keep in mid-channel, favoring the W side of Risoy, which is steep-to.

Vagsfjorden leads between Husevagoy and Vagsoy into the W end of Nordfjorden. It also is the S entrance to Maloy, a port on the SE side of Vagsoy.

Gasholmen (61°55'N., 5°06'E.), a reef-fringed islet, lies on the S side of the fairway in a position about 3 miles ESE of Hovdeneset Light. An unmarked patch, with a least charted depth of 6m, lies on the N side of the channel 0.5 mile NE of Gasholmen.

Bergsholmane Light is situated on the N side of the channel, 0.9 mile E of Hovdeneset.

Vessels that have approached Vagsfjorden from the W with the white sector of Hovdeneset Light ahead steer in the white sector of Bergsholmane Light, which leads to within 0.5 mile of that light.

The white sector of Hovdeneset Light, astern, and the white sector of Bergsholmane Light, astern, lead N of Gasholmen into Indreleia, which leads SE, passing E of Gangsoy, and continues N and, E of Vagsoy through Ulvesund.

Nordfjorden

5.46 Nordfjorden, entered N of Risoy, is approached from seaward through Fafjorden or Vagsfjorden. It extends E of Risoy for a distance of about 50 miles under various names. The main fjord has several branches, most of them extending S, that provide several anchorage areas.

At the seaward end of Nordfjorden, the shores are barren and rugged, but farther inland there is often a narrow coastal terrace, with scattered farms and forest. The fjord is deep and practically free from dangers.

The first reach of Nordfjorden extends to the vicinity of Asneset, situated 8 miles ENE of Risoy.

Allmenningsfluene (61°54'N., 5°16'E.), marked by a light, is situated on the N side of the fairway in a position 2.5 miles ENE of Risoy. These rocks are covered by less than 1.8m of water.

Skorpeholmane, a chain of islets and rocks, lies on the S side of the fairway, 1 mile ENE of Risoy. Etreskallen, with a least depth of 5.5m, lies on the S side of the fairway, 0.6 mile S of Allmenningsfluene.

A light is situated on **Asneset** (61°56'N., 5°28'E.). Good anchorage with sand bottom can be obtained near the head of the bay at Maurstad, 0.7 mile N of Asneset. Care must be taken to avoid a 6m shoal 0.8 mile NW of the light on Asneset.

5.47 From Asneset, Nordfjorden continues ESE for 19 miles to **Anda** (61°51'N., 6°05'E.).

Davika, on the S side of the fjord, is entered 2.75 miles SE of Asneset. It affords good anchorage, in depths up to 26m, sand and stones.

Eidsfjorden extends 7 miles E from Davikfjorden. Winds from W raise a considerable sea in this branch.

Anchorage with sand bottom can be obtained in a cove W of the river mouth at Starheim, on the N side of Eidsfjorden, 2 miles within the entrance. At Starheim, there is a quay, with depths of 4 to 6m alongside.

Nordfjordeid (61°54'N., 5°59'E.), at the head of Eidsfjorden, is an industrial and administrative town.

Anchorage, with a bottom of sand, can be obtained 183m WNW of the head of the mole. There are depths of 5 to 7m alongside the quay situated inside the N end of the mole.

Isefjorden, a continuation of Nordfjorden, is entered 7.5 miles ESE of Asneset; it extends 3 miles SE.

Alfoten, entered S of **Hjelteneset** (61°51'N., 5°47'E.), extends 4.5 miles WSW from the main fjord; its head ices over.

Hundvikfjorden, the continuation E from Isefjorden, is entered between Hjelteneset and Krokeneset, 0.8 mile ENE.

At Yksenelvane, on the S side of this reach 1 mile S of Krokeneset, the larger of two quays has depths of 9 to 14m alongside.

Hyen, entered E of **Hyenese** (61°51'N., 5°59'E.), extends 7 miles SSW from Hundvikfjorden.

Gloppen, entered W of Anda, branches SE from Hundvikfjorden for 6 miles. The head of Gloppen affords spacious anchorage, in depths of 20 to 50m. Care should be taken to not anchor near the submarine cables E of this berth.

Ufjorden, the continuation of Nordfjorden E from Hundvikfjorden, is entered N of Anda.

Innvikefjorden, the next reach E of Utfjorden, affords anchorage off **Innvik** (61°51'N., 6°37'E.), in depths of 30 to 40m. A quay at this village has depths of 5 to 6m alongside.

Faleidfjorden, the last reach of Nordfjorden, is entered about 2 miles NW of Innvik, and extends 7 miles E to its head.

Good anchorage can be obtained about 0.6 mile N of the church at **Olden** (61°50'N., 6°49'E.), in 50 to 60m, clay.

Off Loen, the village at the head of the bay, there is good anchorage, in 15 to 20m, sand and clay.

5.48 Skatestraumen, the continuation of Indreleia from Froysjoen, leads between the SW side of Rugsundoy and Bremangerlandet to Fafjorden; it is about 3 miles in length in an E-W direction.

Hornelsflua (61°52'N., 5°16'E.), on the N side of the fairway 0.25 mile WSW of Haukedalsholmane, has a least charted depth of 1m.

Kalveholmen Light is situated on the N side of the fairway, 1 mile WNW of Hornelsflua; Skaten Light is situated 0.3 mile farther W. Shrukken, a rock, lies 183m SE of Skaten Light.

A light is situated on the SW extremity of Risoy, a little over 1 mile WNW of Skaten.

In Skatestraumen, the current is usually W during the falling tide, with a rate up to 3 or 4 knots, and Eduring the rising tide, with a rate of 2 knots. Current conditions are irregular, as wind and weather can greatly influence both direction and rate.

Vessels may enter Skatestraumen from the S by steering in the white sector of Kalveholmen Light, then steering in the white sector of Skaten Light until SW of Kalveholmen Light. Then steer to pass N of Skaten in the white sector of Risoy Light or in the white sector of Kalveholmen Light, astern; this leads N of a 7.5m patch close ENE of Skaten. The white sector of Risoy Light leads over this patch.

After passing N of Skaten, bring the white sector of this light astern; this leads S of Bjornoy into Fafjorden. Another sector of this light, bearing astern, leads into the white sector of the light on the E end of Gangsoy. This light ahead leads to the fairway between Gangsoy and Risoy.

After passing Risoy, the track leads W into Vagsfjorden and then N through Maloysundet, the entrance to Ulvesund. The channel of Indreleia lies on the E side of the island of **Maloy**.

5.49 After passing between Risoy and Gangsoy, steer for **Vemmelsvikholmen** (61°54'N., 5°10'E.) until Gasholmen bears 305°, when course may be altered toward that island to bring the light on Gangsoy astern, which leads between Gasholmen and the unmarked patch on the N side of the channel. Vessels then continue NW in the white sector of Bergsholmane Light.

Kariskjer Light (61°55'N., 5°07'E.) is situated on a point 0.75 mile NNE of Gasholmen.

A light is situated on the S extremity of Maloy, 0.45 mile NNW of Kariskjer Light.

Maloysundet is the channel between the island of Maloy and the mainland and is the approach, from S, to the port of Maloy.

Maloysundet is spanned by a bridge, and is divided into two separate channels by the central pillar. The W passage has a vertical clearance of 42m over a width of 23m, or of 40m over a width of 76m. The E passage has a vertical clearance of 41m over a width of 50m. The W channel has a least charted depth of 10.5m and the E channel has a least charted depth of 7m.

Lights are exhibited on both sides of the bridge to indicate the center of each passage.

The flow in Maloysundet usually sets N on both the flood and ebb. The strongest rate is about 1 hour before HW. During springs, with a S wind, the rate is reported to reach 3 knots.

Pilotage is compulsory. The pilot boards off **Homengra** (60°51'N., 4°37'E.) or **Breisundet** (62°27'N., 5°59'E.)

Between Maloysundet and Leistholmen, there is a speed limit of 6 knots, but larger vessels may proceed at 8 knots to improve steering if wind and current conditions make this speed necessary. In Maloysundet itself, vessels may adjust speed as necessary for safe steering.

Stalrevet, 0.6 mile N of the N extremity of Stadlandet has a least charted depth of 29m. It breaks in heavy weather to a distant of 1.25 miles ESE, which is an area of foul ground.

Barskallen, about 1 mile WSW of Kvamsoy, has a least depth of 28m. **Svarteskjaer** (62°11'N., 5°21'E.), a reef above and below water, lies about 0.5 mile NW of Haugsholmen Light, on the NE side of the channel.

When making Vanylvsgapet from W or NW, pass N of Stalrevet and enter the white sector of Haugsholmen Light ahead. When about 0.3 mile NW of Svarteskjaer, steer S to pass about midway between Haugsholmen Light and the islets off the NE side of Stadlandet.

The white sector of **Terneskjerflu Light** (62°11'N., 5°24'E.) leads into the channel between Storholmen and Haugsholmen. When the two lights marking the W end of the channel are abeam, course may be adjusted to pass clear N of Terneskjerflu Light, then into Haugsfjorden.

Anchorage, in depths of 11 to 25m, is charted 0.35 mile WNW of Terneskjerflu Light.

Vartdalsfjorden

5.50 Haugsfjorden is formed between Stadlandet, Storholmen, Kvamsoy, and Haugsholmen, on the W and NW sides, and by the mainland, on the E side.

Ytsteflu (62°12'N., 5°27'E.), awash, lies about 0.3 mile offshore, 1.75 miles NE of Terneskjerflu Light.

Aramsund Light (62°12'N., 5°29'E.) is situated 2.75 miles NE of Terneskjerflu Light, in the W entrance to Aramsundet. The white sector of this light leads from a position close N of Terneskjerflu Light, across the N end of Haugsfjorden and N of Ytsteflu. Two 10m patches lie in this white sector.

Aramsundet leads from Haugsfjorden E to Rovdefjorden.

The channel is marked by Aramsund Light, at the W entrance; Stabbane Light, in the E entrance; and a third light about midway between these two.

To enter Aramsundet, vessels, after passing Ytsteflu, should steer to pass S of the 6.5m shoal lying about 0.4 mile WNW of Aramsund Light, then between this light and the wreck and 9m depth 0.15 mile NE. Then course may be shaped to pass W and S of Stabbane Light. Larger vessels may pass N of the iron perch 183m NW of Stabbane Light and S of Raedene, a reef awash, 0.15 mile N of the light. This track leads over a 7.5m depth.

Rovdefjorden extends about 3 miles SE from Stabbane Light to **Saudeholmen Light** (62°11'N., 5°36'E.), then ENE to the entrance to Voldsfjorden. Vartdalsfjorden is the NE extension of Rovdefjorden.

5.51 **Rovdeskjeret Light** (62°11'N., 5°45'E.) is situated on the S side of Rovdefjorden, 3.75 miles E of Saudeholmen Light. There are a number of dangers in the vicinity of this light.

Stabbane Light

There is anchorage available off Knarrdal, Little Rovde, and Sundnesbogen, which lie 0.4 mile E, 0.9 mile E, and 1.5 miles ENE, respectively, from Rovdeskjeret Light, in depths up to 33m, sand. When approaching these anchorages from the W, it is advisable to keep well N of the dangers in the vicinity of Rovdeskjeret Light.

Vessels may keep Stabbane Light astern, which leads into the W part of Rovdefjorden. Pass S of Saudeholmen Light, then steer ENE with the white sector of that light bearing astern. Vessels may continue E, with the white sector of Ysnoya Light bearing ahead.

When about 2 miles WSW of Ysonya Light, alter course to the E, then steer NNE to pass between Ysonya Light and the dangers 1 mile E, and enter Vartdalsfjorden.

Syvdsfjorden extends 6 miles SSE from Rovdefjorden in a position 1.5 miles SE of Saudeholmen Light.

5.52 **Voldsfjorden** (62°12'N., 5°56'E.) extends 9.25 miles SSE from its entrance at the E end of Rovdefjorden. Its two inner arms, Dalsfjorden and Austefjorden, are deep and clear of dangers.

An ammunition dump is situated close within the entrance to Voldsfjorden.

Vartdalsfjorden leads 10 miles NE toward Sulefjorden. It is flanked by high, partly-wooded mountains. The fjord is deep, and almost everywhere steep-to up to the shore. It is easy to navigate by day.

Vessels may enter Vartdalsfjorden with the white sector of Ysonya Light astern. After passing **Skolten** (62°16'N., 6°00'E.), a 2m patch, keep Ysonya Light bearing 222° astern. This leads through the NE part of Vartdalsfjorden.

Orstafjorden (62°14'N., 6°00'E.) leads off the SE side of Vartdalsfjorden and extends 5 miles SE. It is surrounded by mountains and is almost free of dangers.

Raudoy and Raudoyholmen, close E, lie in the entrance to Orstafjorden. **Raudoy Light** (62°14'N., 5°59'E.) is situated on Raudoyholmen. Vessels can anchor, in 25 to 40m, sand, 0.25 mile NW of Raudoy Light.

Vessels may enter with the white sector of Ysonya Light bearing astern, which leads S of Raudoy. The white sector of Raudoy Light bearing astern, leads to the vicinity of Lianes, about 2 miles SSE.

Orsta (62°12'N., 6°08'E.) (World Port Index No. 23118) lies at the head of Orstafjorden. It is the site of several industries. There are several quays, one being 61m in length. There are depths alongside the quays from 1.7 to 7m.

Anchorage is available SW of the quays, in 15 to 45m, sand and mud.

5.53 Indreleia continues through Sulefjorden, between Hareidlandet and Sula, from the junction of Vartdalsfjorden and Storfjorden, into Breisundet.

For the requirements for non-military vessels entering Norwegian internal waters, see Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

Hjorungneset Light (Hjoringnes Light) (62°21'N., 6°07'E.), stands on the NE end of Hjorungneset. This light is situated on the S side of the E entrance to Sulefjorden. A monument/cairn is located a little over 1 mile WNW of Hjorungneset Light.

Overaflu, a reef awash, lies 0.15 mile offshore, 1 mile NW of Hjorungneset.

Eltraneset (62°26'N., 6°03'E.), the W extremity of Sula, is fronted by a shore reef which extends about 0.2 mile SW. Eltraflu, about 0.2 mile N of Eltraneset, has a least depth of 10m.

Hareid (62°22'N., 6°02'E.), situated on the SW side of Sulefjorden, 2.25 miles WNW of Hjorungneset, is protected by two moles. The dredged depth inside the harbor was 5m; the depths alongside the quays ranged up to 6m.

Brandal (62°24'N., 6°01'E.) is a small harbor about 2 miles NNW of Hareid. There is a ferry quay, 35m long, with depths of 1.7 to 4.6m alongside; a fish oil quay, 108m long, with depths of 4 to 7.8m alongside; and a disused factory quay, 110m long, with depths of 2.9 to 4.2m alongside.

5.54 Storfjorden, with its continuations, extends about 55 miles SE from the junction of Vartdalsfjorden and Sulafjorden.

The terrain alternates between wild mountain areas and productive lowlands and valleys.

Storfjorden extends ENE about 18 miles to **Gausneset** (62°28'N., 6°46'E.), then in a general SSE direction about 14 miles to its continuation as Norddalsfjorden.

Hjorundfjorden, with its two inner arms, Norangsfjorden and Storfjorden, is entered from a position 7.25 miles ENE of Hjorungnes Light. These fjords extend 18 miles in a SSE direction. They are surrounded by high mountains which fall steeply to the water.

5.55 **Sykkylvfjorden** (62°24'N., 6°33'E.) is entered 4 miles E of Hjorundfjorden. Anchorage is available 2.5 miles within the entrance near the middle of the fjord, in depths of 28 to 35m. A bridge, with a vertical clearance of 16m, spans the fjord about 0.3 mile N of Vik.

At Sykkylven, 1.5 miles within the fjord on the E side, there are quays, exposed to W winds, with depths up to 7.5m alongside.

At Ikornes, on the W side of the fjord SW of Sykkylven, there are depths up to 7.2m alongside the quays.

Stordalsvika (62°23'N., 6°58'E.) opens off the E side of Storfjorden, 6.75 mile SSE of Gausneset. Stordal, at the head of the bay, has berths with 1.1 to 10.3m alongside. Anchorage is available in the NE corner of Stordalsvika, in 16 to 27m, mud.

Stranda (62°18'N., 6°57'E.), on the W side of Storfjorden, about 4 miles SSW of Stordalsvika, is the principal town in the inner part of the fjord.

Stranda Home Page

http://www.stranda-hamnevesen.no

Winds—Weather.—Strong winds raise considerable seas and make berthing difficult at the quays.

Depths—Limitations.—There are several berths at the various quays that range in depth from 1.4 to 7.7m.

Pilotage.—Pilotage is compulsory for all vessels over 500 gt and all vessels carrying dangerous cargo. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Vessels should call the Alesund pilot station 2 hours prior to arrival on VHF channel 16. If the station does not respond either the Rogaland or Floro Coastal Radio station will reply and relay details to the pilot station.

Pilots board in the following positions:

a. 62°27.0'N, 5°58.9'E.
b. 62°31.0'N, 5°40.9'E. (by prior arrangement)

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 13 and 16
2. Telephone: 47-46-411113
3. Facsimile: 47-70-268001

5.56 Sunnylvsfjorden extends 13 miles SSW from its junction with Storfjorden and Norddalsfjorden.

Geirangerfjorden leads about 7 miles E from the SE side of Sunnylvsfjorden between **Lundanes** (62°07'N., 6°58'E.) and Nokkeneset, 0.75 mile SW.

Both of these fjords are deep and clear of dangers, but navigators are advised to keep well out into the center owing to the risk of rock falls from the precipitous mountains.

Hellesylt (62°05'N., 6°53'E.), at the head of Sunnylvsfjorden, has a quay 32m long, with depths of 5.6 to 8.0m alongside. Vessels may anchor, in 28 to 68m, sand, 0.2 mile NE of the church.

Geiranger (62°06'N., 7°12'E.) lies at the head of Geirangerfjorden, 8 miles E of Lundanes. The S side of the ferry quay is available for berthing and is 50m long, with depths of 3.5 to 8.4m alongside.

Anchorage is available, in depths of 30 to 40m, sand and clay, as seen on the chart.

Care is necessary to avoid submarine cables which are laid along the SW shoreline and the cables which extend across the fjord in a N direction from the S shore in a position 0.85 mile NW of the quay.

Geirangerfjoren

5.57 Norddalsfjorden leads E from the SE end of Storfjorden and then in to Tafjorden. Both fjords are deep and present no navigational difficulty.

There is anchorage off **Tafjorden** (62°14'N., 7°25'E.), at the head of the fjord, in 30 to 50m, sand and clay, clear of the banks at the river mouth.

Sandsfjorden (62°15'N., 5°31'E.) is an alternate route from the sea to Rovdefjorden and the inner route to Alesund. This fjord lies between Sandsoy, and the islands extending S from this island, on the W, and Gurskoy on the E.

From Sondre Flavaerleia, a S course in mid-channel avoids all dangers and leads clear E of **Kleveboen** (62°16'N., 5°30'E.), a 2.3m patch lying off the NE point of Sandsoy.

The white sector of Stabbane Light, bearing ahead, leads toward the S end of Standsfjorden. The white sector of **Sandshamn Light** (62°15'N., 5°30'E.), bearing astern, leads SSE into the W entrance of Rovdefjorden.

Geiranger

Sandshamn, a harbor protected by a mole, is situated on the E side of Sandsoy. There is a berth on the inner side of the mole 25m long, with depths of 8.4 to 10.3m alongside.

Gursken, a narrow inlet, is entered with the white sector of Sandshamn Light, bearing astern. Saltflu, awash, lies in this sector about 3 miles distant from the light.

Vagen (62°13'N., 5°39'E.) lies at the head of Gursken, where there is a shipyard. There is a fitting out quay at the shipyard, 60m long, with depths of 3.5 to 7m alongside.

5.58 Breisunddjupet, which has depths of over 200m, leads 8 miles SE from position 62°31'N, 5°40'E into Breisundet.

A number of shoals and patches lie between Runde and the S side of Breisunddjupet. Nyttarsskallane, with a depth of 24m, and Golla, three patches of 9m each, lie 3.5 miles NNW and 3 miles NNE, respectively, from Runde Light.

Heavy seas have been observed in the Breisunddjupet and Breisundet area with winds from the W and NW. The outgoing current is approximately 1 knot from Storfjorden and causes choppy waves and heavier seas.

Refraction centers will occur on the leeward side of the local shoal areas on both sides of Breidsunddjupet.

Vallabaane (62°28'N., 5°41'E.), with a least depth of 2.4m, and Keipbaane, with a least depth of 7m, lie 3.5 miles NNW and 4 miles NNW, respectively, from Grasoyane Light. Other shoals lie in this area. An 18m depth is charted 1.25 miles ENE of Vallabaane.

Heroyfjorden lies between Sandsoy and Gurskoy on the S, and Skorpa, Nerlandsoy, Bersoy, and Leinoy on the N.

In Heroyfjorden, there are many islets separated by rock-obstructed channels, which in places are narrow. The three principal channels through these dangers are Sondre Flavaerlia, Mellomste Flavaerlia, and Nordre Flavaerlia, which are collectively known as Flavaerlia.

These channels lead to the intricate passages which lead N of Gurskoy and NW of Hareidlandet into Breisundet. Some of these channels can only be used by small vessels with local knowledge.

Heroyfjorden may be approached with the white sector of

Flavaer Light (62°19'N., 5°35'E.) bearing ahead, which leads N of Stadlandet; however, this track leads over charted depths of 30m. A racon is located at the light tower.

5.59 Sondre Flavaerlia leads between the N side of Sandsoy and a group of islets, rocks, and shoals about 1 mile N.

Flesene (62°17'N., 5°27'E.), marked by an iron perch, lies near the W end of this group.

Sandsfjorden, previously described in paragraph 5.57, may be entered from Sondre Flavaerlia.

The white sector of **Hidsneset Light** (62°17'N., 5°33'E.), at the W end of Gurskoy, leads S of Flesene and N of the foul ground extending NW of Sandsoy.

Sondre Flavaerlia then passes NE. The white sector of Hidsneset Light, bearing astern, leads W of Langflu, which lies 1 mile NNE of that light, and W of Blomrokkene, which lies 0.45 mile NE of Langflu, and into the E end of Mellomste Flavaerlia.

The white sector of **Klubben Light** (62°19'N., 5°37'E.), situated at the SE end of the Flavaer Group, bearing ahead, leads S of Langflu.

From E of Langflu, Sondre Flavaerlia leads ENE to pass between Klubben Light and an iron perch which marks Kvalebaen, a 3m patch, 0.2 mile S.

The white sector of Steinsholmskjer Light, 1.25 miles ESE of Klubben Light, bearing ahead, leads between Klubben Light and Kvalebaen.

Mellomste Flavaerlia leads ENE directly toward the Flavaer Group. This channel is entered as directed for Heroyfjorden.

The sea sometimes breaks over Hoven, the 30m patch lying about 1 mile N of Sandsoy, near the entrance to Mellomste Flavaerlia.

After passing **Penningflu** (62°19'N., 5°33'E.), 0.8 mile WSW of Flavaer Light, course may be altered N to join Nordre Flavaerlia, or E to join Sondre Flavaerlia, by steering in the white sector of Steinsholmskjer Light. Nordre Flavaerlia leads ENE, passing S of Skorpa and Nerlandsoy.

The white sector of Kyrkjeholmen Light, leads between Langfallet, partly awash, and Store Godoyflu, at the W entrance of Nordre Flavaerlia. When within 0.5 mile of Kyrkjeholmen Light, steer in an E direction to pass N of the Flavaer Group, then steer SE with the white sector of Kyrkjeholmen Light as tern, which leads into the inner part of **Heroyfjorden**.

Tronden (62°19'N., 5°38'E.), above-water, lies in this white sector, about 0.5 mile E of Klubben Light.

Well-sheltered anchorage is available in a bay off **Moldtu** (62°18'N., 5°38'E.), on the N coast of Gurskoy, in 20 to 30m, sand. The anchorage lies 0.9 mile SSE of Klubben Light, and is entered from the E end of Sondre Flavaerlia.

Moldtustranda (62°18'N., 5°39'E.) (World Port Index No. 23115) is entered SSE of Steinsholmskjer Light, and lies E of Moldtu. There are several quays in Moldtustranda, with lengths from 10 to 130m and depths up to 10m alongside.

There is a fish meal factory with a large quay installation.

Vessels approaching from seaward may embark pilots at the pilot station NE of Runde. Customs officers from the port of Alesund meet inbound vessels at the above pilot station.

Breisundet

5.60 **Heissafjorden** (62°27'N., 6°08'E.) leads 2.5 miles E from Breisundet into Borgundfjorden; at its E end gives access to Aspevagen, which is the principal entrance to Alesund Havn.

Alesund Havn (62°28'N., 6°09'E.) consists of Aspevagen, S of Aspoya; Steinvagsundet and Steinvagen, W of Aspoya; and Indre Havn, E of Aspoya.

Aspevagen is entered E of Slinningen, the E extremity of Heissa; it is the principal entrance to Alesund Havn.

Submarine cables are laid from Slinningsodden, the NE extremity of Slinningen, NE to Norvoya.

Aspa (62°28'N., 6°09'E.), a reef awash, lies in the middle of Aspevagen.

Vikanesflu Light (62°28'N., 6°07'E.) is situated in the SW part of Aspevagen. The white sector of this light bearing between 262° and 269° leads from N of Slinningen, S of Aspa to the anchorages in the S part of Aspevagen. A depth of 9.1m lies in this white sector.

Anchorage may be taken, in 30m, 0.35 mile ESE of Vikanesflu Light and, in 36m, 0.7 mile ESE of the same light.

There is a quay at the tank installation on the S shore of Aspevagen, about 0.2 mile SE of Vikanesflu Light, which is 75m long and has depths of 7.5 to 11.1m alongside.

5.61 **Hoggsteinen Light** (62°28'N., 6°02'E.) is situated off the SE extremity of Godoya, on the NE side of Breisundet.

Djupeflua, with a charted depth of 12m, lies 0.3 mile SSE of the light. Skarvoyflua, a 5m patch which breaks in bad weather, lies about 1 mile E of the light.

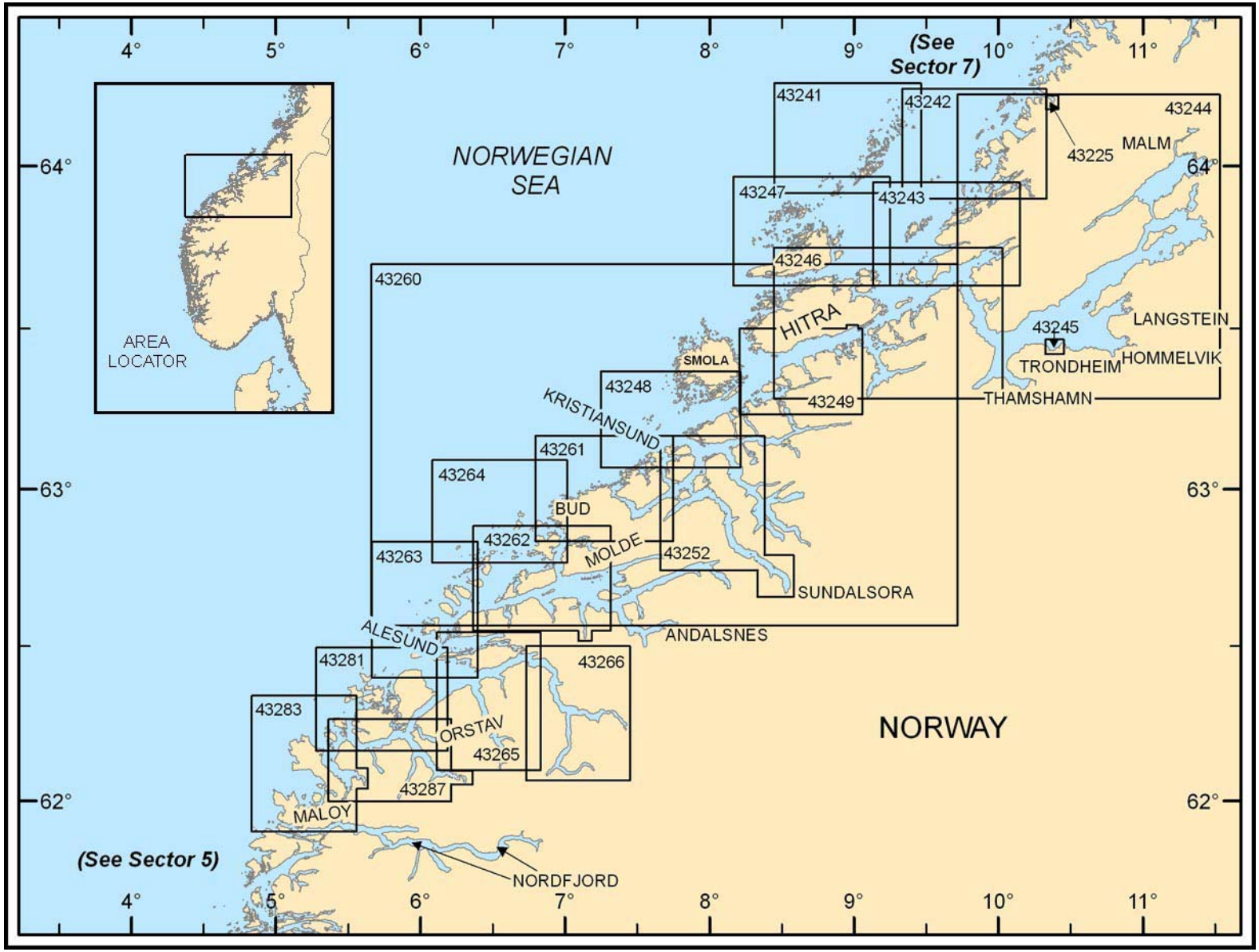
Nordtaren, with a least charted depth of 7.5m, lies about midway between Heissa and Godoya, 1 mile ENE of Hoggsteinen Light.

To enter Valderhaugfjorden, which lies N of Alesund, steer in the junction of the red and green sectors of **Havsteinen Light** (62°29'N., 6°04'E.). This track leads over Djupeflua and W of Nordtaren.

When W of Erkneflua, which lies close N of Nordtaren, steer NE with the white sector of Hoggsteinen Light astern; this will lead to a position NW of Alesund.

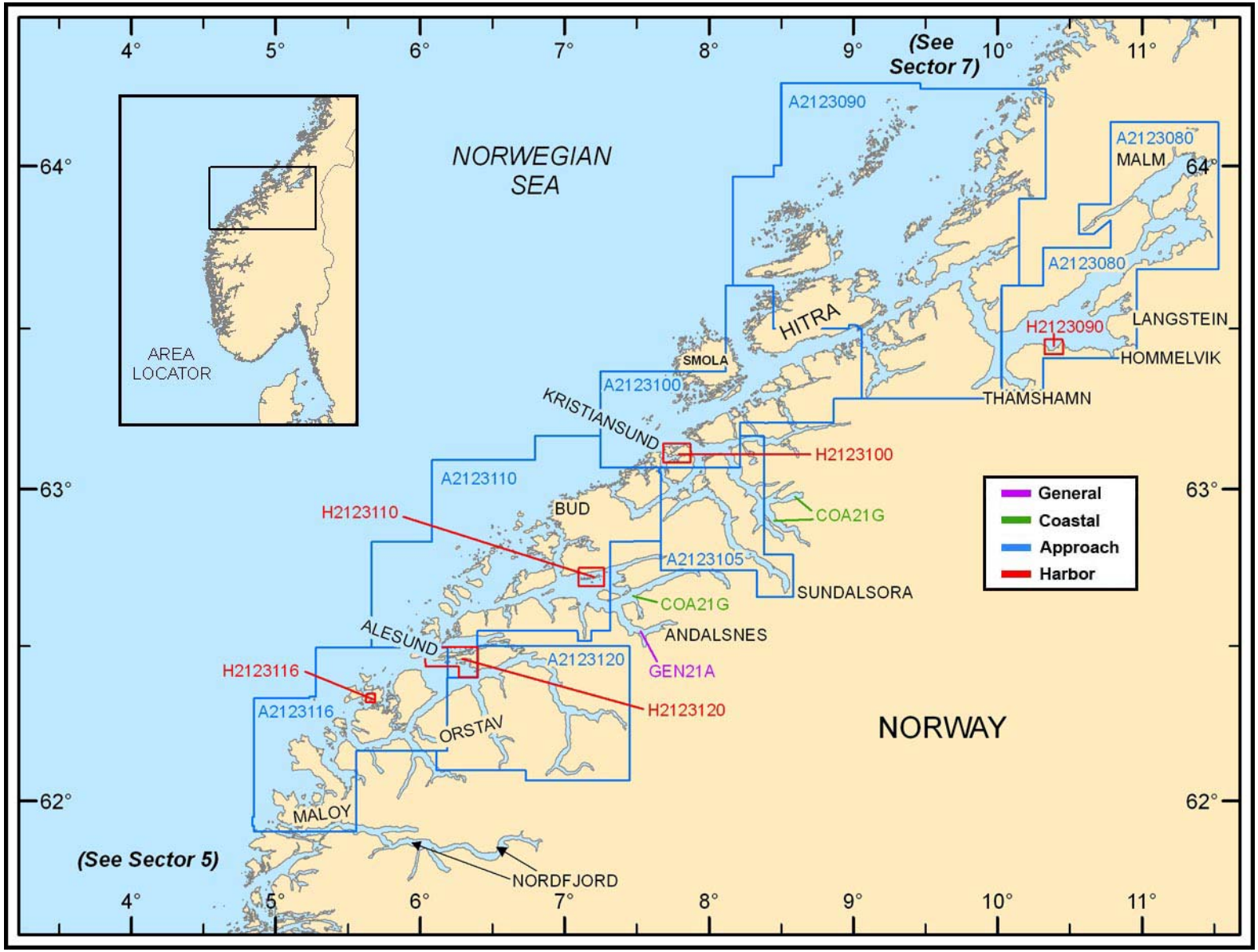
Foul ground extends about 0.2 mile N from the NE extremity of Heissa. Steer a SE course from the white sector of Hoggsteinen Light to pass E of this foul ground, to the berths on the N side of Alesund.

Olsskjer, a partly submerged reef, lies on the N side of the fairway, about 0.5 mile N of Aspoya Olsskjerboen, a 3m shoal, lies 0.15 mile ENE of this reef.



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

SECTOR **6** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 21 (Limited Distribution) disc within the README\ ICS folder.

SECTOR 6

NORWAY—BREIDSUND-DJUPET TO TRONDHEIM

Plan.—This sector describes the outer coast from Breidsund-Djupet to Halten, including the seaward approaches to Indreleia, the connecting fjords, and Trondheim. The inner route N of Alesund is included in this sector.

General Remarks

6.1 Winds—Weather.—Between Alesund and Trondheim, during autumn, winter and spring, the weather is frequently unsettled and stormy. During this period the prevailing wind is SW. In summer, the wind is most frequently between N and NE.

Tides—Currents.—During settled weather, the tidal currents set NE with the flood and SW with the ebb. They attain their greatest strength at a distance of 30 to 50 miles offshore. At 30 to 50 miles offshore on this part of the coast, the NE tidal current is generally the stronger and the most constant.

When the wind is continuously E, the tidal current is always SW.

During the winter months, when the nights are long and the visibility is frequently bad, vessels approaching land with a W wind should exercise caution to avoid being set N of the harbor, channel, or channel entrance.

Within the various channels of the fjords the tidal currents, as a rule, flow NE with the rising tide. The tidal currents in some channels are negligible, while a rate of 3 to 4 knots have been observed in others.

From Breidsund-Djupet, the outer coast trends in a general NE direction for about 39 miles to Buadjupet. From Buadjupet, the coast trends in a general ENE direction for about 27 miles to Kristiansund. This coast is fronted by islands, groups of islets, and rocks which extend up to 8.5 miles off the mainland.

From Kristiansund, the islands and rocks lying off the coast extend about 75 miles NE to the islands of Halen. These islands are located on the W side of the main N approach to Trondheim.

For details and information concerning the color and bearings of the sector lights mentioned within this sector, see the Light List.

Rain, fog, and storms usually occur during SW winds. The least rainfall and the clearest weather are experienced during the spring. Summer is the season with the greatest number of foggy days; however, at Trondheim, fog is more prevalent in autumn and winter.

Pilotage.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Caution.—Due to continued damage to floating navigation aids in the area, mariners are requested to give a wide berth when passing them. Vessels are to report observance of any dysfunctional or irregular lights or damaged buoyage to the nearest coast station.

Off-lying Dangers

6.2 Dangerous Waves Areas.—Coastal areas where repeated marine casualties caused by heavy seas in rough weather have occurred are designated by the Norwegian authorities as Danger Areas.

Stattlandett (62°12'N., 5°00'E.) is exposed to SW to N winds which raise heavy seas.

Haugsholmen (62°11'N., 5°23'E.) and Stalrevet (62°13'N., 5°11'E.) are particularly known as rough sea areas.

Breidsunddjupet and Breidsundet (62°28'N., 5°50'E.) are areas where W and NW winds cause heavy seas.

Haustadvika (63°00'E., 7°00'E.), extensive offshore shoals, completely exposed to SW to NW strong winds. These conditions are especially severe in the area of Buadjupet, Bjornsund (62°54'N., 6°45'E.), and Kolbeinsflua,.

Ytrefjorden (63°12'N., 7°50'E.) is an area extending from SW of Gripholen to Ytrefjorden S of Smola, where depths are 100 to 150m. Griptarane, the westernmost shallow area where the sea breaks heavily, lies about 11 miles W of Smola.

The **Folla** (63°55'N., 9°30'E.) area is known for rough seas with strong W or NW winds, especially in the winter. Many large and small ships have been lost in the area through the years. The coast line is steep-to, with depths of 300 to 500m near offshore that also contributes to rough conditions, along with the outflow of tidal current.

6.3 Oil and gas fields.—Draugen Oil Field lies 45 miles WNW from Halten Light (64°10'N., 9°25'E.) A lighted concrete platform LF3F (64°21.2'N., 7°47'.0E.) stands on in the oil field. There are numerous underwater installations within 6.5 miles of the platform.

Njord A and Njord B storage tankers, 1.5 miles apart and connected to each other with a submarine pipeline, are located about 60 miles E of Halten Light.

Asgard, Norway's largest and most complex offshore development, is situated 87 miles NW of Halten Light and consists of three permanent structures, as follows:

1. Asgard B (65°06.6'N., 6°47.5'E.), the world's largest semi-submersible production platform, is moored with 16 anchor lines, each extending a length of 1,900m.
2. Asgard A, a floating production storage and offloading vessel (FPSO) located about 3.2 miles SSW of Asgard B, is moored with 12 anchor lines.
3. Asgard C, a floating storage and offloading vessel (FSO) located about 2.5 miles ENE of Asgard B, is moored with nine anchor lines, each extending a length of 1,200m.

Gas is delivered via a submarine pipeline running 385 miles

from Asgard B to Kallsto, located on the mainland 6 miles S of Haugesund (59°25'N., 5°16'E.).

Numerous wells, structures, and other obstructions exist on the sea bed within the boundaries of the field, which extend 5 miles N, 6 miles S, 5 miles W, and 22 miles E of Asgard B. Anchoring and fishing are prohibited within 500m of the sea bed installations. A lighted buoy is moored close N of a well located 9.5 miles N of Asgard B.

Statoil Marin VTS conducts radar surveillance from the three structures and can be contacted on VHF channel 6. Vessels are requested to pass at least 3 miles off all installations.

Caution.—It has been reported (2009) that a submerged obstructions lie at 65°09.8'N, 6°29.6'E and at 65°08.2'N, 6°28.6'E. Both obstructions lie W of Halden Bank and about 22.5 miles SW of Heidrun platform.

Breidsund-Djupet to Buadjupet (Buddjupet)

6.4 The coast NNE of Breidsund-Djupet, the NW approach to Alesund and the recommended fairway to Alesund, is fringed with a number of islands which are fronted by foul ground to a distance of 6 miles in places. Vessels approaching the coast from seaward should maintain a considerable distance offshore until their position is positively determined.

Vallabaane, with a charted depth of 2.4m, lies about 7 miles W of Godoya. Keipbaane lies 0.6 mile NNW of the 2.4m depth.

Alnes Light (62°29'N., 5°58'E.), situated on the NW extremity of Godoya, is a good mark for making Giskesundet, the passage between the islands of Godoya and Giske.

Alesundaksla (62°28.5'N., 6°11.0'E.) rises to an elevation of 197m, on the island of Norvoya, close E of Alesund. It is used as a mark in the approach to Giskesundet.

Klovgrynna, an 18m patch; Dyngeskallen, a 26m patch; and Stadsgrunnskallen, a 20m patch, lie about 5 miles WNW of the NW extremity of Godoya.

Olsflua (62°30'N., 5°51'E.), an 11m patch, and Lyren, a 16m patch, lie 3 and 2 miles W, respectively, from the NW extremity of Godoya.

To enter **Giskesundet** (62°30'N., 6°01'E.) from the W, Alnes Light, just open N of the highest point of Havsteinen, bearing 092° leads N of Keipbaane, but directly over Olsflua.

The NW extremity of Godoya, in line with the S point of Havsteinen bearing 098°, leads close S of Klovgrynna and Dyngeskallen and N of Olsflua toward Giskesundet.

Vessels may approach Giskesundet at night with the white sector of Erkna Light.

A middle course steered through Giskesundet avoids the dangers and Valderhaugfjorden may be entered by passing N or S of Havsteinen.

Vessels having entered Valderhaugfjorden whose destination is Alesund, proceed as previously directed.

6.5 **Fauskane** (62°34'N., 5°45'E.), shoals with a least depth of 8.8m, lie in the NW approach to Giskesundet, about 8 miles NW of Godoya. These are marked by breakers in any swell and a lighted buoy moored close W. Onglegrunnen, a 17m patch, and Kvalsbaen, a 2m patch, lie 6 and 4.75 miles, respectively, NW of Godoya. Kvalsbaen is usually marked by breakers.

Langeskjeret (62°32'N., 5°52'E.), an islet marked by a beacon, lies 4 miles NW of Godoya. A chain of rocks extends 1 mile N to Leiafalla, a rock, awash. Oddebaen, a group of rocks, awash, lie 0.85 mile NW of Langeskjeret.

Leiafallet, rocks, awash; Alnesbreidflua, awash; Bjornebaen, awash; and Alnesraunen, marked by a beacon; lie 1.25 miles NW, 2 miles NW, 2 miles NW and 2 miles NW, respectively, of Godoya.

Vessels approaching Giskesundet from NW keep the SW point of Godoya in line with the top of the SW slope of Sula bearing 125°. This track will lead SW of Fauskane and Onglegrunnen, but Olsflua lies close N of this track further inshore.

6.6 Giskesundet, between Godoya and **Giske** (62°30'N., 6°03'E.), 1 mile N, gives access to Indreleia from seaward and is used by vessels leaving Alesund for the open sea. It is affected by strong mountain squalls from Godoya, when winds are strong between S and W.

When entering Giskesundet, the NW extremity of Godoya should be given a wide berth, owing to the banks which extend up to 0.2 mile from it. Foul ground extends 2.5 miles NW from Giske, and 0.3 mile SW.

Erkna Light (62°33'N., 5°56'E.), situated on the summit of an island 1.75 miles W of Vigra, is a useful landfall light.

Synesfjellet (62°33'N., 6°02'E.), 87m high, is situated near the SW extremity of Vigra. Blindheimsfjellet, 77m high, and Molnesfjellet, 128m high, are situated 1.25 miles and 2.5 miles NE, respectively, from Synesfjellet.

Storholmane (62°39'N., 5°56'E.), 5.5 miles NW of Vigra, consists of three easily identified islands.

Storholmen (62°39'N., 5°56'E.) is the largest of the three islands which comprise the group. A light is situated on this island.

The waters N and E of Storholmen can be difficult to navigate without local knowledge, despite the ample provision of navigational lights.

6.7 **Lepsoya** (62°37'N., 6°11'E.), Haramsoya, and Flemsoya are easily identified, especially when the mountains in the background are visible. When viewed from the NW, these islands appear equal in width to the openings, about 2 miles, between them.

Godalde, the summit of Lepsoya, is 489m high. Mannen, at the center of Haramsoya, is 347m high; Skulen, the summit of Flemsoya, is 493m high.

Lepsoyklovningen (62°38'N., 6°03'E.), an islet, lies 3.25 miles E of Storholmen. Kloningsgrunnen, a 4.8m patch, lies 0.25 mile S of Lepsoyklovningen; Klovningsfallet, a 2m patch, lies 0.4 mile SE of the same islet.

Knappen (62°38'N., 6°02'E.), an isolated above-water rock, lies 0.7 mile S of Lepsoyklovningen. Nordreflua, a 3m patch, lies about 1 mile W of Knappen. Melingskjeret, above water, lies 1.25 miles SW of Nordreflua.

A light is situated on **Rossholmen** (62°36'N., 6°03'E.), an islet 1.25 miles NW of Vigra. Rossholmbaen, a 1.5m patch, lies 0.45 mile N of the light.

Flatskjeret lies 1.5 miles ENE of Rossholmen; Flatskjergrunnen, a 1.7m patch, lies 0.2 mile farther ENE.

6.8 The island of **Mia** (62°40'N., 6°38'E.), 6 miles E of

Flemsoya, rises to a height of 533m. Several hummocks protrude from its summit.

Skjerdingen, on the mainland about 5 miles SSE of the summit of Mia, has a saddle-shaped summit 1,062m high, and is visible for a considerable distance at sea.

Farther NE, on the coast about 30 miles from Flemsoya, will be seen Stemshesten, 667m high, and Maelen, 769m high.

Jendemsfjellet (62°48'N., 7°03'E.), 633m high, is situated on the mainland, about 11 miles SSW of Maelen;. It may be identified by its perfectly round form.

Gulberget, 160m high, about 7 miles NNW of Jendemsfjellet. The hill rises from a level plain and is conspicuous because of its detached position. Its summit is almost flat and presents the same appearance when sighted from various bearings. A church 1 mile WSW of the hill is also visible from seaward.

6.9 Vigrafjorden lies between Vigra and Lepsoya, which lies 1.75 miles NE. Vigrafjorden is entered from the vicinity of Storholmen, about 7 miles WNW.

The recommended route into Vigrafjorden by day leads E from a position 0.4 mile S of Storholmen, then passes between Knappen and Klovningsgrunnen, then turns SE, passing W of Flatskjeret or E of Flatskjergrunnen.

When E of Flatskjergrunnen, steer SSE with the white sector of **Innholmen Light** (62°38'N., 6°07'E.), astern, which leads to the S part of Vigrafjorden.

When Rognodden, the E extremity of Vigra, bears 270°, enter the white sector of **Oksebasen Light** (62°31'N., 6°09'E.) until about 0.5 mile distant from the light, then change course to pass midway between Oksebasen Light and the island of Valderoya, about 0.5 mile distant, W.

Enter the white sector of **Gildreneset Light** (62°30'N., 6°11'E.) bearing between 116° and 120°, ahead, which leads through a channel about 0.2 mile wide.

When clear of the channel, steer SW and enter Valderhaugfjorden, then SE to Alesund or continue SW through Indreleia as previously directed.

Caution.—The glide path for aircraft landing at Alesund airport passes over Vigrafjorden 3 to 4 miles N of Hamnoya.

At the E limit of the approach zone, the aircraft will be at an altitude of only about 60m when descending to the runway.

6.10 Lepsoyrevet (62°36'N., 6°15'E.), a shallow reef of shingle, sand, and shells, with rocky heads, extends from Lepsoya to the mainland, about 2 miles SE. This is the shallowest part of Indreleia; a depth of little more than 5m can be carried across it.

Unexpected and unsteady winds are liable to blow off the mainland and off Lepsoya.

The tidal currents flow NE and SW. The flow is strong and is greatly influenced by wind.

A light is shown from the head of a breakwater extending 0.15 mile from the shore, on the SE side of Lepsoyrevet.

The fairway across Lepsoyrevet is entered about 0.3 mile SSW of Sore Kverna. The white sector of Lepsoyrevet Light leads toward the entrance of the fairway. The fairway leads NE to Haramsfjorden, and is marked by buoys.

When clear of Lepsoyrevet, course may be shaped to pass NW of **Haugneset** (62°37'N., 6°20'E.), or NW through Haramsfjorden, to the open sea.

The waters NW of Lepsoya are foul and should not be entered without local knowledge.

Haramsfjorden is difficult to access and should not be attempted without a pilot.

Pass S of **Hella** (62°41'N., 5°59'E.) and N of Utbaane, awash, 2 miles ESE of Hella.

A light is shown from **Hellevik** (62°38'N., 6°10'E.). Naggen, awash, lies about 2 miles WNW of Hellevik Light.

When S of Naggen, the white sector of **Haugneset Light** (62°37'N., 6°20'E.) leads into the NW entrance of Haramsfjorden. This track lies close N of a 1m depth just off the N side of Lepsoya. When about 0.9 mile ESE of Hellevik Light, steer SE as required, to join Indreleia.

6.11 Nogvafjorden (62°41'N., 6°20'E.), entered between Flemsoya and Fjortoft, about 1 mile NE, is the best entrance from seaward to Indrelia between Lepsoya and Buadjupet.

Tides—Currents.—On the N side of the seaward approach to Nogvafjorden, the NE flow, experienced during the rising tide, sets markedly in toward the dangers W of Fjortoft and Haroya.

Directions.—To enter Nogvafjorden from seaward, steer for **Skulen** (62°41'N., 6°19'E.) bearing 126°, which leads NE of Grunnflua, a 3.5m patch, lying 2.5 miles WNW of Kjeholmen Light, and SW of Breidflua, a 5m patch lying 1.75 miles NW of the light.

A mid-channel course through Nogvafjorden leads clear of dangers; however, a 15m patch lies 0.9 mile ENE of Kjeholmen Light, and a 16m patch lies 0.25 mile farther E.

At night the white sector of **Kjeholmen Light** (62°42'N., 6°15'E.) leads between Grunnflua and Breidflua.

The white sector of Fjortoftneset Light, 2 miles ENE of Kjeholmen Light, leads N of the dangers close off Flemsoya.

The white sector of Kjeholmen Light bearing astern, and the white sector of Fjortoftneset Light bearing, astern, lead from Nogvafjorden into Haroyfjorden.

6.12 Haroyfjorden (62°52'N., 6°55'E.) is bound on the NW by Flemsoya, Fjortoft, Haroya, Finnoya, and Sandoya, and on the E by Dryna, Midoya, the NW end of Otteroya, and the islets and rocks SW of Gossa.

The current through Haroyfjorden usually flows NE, with the strongest flow during the rising tide.

6.13 Nyhamna (Nyhavna) (62°51'N., 6°57'E.) is a new gas terminal situated on the N side of Gossa, about 4 miles SE of the entrance to Haroyfjorden.

Pilotage.—Pilotage is compulsory and is provided by Fedje (paragraph 5.3). Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.;

Pilots board in the following positions:

1. Vessels greater than 25,000 gross tons—Pilots board by helicopter N of Ona (62°56'N., 6°27'E.).
2. Vessels less than 25,000 gross tons—In Breisundet S of Godoy (Godoya), in position 62°26'50.4"N, 5°58'51.0"E.

Regulations.—A cautionary area has been established in the water area bounded, as follows:

1. North boundary—latitude 62°56'52.8"N.
2. West boundary—longitude 6°33'48.0"E.

3. South boundary—latitude 62°38'40.8"N.
4. East boundary—longitude 7°22'19.8"E.

Vessels should use extreme caution when navigating in this area. In addition, vessels underway or at anchor in the waters covered by the cautionary area must maintain a continuous listening watch on VHF channels 14 and 16.

Category 1 and Category 2 vessels calling at Nyhamna must notify the terminal on VHF channel 14 or 16 of the following information:

1. Vessel name.
2. Call sign.
3. Planned sailing route to and from the terminal.

These broadcasts must be made, as follows:

1. Thirty (30) minutes prior to arrival at the cautionary area.
2. Fifteen (15) minutes prior to arrival at or departure from the terminal.
3. When leaving the cautionary area.
4. When arriving at or departing from the anchorages at Karlsoyfjorden and Midfjorden, S of Tautra.

Category 1 and Category 2 vessels must use escort vessels, as follows:

1. From the pilot boarding position to Nyhamna.
2. From Nyhamna to the pilot boarding position.
3. When en route to the anchorage—from prior to departing Nyhamna until anchored in the anchorage area.
4. When departing the anchorage area—from prior to raising the anchor until arriving at the quay at Nyhamna.

Additional regulations for Category 1 and Category 2 vessels govern entry into Nyhamma. Consult local authorities for details.

6.14 Indreleia continues from Lepsoyrevet, NE, to pass W of Haugneset and Raudholmane, about 2 miles farther NE.

Grunnrevet, a spit extending 0.4 mile E from Rogneholmen, lies 0.8 mile W of the light on Raudholmane.

The white sector of the light on Raudholmane leads to a position 0.6 mile WSW of the light. The white sector of the light on Haugneset, astern, leads between Raudholmane and Grunnrevet, and then into Haroyfjorden. Nogvafjorden joins Indreleia in this area.

From a position 0.75 mile N of Haugneset, Dronenholmen Light, 3 miles E of Raudholmane, bearing between 076° and 084°, leads N of foul ground and S of Raudholmane to Midfjorden.

Anchorage.—There is anchorage available, in 29m, off the SE extremity of Haramsoya. There is an 18m depth charted close E of the anchorage and a cable extends SE from the island to the mainland.

Anchorage is available for medium and small vessels S of Hestoya, which lies 0.85 mile E of Lepsoya, in 14 to 15m, sand and shells.

6.15 Indreleia continues from **Raudholmane** (62°38'N., 6°24'E.) through Haroyfjorden, which is broad and deep, to the vicinity of **Sandoya** (62°49'N., 6°36'E.), 12 miles NNE.

The white sector of the light on Raudholmane astern leads E of the dangers off the SE side of Fjortoft.

Husevikflua (62°46'N., 6°32'E.), a 1.9m patch situated 1 mile ENE of the E extremity of Haroya, lies within these bearings.

Aersteinen Light (62°48'N., 6°36'E.) is situated 0.35 mile S of Sandoya. The white sector of this light leads E of Husevikflua and W of the dangers W of Orta, an island 3 miles ENE of Husevikflua.

Flatflesa Light (62°50'N., 6°41'E.) is situated 3.25 miles NE of Aersteinen Light. The white sector of this light, ahead, leads E of Aersteinen Light and W of the foul ground and islets extending 1.25 miles N of Orta.

The white sector of Aersteinen Light bearing 220°, astern, leads E of the foul ground extending NE from Sandoya, and farther NE to the S entrance to Saltsteinsleia.

6.16 **Midfjorden** (62°38'N., 6°40'E.) is approached from Haroyfjorden, and extends 4.5 miles ENE from Dryna to its junction with Moldefjorden, S of the SW extremity of Otteroya.

The main channel through Midfjorden and Moldefjorden from Dryna to Molde, 19 miles E, is deep and clear of dangers except close to shore and in the final approach to Molde.

A mid-channel course in the fjords clears all dangers, but a course adjustment may be needed to avoid **Tautreflua** (62°41'N., 6°56'E.), a 16m patch lying in the fairway NE of Tautra.

Dronenholmen Light (62°38'N., 6°31'E.), bearing between 253° and 274°, astern, and the white sector of Arnesklubben Light lead clear of Midoya.

The white sector of Arnesklubben Light, situated on the SW extremity of Otteroya, bearing astern, leads clear of Otteroya and Tautra.

Moldefjorden, the continuation of Midfjorden, from the vicinity of **Arnesklubben Light** (62°40'N., 6°41'E.), passes between Tautra and the SE side of Otteroya, just over 1 mile to the N.

Julsundet extends N from Moldefjorden, between Otteroya and the mainland.

From Tautra to Molde, about 7 miles ENE the fairway is clear of dangers. South and SW of Molde, there are numerous islets and scattered rocks, making it advisable to keep on the N side of the channel when entering the roadstead.

Mekgrunna (62°43'N., 7°06'E.), a 3.5m patch, lies 0.6 mile offshore, about 2 miles WSW of Molde Light. The patch may be passed on either side.

The white sector of Molde Light, bearing ahead, leads N of Mekgrunna, which is the preferred channel.

Dangers lie 0.45 mile S of Molde Light. Their position may best be seen on the chart.

6.17 **Molde** (62°44'N., 7°10'E.) (World Port Index 23110) is a coastal natural harbor, which lies on the N side of Moldefjorden, about 5 miles E of Julsundet, and has a small ice-free harbor.

Port of Molde

http://www.molde-romsdalhavn.no

Tides—Currents.—The tide rises about 2m at springs and 1.6m at neaps.

The tidal current within the harbor is hardly noticeable.

Winds between SE and SW can be troublesome, and raise a considerable sea.

Depths—Limitations.—There are two berths in the harbor. Moldegard is the commercial cargo handling berth and is 130m long with a depth alongside of 11.5m and handles general cargo and containers. Moldegard includes a ro-ro pier 100m long. with a depth alongside between 5.8 and 9m. The other berth is Storkaia and is a passenger berth, 300m long with depths alongside between 8 and 11.5m. There is also a tanker berth that can accommodate vessels up to 5,000 dwt.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Vessels should contact the Alesund pilot station on VHF channel 16 at least 2 hours prior to arrival. If the station does not respond, either the Rogaland or Floro Coastal Radio Station will reply and relay details to the pilot station.

The pilot boards in position 62°27.0'N, 5°58.9'E or by arrangement in position 62°31.0'N, 5°40.9'E.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-71-191620
3. Facsimile: 47-71-191621
4. E-mail: office@molde-romsdalhavn.no

Regulations.—From Reknes Mole to the light at Aroy, 3.25 miles E, there is a speed limit of 6 knots, to be exceeded only with the harbormaster's permission.

Vessels in quarantine are required to anchor near Moldeholmen, which is situated 1 mile ESE of Reknes mole.

Signals.—The quays are numbered 1 to 5 from W to E. Signals consisting of flags by day and a combination of red and green lights at night are shown to indicate the allotted berth. By day a red flag is shown at the assigned berth. By night, lights are shown from a signal mast on the steamer quay, as follows:

Signal	Meaning
One red light	Berth 1
Two red lights	Berth 2
Three red lights	Berth 3
One green light	Berth 4
One green light and one red light	Berth 5
One green light and two red lights	Moldegard Havn
One green light and three red lights	All berths occupied

When vessels arrive simultaneously from E and W, the first signal shown refers to the vessel from the W.

When a signal is understood, the vessel concerned should acknowledge it with a short blast on the whistle.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-71-191620
3. Facsimile: 47-71-191621
4. E-mail: office@molde-romsdalhavn.no

Anchorage.—Vessels can anchor off Molde, in depths of 30 to 35m, sand and clay.

6.18 Romsdalfjorden is entered E of Tuautra and extends 24 miles ESE to Andalsnes and then 3 miles E to its head at Isfjorden. The fjord is deep and clear of dangers and is not difficult to navigate.

A submarine cable lands close S of Furneset. Four submarine pipelines extend up to 300m from the shore on the E side of Tresfjorden. A discharge pipe extends 230m S from Vorpneset (62°38.5'N., 7°05.5'E.), another discharge pipe extends about 0.3 mile W of the N point of Feoya.

To enter Romsdalsfjorden steer in the white sector of **Helgestones Light** (62°36'N., 7°22'E.), which leads between Sekken and Skalhamnholmen, about 10 miles ESE of Tautra.

Steer to pass NE of Helgestones Light and enter the white sector of **Hovdenes Light** (62°33'N., 7°31'E.), about 6 miles SE of Helgestones Light.

When about 0.5 mile distant from Hovdenes Light, steer an E course to bring the white sector of Hovdenes Light astern. This course will lead to Andalsnes.

6.19 **Andalsnes** (62°34'N., 7°41'E.) (World Port Index No. 23111) stands on a point on the S side of Romdalsfjorden. This natural coastal port is a district capital.

Port of Andalsnes

http://www.molde-romsdalhavn.no

There is one large commercial berth that is 157m long with depths alongside between 8 and 14m.

Pilotage.—Pilotage is compulsory. Pilots may be ordered via SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. Vessels should call the pilot on VHF channel 16, at least 2 hours prior to arrival. If the station does not respond, either the Rogaland Coast Radio Station or Floro Coast Radio Station will reply and relay details to the pilot station. The pilot boards in position 62°27.0'N, 5°58.9'E or by arrangement in position 62°31.0'N, 5°40.9'E.

The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-71-191620
3. Facsimile: 47-71-191621
4. E-mail: office@molde-romsdalhavn.no

Anchorage is available over the whole of Isfjorden from Andalsnes to Stein, 2.5 miles E, in a depth of 35m, mud.

An obstruction was reported (1996) 2.5 miles NE of the end of Andalsnes.

6.20 Julsundet is entered between **Heggneset** (62°43'N., 6°56'E.), the SE extremity of Otteroya, and Julneset, a point on the mainland 1.5 miles NE. Julsundet leads 10 miles N from Moldefjorden, E of Otteroya and Gossa to join Buadjupet. It is deep and clear.

The current in Julsundet is always N, but in unsettled weather there may be a S flow during the rising tide.

Vessels may enter Julsundet by steering in the white sector of **Julholmen Light** (62°44'N., 6°58'E.). When abeam of Julneset, steer a NNW mid-channel course, to pass W of Julholmen Light.

Vessels enter the white sector of **Hogsnes Light** (62°50'N., 6°58'E.).

This track will lead E of Kua, a small reef marked by a light, situated 2 miles NNW of Julholmen Light.

Steer to pass E of Hogsnes Light and bring the white sector of that light astern which will lead W of Herringen, situated about 1 mile NNE of the light, and E of the NE extremity of Gossa.

The white sector of **Indre Haroy Light** (62°53'N., 6°56'E.) located at Degerhalsen, bearing 305°, leads NW towards Buadjupet. The white sector of Indre Haroy Light, astern, leads clear of the dangers SW of **Oddane** (62°54'N., 6°53'E.) and NE of **Bjornsund** (62°54'N., 6°50'E.).

Oddane, a group of islets, lies about 2.25 miles NW of Indre Haroy Light.

6.21 Haroysund (62°54'N., 6°58'E.) (World Port Index No. 23108) is a spacious coastal harbor, situated between Ytre Haroy, Indre Haroy, and the mainland. The harbor is normally entered W of Indre Haroy.

There are a number of berths in Haroysund. They range up to 220m in length and have depths up to 9m alongside.

Anchorage is available E of Ytre Haroy and NE of Indre Haroy, in about 8m, sand.

Bud (62°54'N., 6°55'E.) is situated on a point of the mainland, about 1 mile E of Oddane. The town is rather low but the church is visible from seaward. Vessels with a draft not exceeding 5.5m can anchor in the outer harbor.

Buadjupet

6.22 From the seaward entrance to Nogvafjorden, the off-lying dangers run for a distance of about 22 miles in a NE direction to Buadjupet.

Several channels lead in from seaward. The waters in this area are foul and passage through them should not be attempted without local knowledge.

From **Storholmen Light** (62°39'N., 5°56'E.), about 6 miles WNW of Lepsoya, the off-lying dangers lie E of a line between the light and Rosok-Havflua, a 9m patch, 13 miles NE. However, Hella, Skreia, and Seigrunnane lie close W of this line about 2.75, 3.5, and 5.5 miles NNE, respectively, of Storholmen Light.

Rosok Havflua (62°49'N., 6°13'E.), marked by a lighted buoy, is situated on the NW side of the foul ground which extends 6.25 miles WNW from Haroya.

Ona Light (62°52'N., 6°33'E.), situated on an island, is shown at a height of 40m.

Klakken (62°57'N., 6°43'E.), with a charted depth of 10m, lies 15.5 miles ENE of Rosok-Havflua and 6 miles WNW of Bud. Vessels approaching Buadjupet from the SW are advised to keep well to the seaward to avoid the shoal water lying E of a line between Rosok-Havflua and Klakken.

In gales, breakers form over shoals in this area, with depths as great as 20 to 30m.

6.23 Bjornsund Light (62°54'N., 6°49'E.) is situated on the E end of the islet of Mooya, at the N end of the Bjornsund group, about 3 miles WSW of Bud.

Karlmedhammaren and Turiskallen lie, respectively, 6 and 6.25 miles NNW of Bjornsund Light. They have a least depth of 26m, but vessels should avoid them in bad weather.

Jendemsfjellet, bearing between 134° and well open of Bjornsund Light, leads in from seaward NE of Klakken.

The white sector of Bjornsund Light, ahead, leads in from NW between Klakken and Karlmedhammaren to within 2.5 miles of the light, when course may be shaped either into Buadjupet or Saltsteinsleia.

Saltsteinsleia, which leads SSW to Haroyfjorden, passes W of **Krabben Light** (62°52'N., 6°43'E.). The white sector of Flatflesa Light, 1.75 miles SSW of Krabben Light, leads W of toward Haroyfjorden.

For a continuation of Indreleia S, follow a reciprocal course of directions previously given.

Buadjupet and Julsundet comprise the usual N approach from seaward to Moldefjorden and Molde.

Buadjupet is about 1 mile wide between **Staflua** (62°54'N., 6°51'E.), a 6.4m shoal 0.75 mile E of Bjornsund Light, and the outer island lying W of Bud.

Vessels approaching Buadjupet from N steer in the white sector of Bjornsund Light. which leads into the white sector of Indre Haroy Light.

To enter Bud and Julsundet, follow a reciprocal course of directions previously given.

Buadjupet to Kristiansund

6.24 From Buadjupet, the coast trends in a general ENE direction for about 27 miles to Kristiansund. The coast is fronted by groups of islets, rocks, and shoals which extend up to 8.5 miles from the mainland.

The coast is formed partly by the mainland and partly by the NW coast of Averoya and by the islands on which Kristiansund stands. The coast is mainly low and sparsely vegetated, and the off-lying islands are bare and grey.

This is one of the most difficult parts of the Norwegian coast to navigate. From Buadjupet, Indreleia leads into the open sea, continuing NE through Hustadvika, then through Ramnefjorden into **Kristiansundsleia** (63°09'N., 7°42'E.).

Several channels lead from seaward into this part of Indreleia. Local knowledge is required in some of the channels and pilots should always be employed. Large vessels proceeding to Kristiansund or Trondheim use Gripholen.

Tides—Currents.—Between Buadjupet and Kristiansund, in calm weather, the tidal current usually sets ENE with the rising tide and WSW with the falling tide. With strong long-continued winds, the set of the current follows the direction of the wind.

Hustadvika is the name used for the W part of the waters, from Bud to Fugen. Hustadvika coastline is totally unprotected against the sea, and the passage is foul with many shoals.

Waves from the SW to NW will be refracted over the Buagrunnen shoals, and refraction centers occur on the leeward side. With waves from the N, Griptarane may cause a refraction center in the N portion of Hustadvika.

When the waves meet the current, the seas turn even more turbulent. This is particularly noticeable in the passage between Kolbeinsflu and Bjyrnsund. Falling water causes an outgoing current from Julsundet, and with wind and waves from the NW, the seas become very turbulent.

Precipitous breakers have been reported from the entire area.

Shemshesten (62°58'N., 7°11'E.), 665m high, rises 8.75 miles NE of Bud. Shemshesten is not only the name of the above peak, but is also the name of a range of mountains, with two other summits. From N, this range resembles a large promontory with three rounded summits and a steep fall on the seaward side.

6.25 **Reinsfjellet** (62°56'N., 7°56'E.), 12 miles SSE of Kristiansund, is 994m high, and is surmounted by a television mast.

Bremsneshatten, situated in the N part of Averoya 3 miles SW of Kristiansund, is 130m high. It resembles a hat with a flat crown.

Freikollen (63°03'N., 7°46'E.), 3.5 miles S of Kristiansund, is a prominent summit, 629m high.

Kvernberget is a long light-colored mountain, 205m high, with steep slopes on the NE and SW sides. It is situated in the center of Nordlandet, 2 miles E of Kristiansund.

Magnillen (63°06'N., 8°05'E.), on the mainland 10 miles E of Kristiansund, is 486m high. Although it is lower than the surrounding mountains, it stands out owing to the steep fall on its E side and three jagged peaks at the summit, recognizable at a considerable distance.

There are three peaks on the island of Tustna, which are 220m, 856m, and 892m high, located, respectively, 8, miles 10.5 miles, and 11.25 miles ENE of Kristiansund.

Kristiansund has been reported to be a good radar target from a distance of 26 miles.

Kvitholmen Light (63°01'N., 7°14'E.) is situated on an island by the same name which lies 1.25 miles offshore, about 11 miles NE of Bud. A racon is located at the light tower. Part of a former light tower stands close to the light as a daymark.

Hestskjer Light (63°05'N., 7°30'E.) is situated on the W islet of the Hestskjer group, which lies 8 miles ENE of Kvitholmen. A racon is located at the light tower which is a square house built into a conical tower 20m in height.

Grip Light (63°14'N., 7°37'E.), situated at the N end of the Grip group on the S side of the seaward entrance to Gripholen, is described in paragraph 6.30.

Approaches to Kristiansund

6.26 Hustadvika, the coastal waters between Buadjupet and Kvitholmen, 11 miles NE, is encumbered by rocks, shoals, and small islets. Indreleia leads through Hustadvika, at a distance of about 3 miles from the shore.

An area of isolated shoal heads lies on the N side of Hustadvika from Karlmedhammaren to the vicinity of **Kroppen** (63°03'N., 6°59'E.), 7 miles ENE. Kroppen, a rock with a depth of 5m, breaks in bad weather and is marked close NW by a lighted buoy.

Kolbeinsflu (62°58'N., 6°53'E.), 4.5 miles NNE of Bjornsund Light, has a least charted depth of 5m. It is the NW extremity of the dangers fronting the mainland N of Bud and is marked by a lighted buoy. Lyroddane Beacon, equipped with a racon, is situated about 5 miles NE of Bjornsund Light.

Between Kolbeinsflu and Kvitholmen there are several channels, but local knowledge is required in them.

Fuglen (63°03'N., 7°09'E.), a small black islet marked by a light and a racon, lies about 3 miles WNW of Kvitholmen.

Foul ground extends E and SE of Fuglen to Stabbeflu, a 1.4m patch lying 1 mile ESE; Midtflu, a 4.2m patch lies 0.35 mile SSW of Stabbeflu.

Ekneskjerfluene, with least depths of 10m, lies 1.75 miles SE of Fuglen.

Fugleleia leads from seaward, N of Fuglen, to join Indreleia N of Kvitholmen Fugleleia. It is about 3 miles wide between Fuglen and Follingen, an islet situated to the NE.

Orskjera is an extensive area of low-lying islets and rocks which extends about 3 miles N from Follingen. They cannot be seen at any great distance and are awash in high seas.

Freikollen, in line with Follingen bearing 097°, leads close S of Spunset, a 21m patch, which lies 3 miles NNW of Fuglen.

Bjogna (63°03'N., 7°17'E.), a rock, awash, lies on the N side of the inner end of Fugleleia, 2 miles NE Kvitholmen.

6.27 From a position about 5 miles WNW of Fuglen, steer toward **Magnillen** (63°08'N., 8°05'E.), bearing 085°, which leads N of Kroppen and the shoals in that vicinity.

When N of Kroppen, and Fuglen is in sight, steer in an ESE direction to pass N of Fuglekrakken, a 4.4m patch lying 0.25 mile N of Fuglen. When clear of Fuglekrakken, steer to pass about mid-way between Kvitholmen and Bjogna.

When approaching Fugleleia from NW at night, the white sector of Kvitholmen Light leads E of Spunset and W of Snapane, a 6m patch, situated nearly 4 miles N of Fuglen.

When clear of Spunset and Snapane, the white sector of **Kraka Light** (63°01'N., 7°18'E.), situated 1.75 miles ESE of Kvitholmen, leads NE of Fuglekrakken and W of Follingsflu, a 3.8m patch situated 0.7 mile WSW of Follingen.

On reaching a position 2 miles NW of Kraka Light, course may be altered ENE to join Indreleia.

Ramnegapet, 6 miles NE of Fugleleia, leads in from seaward E of Orskjera to join Indreleia in the vicinity of Hestskjeret. It is comparatively free from dangers and offers an easier approach than Fugleleia.

6.28 **Stabben** (63°08'N., 7°16'E.), a reef on the S side of Ramnegapet, on the NE side of Orskjera, is awash. Jonstaren, with a charted depth of 11m, lies 0.5 mile NE of Stabben, and Grunnkampen, with a charted depth of 14m, lies in the fairway 1.5 miles ENE of Stabben.

The Ramnane group of islets, on the NE side of Ramnegapet, are small black rocks which are not visible from any great distance.

Sore Ramnen (63°08'N., 7°24'E.), 3.5 miles NW from Hestskjeret, is precipitous on its W side but slopes to the E; it is marked by two beacons.

Boggrunnstaren, a 5.4m patch, lies on the S side of Ramnegapet, 1.5 miles SE of Stabben.

Store Sortna (63°05'N., 7°24'E.), 6m high, lies 2.75 miles WNW of Hestskjeret.

Store Sortna and Little Sortna, 0.8 mile SE, in range lead through the fairway of Ramnegapet, passing S of Grunnkampen and N of Jonstaren.

After passing Sore Ramnen, course can be altered E through Ramnefjorden until N of Hestskjeret, where the track to Kristiansund joins the track leading E from Fugleleia.

The white sector of **Hetskjer Light** (63°05'N., 7°30'E.)

leads in from seaward N of Grunnkampen and SW of Sore Ramnen, to within about 3 miles of the light, when course can be altered E into Ramnefjorden.

6.29 Ramnefjorden leads from the vicinity of Hestskjeret, 8 miles ENE, into Kristiansundleia.

Stavenes Light (63°07'N., 7°40'E.) stands on Staveneset, the NE extremity of Averoya, about 5 miles ENE of Hetskjer Light.

On the seaward side of Ramnefjorden, a line of rocks and islets extend from Sore Ramnen to Hilbaren (Hilbaane), 10 miles ENE. Shoals lie S of a line joining the two above points.

Midfjordsfallet, awash, lies 3.25 miles NNE of Hestskjer Light. Indre Skjellingen, a 4.5m patch, lies 0.6 mile E of Midfjordsfallet.

Helklakken (63°09'N., 7°38'E.), an 11m patch, lies in the fairway, 5.25 miles NE of Hestskjer Light. Fausken, a 0.8m patch, lies 1.25 miles NNE of Helklakken.

From the vicinity of Hestskjeret, a course shaped to pass SE of Helklakken avoids all danger and leads to Kristiansundleia, which forms part of the approach to Kristiansund.

Treflisleia leads into Ramnefjorden, about 5 miles NE of Ramnegapet, and is not difficult access if Stavenes Light and the beacon on **Litle Skjelbreida** (63°10'N., 7°10'E.), 5 miles NW of Stavenes Light, can be identified.

Treflisa, marked by a beacon, is situated on the N side of the fairway, about 1 mile NE of Litle Skjelbreida.

Gamle Jakob, a rock, awash, and Gardstaren, an 11m patch, lie 0.9 mile and 2 miles SE, respectively, from the beacon on Litle Skjelbreida.

Lontarane (63°11'N., 7°31'E.), with a least depth of 3.7m, lies 1.5 miles NW of Treflisa. Other shoals lie 1.5 miles NNW of Lontarane.

Sydskjellingen, above water, lies on foul ground 0.9 mile SE of Treflisa.

From the vicinity of Lontarane, the white sector of Stavenes Light, bearing between 126° and 131°, leads between the beacons on Litle Skjelbreida and Treflisa, and N of Gardstaren.

6.30 **Grip Light** (63°14'N., 7°37'E.) is situated on the N end of the Grip group, which is an extensive group of islets and rocks from 5 to 9 miles NNW of Kristiansund. A racon is located at the light tower, which is 44m in height and prominent. All the islands of the group are small and low, and afford little protection from wind and sea. They are not visible at any great distance.

Griptarane comprise shoal patches which lie in the approach to Gripholen, 8 miles WNW of Grip Light.

Nordre Fausken (63°14'N., 7°33'E.), a 1m patch, lies 1.5 miles W of Grip Light; Ytre Langfallet, another 1m patch, lies 0.8 mile ESE of the light.

Lonnfallet, a 1.5m patch, lie s about 2 miles ESE of Ytre Langfallet.

Hilbaren (Hilbaane) (63°12'N., 7°44'E.), with a charted depth of 2m, is marked by a light. It lies 1.25 miles SE of Lonnfallet.

Vestkleppen (63°18'N., 7°21'E.) is the shallowest part of Griptarane and is usually marked by breakers. It lies 7.75 miles NW of Grip Light.

Jorngrunna, a 24m patch, lies in the middle of Gripholen, 1.5 miles NNE of Grip Light.

Nordre Godtaren, with a least charted depth of 9m, lies in the middle of the fairway, 1.5 miles NNE of Hilbaren.

Kjefallet (63°16'N., 7°40'E.), a 2m patch, lies on the NE side of Gripholen, 3 miles NNE of Grip Light. Lontaren, an 11m patch, lies 0.35 mile S of Kjefallet.

Gasskjera, above water in places, lies 3 miles NE of Grip Light. Gaseflua, with a charted depth of 10m, lies 0.6 mile SSE of Gasskjera.

6.31 **Gjeslingskjer Light** (63°15'N., 7°48'E.), situated on Gjeslingskjeret, stands 5 miles E of Grip Light. Islets and foul water extend 0.6 mile SSW from the light.

When approaching from the W, the white sector of Grip Light leads S of Griptarane to within 5 miles of the light.

When Hestskjer Light changes from white to red, course should be altered into the white sector of Gjeslingskjer Light, which leads N of the dangers off Grip.

From a position 1 mile NE of Grip Light, the white sector of **Ytre Langholmen Light** (63°11'N., 7°52'E.) leads S of Nodre Godtaren into Ytrefjorden.

When approaching from the N the white sector of Grip Light leads between Griptarane and the dangers lying NW of Gjeslingskjer Light.

From the vicinity of Grip Light proceed as indicated above.

Pilotage.—There is a pilot boarding station 1 mile NNW of Grip Light.

Caution.—Heavy seas in the passage SW of Gripholen to Ytrefjorden S of Smyla are created particularly by wind from the NW. The waves will come straight in from the sea, turning E, S of Smyla. With falling water, the current goes against the waves and causes heavy and choppy sea.

When the waves come from between NW-SW, a refraction center will be created leeward of Griptarane. The conditions become even worse when the tidal current toward the W is combined with falling water. Under such conditions, precipitous breakers have been observed.

6.32 After proceeding from seaward through Gripholen, vessels should pass SW in Indreleia, steering in the white sector of Stavenes Light. Sondre Godtaren, with a charted depth of 29m, lies within this light sector, about 0.8 mile S of Nordre Godtaren.

When the white sector of **Raudsandnes Light** (63°04'N., 7°41'E.), situated 2.75 miles S of Stavenes Light, comes ahead, steer on that light and enter Bremsnesfjorden.

When approaching Bremsnesfjorden from the SW, the white sector of Baltserneset Light, 1.5 miles SE of Stavenes Light, leads through the entrance.

Bremsnesfjorden (63°06'N., 7°41'E.) is entered from N between Staveneset and Klubbeneset, 0.6 mile E. It is the principal entrance to Kristiansund.

Kverven (63°07'N., 7°40'E.), a 4m patch, lies 0.2 mile NW of Stavenes Light on the W side of Bremsnesfjorden. A 2m patch lies close off Klubbeneset on the E side of the fairway.

Bremsnesflua, a 4m patch, lies about 1 mile SE of Stavenes Light, near the middle of the fairway.

6.33 **Sorsundet** (63°06'N., 7°44'E.) is entered between Baltserneset, the SW extremity of Innlandet, and Smorvikne-

set, 0.3 mile N. It is not more than 91m wide between the shoal depths on either side, and has a least depth of 13m in the fairway.

Sorsundet

A breakwater, marked at its outer end by a light, extends 91m N from Innlandet, 0.35 mile ENE of Baltserneset. A 3m patch lies 183m WNW of the breakwater head.

A bridge spans Sorsundet close E of the breakwater; it has vertical clearances of 38m in the center and 32m on the sides.

A rock, with a depth of 6.8m, lies on the S side of the fairway 0.15 mile ENE of the breakwater head.

Vessels entering Sorsundet from Bremsnesfjorden steer in the white sector of the light on the breakwater. When in the entrance of Sorsundet, steer on the light in the center of the bridge bearing 061°, which leads through the sound.

6.34 **Bolgsvaet** (63°06'N., 7°44'E.) is entered from Bremsnesforden S of Innlandet, and extends E to Talgsjoen.

Skjerveskjeret, marked by a light, lies 0.3 mile SE of Baltersneset, at the seaward edge of the foul ground which extends 0.2 mile S of Innlandet.

A 1m patch lies 160m NW of Skjerveskjeret; an isolated 7.9m patch lies the same distant SE.

Linflua (63°06'N., 7°44'E.), with a charted depth of 4m, lies on the SE extremity of the foul ground, 0.25 mile E of Skjerveskjeret. Sjursvikgrunnen, a 7.5m patch, lies 0.4 mile ENE of Linflua.

Bolgfallet, awash, lies near mid-channel, 0.8 mile S of Linflua. A 4.2m patch lies 183m WSW of Bolgfallet and Vestre Bolgfallet, a 5.2m patch, lies 91m farther WSW.

Kopparholmflua, awash, lies 0.25 mile S of Vestre Bolgfallet.

Kopparholmane, 3 small islets, lie on the S side of Bolgsvaet, 0.5 mile S of Linflua.

6.35 **Vikaholmen Light** (63°06'N., 7°46'E.) stands on the S point of Vikaholmen, about 1.25 miles E of Baltersneset. Vikaholmen is connected to the land to the N by a breakwater.

Vikaholmflua, a 1.6m patch, lies 0.15 mile W of Vikaholmen Light. A 7.4m patch lies 0.4 mile SE of the light.

Anchorage may be taken on the E side of Vikaholmen, in 15m, sand, with patches of rocks.

Markussundet (63°06'N., 7°45'E.) lies between Innlandet, on the W, and Nordlandet, on the E. Lights in line lead through the fairway to the inner harbor of Kristiansund. Markussundet it is deep and clear of dangers.

Austre Fugloygrunnen (63°06'N., 7°47'E.), on the S side of Bolgsvaet, lies about 0.1 mile ENE of Fugloya. It has a least charted depth of 2m. Vorpholmbaen, a 5m patch, lies about 0.1 mile SE of Austre Fugloygrunnen.

Vorpholmen lies in the entrance to Bolgvagen, about 0.1 mile S of Vorpholmbaen. A cable, with a vertical clearance of 30m, spans the narrow channel E of Vorpholmen.

Bolgvagen (63°05'N., 7°47'E.) is entered E of Vorpholmen. Husoya forms its W side.

Close within the entrance, on the NE point of Husoya, there are quays, totaling 110m in length, with depths of 13.6 to 3.3m alongside.

6.36 Omsundet extends E about 3 miles, from a position S of Vikaholmen Light, to its junction with Arsundfjorden. The fairway is spanned with overhead cables about 1 mile and 1.25 miles E of Vikaholmen Light. A bridge, with a vertical clearance of 18m over a width of 30m in mid-channel, also spans the strait.

Anchorage.—Anchorage, with mooring rings, for medium and small vessels, is available in the SW part of Bolgvagen, in 16m, mud. Care should be taken to avoid the shoal bank which fringes the S shore and a pipeline laid across the W part of the bay.

A light is situated on the foul ground in the center of the fairway, 0.7 mile E of the bridge. A beacon is situated on the foul ground 160m ENE of the light. This area may be passed on either side.

Omsundet is entered from Arsundfjorden N of **Arholmen** (63°06'N., 7°53'E.), about 1 mile E of the bridge which spans the fairway.

Kristiansund may be entered from the E through Norsundet, which is spanned by a bridge with vertical clearance of 28m. Kristiansund has a depth of 5.8m at LW.

Dalasundet extends ENE 1.75 miles from Norsundet and enters Talgsjoen N of **Kvitnes Light** (63°08'N., 7°48'E.).

Tanker berths are situated in Dalasundet on NW side of Norsundet.

A light stands on the NW edge of the spit which extends W from a point that lies just over 1 mile ENE of the bridge which spans Norsundet. A rocky bank, with a depth of 7.5m, lies on the N side of the fairway 183m N of the light.

The white sector of Kvitnes Light, astern, leads NNW toward Gripholen.

Talgsjoen is formed between Norlandet, on the SW side, and the islets W of Tustna, on the NE side. It leads to Arsundfjorden, Freifjorden, and to Dalasundet.

Talgsjoen is deep and free of dangers; however, **Talsgrunnane** (63°10'N., 7°46'E.), a bank with a depth of 36m, lies 2 miles NNW of Kvitnes Light, and Klakkane, with a depth of 30m, lies 0.7 mile E of Talsgrunnane.

Kristiansund (63°07'N., 7°44'E.)

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6.37 During WWII, Kristiansund sustained heavy damage, especially by a German bombardment in April of 1944. Completely rebuilt, it is now the home port for a large Norwegian trawler fleet.

Kristiansund Harbor

Kristiansund is situated on three small islands facing the Norwegian Sea. Its harbor is protected by an inlet in the adjacent island of Frei and by the island of Averoy, and is bound on the N by Kirkelandet and Gomalandet, on the S by Innlandet, and on the E by Nordlandet.

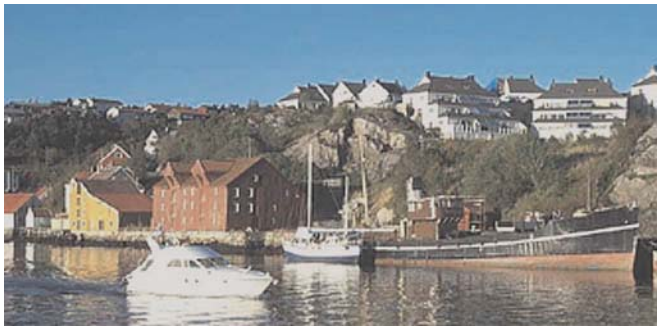
The town of Kristiansund stands on all sides of the harbor. Communications between the several parts are maintained by ferries. When approached from seaward no houses can be seen until close to the harbor entrance.

Port of Kristiansund Home Page

http://www.kristiansund-havn.no

Winds—Weather.—The predominant wind in Kristiansund is from the S at a mean speed of 6 knots. However, in the months of June, July, and August, in the afternoons, the winds shift to the NW and N at about 4 knots. During the months December through March, there are an average of 2 days a month with gale force winds of 34 knots or more.

One of Kristiansund's Harbors



Kristiansund—Gomalandet

Tides—Currents.—The tidal range in Kristiansund is from about 1 to 2m. The currents in Sorsundet and Norsundet sometimes reach a velocity of 3 knots.

The current in Sorsundet changes at HW and LW. The flow is greatly influenced by the wind. In Norsundet, the current occasionally changes with the tide, but is usually E.

Depths—Limitations.—The port is a main service base for the coastal exploration and development of oil and gas fields. There are facilities for mooring semi-submersible rigs.

Berthing details are shown in the accompanying table titled **Kristiansund—Berthing Information**.

Pilotage.—Pilotage is available. Pilots should be ordered through SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost.

Vessels should call the Kristiansund pilot station on VHF channel 16, at least 2 hours prior to arrival. If the station does not respond, the Floro or Rogaland Coastal Radio Station will reply and relay information to the pilot station.

The pilot boards 1 mile NNW of Grip Light. Depending on weather conditions, vessels may be directed to proceed E of Grip Light to make boarding easier.

Sea pilots are stationed at Kristiansund. They also act as harbor pilots, however, harbor pilotage is not compulsory for mer-

chant ships.

Regulations.—Within the harbor limits the speed of a vessel is to be no more than good seamanship and maneuverability require.

Kristiansund—Berthing Information		
Berth Name	**Length**	**Depth Alongside**
Vagekai		
No. 1	60m	4.5-5.0m
No. 2	90m	4.5-5.0m
No. 3	80m	4.5-5.0m
Storkaia		
No. 5	60m	10.5m
No. 6/ 7	95m	10.5m
No. 8	104m	10.5m
No. 9	105m	9.5m
Nordmorskaia		
No. 10	90m	8.0m
Devoldholmen		
No. 11	60m	8.0m
No. 12/13	205m	10m
Ro-Ro	38m	17m
Storkaia		
No. 11	80m	7.3m
No. 12/13	205m	9-13.0m
No. 13 B (ro-ro)	38m	15.0m
Vestbase and Vikaholmen		
No. 1	12m	5.0m
No. 2	60m	10.0m
No. 3	45m	8.0m
No. 4	80m	—
No. 5	80m	—
No. 6 E-W	160m	9.4m
No. 7	40m	7.4m
No. 8	100m	21-40m
No. 9	40m	10m
Kristiansund Fryseterminal	80m	10m
Tanker Berths		
Norske Shell	18m	12.9m
Exon	33m	5.7m
CG Rieber Marine	120m	10.0m

Speed is to be reduced to prevent wash in Norsundet W of Teistholmen; Markussundet, N of the cold store at Sjursvika; Sorsundet, E of the breakwater; Holmasundet; and Overvagen.

Signals.—Berthing signals are shown from a signal mast which stands on Storkaia. They consist of red, green, and white flags by day and red, green, and white lights by night.

Signal	Meaning
One white	Berth No. 1
Two white	Berth No. 2
Three white	Berth No. 3
One red	Berth No. 4
Two red	Berth No. 5
Three red	Berth No. 6
One green	Berth No. 7
Two green	Berth No. 8
Three green	Berth No. 9
One red and one green	Berth No. 10
One white and one red	Berth No. 11
One white and one green	Berth No. 12
Flashing green	Anchor in the harbor
Flashing white	Close to hailing distance

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 12
2. Telephone: 47-40-006504
3. Facsimile: 47-71-671483
4. E-mail: info@knhavn.no

Anchorage.—There is limited anchorage for medium size ships in the main port area, but there is ample space in the close approaches to the harbor with well sheltered holding ground, in depths of 13 to 49m.

6.38 In the vicinity of Kristiansund there are several fjords are known collectively as Nordmorsfjordene. These is, fjords lying in the N part of the district of More. They penetrate inland to positions about 12 miles S and 35 miles SE and E of the town.

The islands of **Averoya** (63°00'N., 7°30'E.), Frei, Tustna, Stabben, and Ertvagoya, lie, in that order, from W to E and are separated from the mainland by the outer fjords of Nordmorsfjordene.

Lauvoyfjorden (Lovofjorden) (63°00'N., 7°20'E.) lies on the W side of Averoya, and is entered from seaward by passing through the chain of islets which extend ENE from the vicinity of Kraka Light.

There are several passages between the islets, all of them narrow and requiring local knowledge.

Tides—Currents.—The tidal currents run strongly in the entrance to Lauvoyfjorden, with reported rates of up to 4 knots at half tide. Strong NW winds raise heavy seas during ebb currents. In these circumstances, the entrance channels are diffi-

The Gjemnessund Bridge

cult to navigate.

Tovikholmen Light (62°59'N., 7°21'E.) is situated close off the W extremity of Averoya. Trovikholmane lies in Lauvoyfjorden, 0.75 mile NNE of the light.

Lauvoyfjorden is practically free of dangers, with the exception of Trovikholmane and Hjertvikholmane, which lies about 1 mile farther NE.

Kornstadfjorden (62°57'N., 7°25'E.) is entered from Lauvoyfjorden SW of Tovikholmen Light, and leads 5 miles SE to its junction with Kvernesfjorden, off the S extremity of Averoya.

Kvernesfjorden (62°57'N., 7°37'E.) trends NE from its junction with Kornstadfjorden for about 8 miles to the S end of Bremsnesfjorden. It is free of dangers in the fairway. Bremsnesfjorden is about 7 miles long from its seaward entrance.

6.39 The S part of Bremsnesfjorden lies between Frei, on the E side, and Averoya, on the W, and, apart from shoals which are marked, is clear of dangers.

Bremsnesfjorden is entered from S between **Lundenes** (63°00'N., 7°44'E.), the E extremity of Averoya, and Kvitneset, the S extremity of Flatsetoy, 1 mile NE.

Gullsetholmen, a small islet, lies on the W side of the fjord 0.7 mile NNW of Lundenes.

Leitnes Light (63°02'N., 7°41'E.) stands on the W side of the fjord, 1.75 miles NW of Lundenes. The white sector of this light leads into Bremsnesfjorden.

Steer to pass E of Leitnes Light, and bring the light, astern, which will lead N through the fjord and E of Raudsandnes Light, situated 2.5 miles N.

An overhead cable, with vertical clearance of 39m, spans Bremsnesfjorden close N of Leitnes Light.

Flatoya, Amundoya, Brattoya, Arholmen, and **Tjuvholmen** (63°04'N., 7°42'E.) lie off the W coast of Frei, from 0.5 to 1 mile SE of Raudsandnes Light.

Freifjorden (63°03'N., 7°55'E.) is entered between Flatsetoy and Bergsoya, 2 miles SE. It leads 7 miles NE. Freifjorden is formed between Frei, on the W side, and Bergsoya, Aspoya, and the NW part of the Tingvoll peninsula, on the E.

Freines Light (63°01'N., 7°49'E.) stands on the S extremity of Frei, 0.75 mile E of Flatsetoy. Refsholmtaren, a 2.4m shoal patch, lies 0.8 mile SSW from the light.

6.40 **Steet** (63°00'N., 7°48'E.), consisting of islets and rocks, awash, lies 0.5 mile S of Revsholmtaren. Jaholmen lies 0.7 mile E, and an 8.8m rocky patch, lies 0.6 mile ENE, respectively, from Steet.

Vessels may enter Freifjorden by steering in the white sector of Freines Light, which leads between Revsholmtaren and **Revsholmen** (63°01'N., 7°47'E.), a small islet 0.85 mile WSW of Freines Light.

The white sector of **Strandanes Light** (62°59'N., 7°42'E.), astern, leads SE of Revsholmtaren and N of Steet into Freifjorden. Once clear of the shoals, the fjord is almost entirely clear of dangers in the fairway.

The white sector of **Skarvbergnes Light** (63°05'N., 7°58'E.) leads NNE into Freifjorden.

Kvisvikholmane (63°03'N., 7°57'E.), among which are Storholmen and Klubbholmen, lie up to 1 mile N of Aspoya on the E side of Freidfjorden.

Arsundoya (63°06'N., 7°59'E.), situated close off the Tingvoll Peninsula and about 2 miles E of Frei, lies at the junction of Freifjorden, Arsundfjorden, and Talgsjoen. Skarvbergnes Light is situated on the SW extremity of Arsundoya.

The Inner Fjords

6.41 The Tingvoll district occupies the greater part of a peninsula, which has an average width of 4 miles and extends 30 miles NNW from the head of Sundalsfjorden. Tingvollfjorden and Sundalsfjorden lie on the W side of this peninsula, and are reached from Kvernesfjorden and Freifjorden through Gjemnessundet or Bergsoysundet and Bergsoyfjorden.

Gjemnessundet (62°58'N., 7°48'E.) is entered between Krakholmen, which lies close off the SW extremity of Bergsoya, and Ikkorneset, 1 mile WSW.

Seiholmane, situated on a shoal, awash, lies 0.4 mile WSW of Krakholmen. Omolmane, on the W side of the fairway, lies 0.4 mile SSE of Seiholmane. A 7.3m rocky patch lies in the fairway 0.7 mile ESE of Omolmane.

The Gjemnessund Bridge, with a vertical clearance of 42m and a main span of 632m between two 108m high towers, extends SSW across Gjemnssundet from a position about 0.2 mile SE of **Krakholmen Light** (62°59'N., 7°47'E.).

Bergsoysundet is formed between Bergsoya, on the W, and Aspoya, on the E.

Maloya, a small islet, is connected to the N extremity of Bergsoya by a bridge.

Brusen (63°00'N., 7°52'E.) lies close NE of Maloya; Skallen, a 7.3m patch, lies 0.4 mile NE of Brusen.

The tidal current in Bergsoysundet can be strong, especially when N.

6.42 Bergsoyfjorden extends about 5 miles ENE from its W entrance, at the junction with Gjemnessundet. Except for the shoals, which are marked, the fjord is clear of dangers.

Bergsoyholmen (62°58'N., 7°53'E.) lies close offshore, 0.2 mile SE of the E extremity of Bergsoya. A shoal, awash, lies at the extremity of the foul ground which extends 0.4 mile SW of Bergsoyholmen.

Kvalvagholmen Light (62°59'N., 8°00'E.), situated at the SE entrance point of Bergsoyfjorden, lies 3.5 miles SE of Bergsholmen.

Vessels may enter Bergsoyfjorden from Gjemnessundet as previously directed. When clear of that fairway, steer in the white sector of Kvalvagholmen Light. When S of Bergsholmen, steer to pass about 0.3 mile N of that light.

Vessels entering Bergsoyfjorden from Bergsoysundet, when clear of the SW extremity of Apsoya, steer in the white sector of Kvalvagholmen Light. Then steer to pass N of the light, then into Tingvollfjorden.

Batnfjorden (62°56'N., 7°45'E.) leads 5 miles SW from Gjemnessundet and Bergsoyfjorden. The fjord is clear of dangers but there are no anchorages.

Batnfjordsoren, at the head of the fjord, is the administrative center for the district. On the S side of the bay there is a quay, 10m long, with a depth of 3.1m alongside.

Tingvollfjorden is entered between **Kvalvagholmen** (62°59'N., 8°00'E.) and Strupneset, 1.5 miles N, and extends 19 miles SE. Sundalsfjorden continues 5 miles farther SE. The fjord is to a large extent clear of dangers and is not difficult to navigate.

Ekremsholmane (63°00'N., 8°02'E.) lie up to 0.45 mile offshore, on the NE side of the fjord, 1.5 miles NNE of Kvalvagholmen.

Sognskjer Light is situated on the W side of the fjord, 4.75 miles SSE of Kvalvagholmen. The white sector of Sognskjer Light leads through the N part of Tingvollfjorden.

Anchorage is available in Gagnat, 0.5 mile WNW of Sognskjer Light, in depths of 35 to 45m, sand and clay, steeply shelving. It is advisable to lay out hawsers to the shore.

A 1.2m patch lies in mid-channel, 0.75 mile SE of Sognskjer Light. A 3.4m patch, marked by a beacon, lies 0.5 mile SSW of the 1.2m patch.

The white sector of Sognskjer Light, astern, leads S in Tingvollfjorden, W of the above dangers.

6.43 **Tingvollvagen** (62°54'N., 8°11'E.), an inlet on the E side of the fjord 1.5 miles SSE of Sognskjer Light, affords anchorage at its head, in 15m, clay.

Tingvoll, at the head of Tingvollvagen, is the administrative center for the district. Near the church is a quay, 7m long, with a depth of 4m alongside. There is also a quay near the ferry berth at the head of the inlet; it is 25m long, with depths of 0.6 to 5m alongside.

Angvik (62°53'N., 8°06'E.) lies on the W side of the fjord, 2 miles SSW of Sognskjer Light. Anchorage may be taken off Angvik, in 18 to 40m, clay. Southwest winds can raise a considerable sea in the bay, and it is advisable to lay out hawsers to the shore.

Berths are situated at an iron ore and gravel works situated on the W side of the fjord, 3 miles S of Angvik. There are depths of 4 to 10.3m alongside the quays.

At Rausand, close S of the iron ore works, there is a quay, 12m long, with depths of 2.6 to 4.4m alongside.

6.44 **Meloy Light** (62°48'N., 8°18'E.) is situated on an islet in the middle of Tingvollfjorden, 5 miles SE of Rausand. The white sector of the light leads ESE from the vicinity of Rausand.

Flaoya Light stands on the SW side of Flaoya, 5 miles ESE of Meloy Light.

The fairway, either N or S of Meloy Light, is free of charted dangers.

The white sector of Flaoya Light leads about 4 miles SE in Tingvollfjorden from the vicinity of Meloy.

Oksendal (62°43'N., 8°26'E.) is situated at the head of a cove entered about 1 mile SSW of Flaoya. Good anchorage is available off the public jetty, in clay, where the depths change less rapidly than elsewhere.

Sundalsfjorden leads 5 miles SSE from Flaoya to Sundalsora.

An overhead cable, with a vertical clearance of 46m, spans Sundalsfjorden, about 2 miles SE of Flaoya.

The white sector of Flaoya Light, astern, leads ESE in Sundalsfjorden, but patches of 7.3 and 9.1m, lie within this sector about 0.3 mile ESE of Flaoya.

Sundalsora (62°41'N., 8°33'E.) (World Port Index No. 23105) lies on the E side of Sundalsfjorden, near its head. There is a quay at the aluminum works, 307m long, with depths of 9.4 to 10m alongside. Vessels up to 27,000 tons have used this quay. For pilotage information, see paragraph 6.37. The port can be contacted, as follows:

1. VHF: VHF channels 9 and 16
2. Telephone: 47-71-693453
3. Facsimile: 47-71-693607

Krokshavn (62°41'N., 8°32'E.), situated on the W shore of Sundalsfjorden WSW of Sundalsora, has two bunkering quays, each 9m long, with 2.8 to 10m alongside. A quay at the power station is 55m long, with depths of 6.2 to 18m alongside.

6.45 From **Arsundfjorden** (63°07'N., 8°00'E.), Halsefjorden and Trangsfjorden, which lie E of the Tingvoll Peninsula, lead SSE and give access to a group of fjords which include Bofjorden, Ulvunfjorden, Stangvikfjorden, Todalsfjorden, Surnadalsfjorden, and Hamnesfjorden.

Arsundfjorden is entered between Arsundoya and Krakoya, 1.75 miles N. The fjord leads 5 miles E from its junction with Talgsjoen and Freifjorden, S of Tustna.

Arsundbaen (63°07'N., 8°02'E.) lies on the S side of the fjord, about 1.2 miles ENE of Arsundoya. Rocks, awash, lie close W.

Hestholmen, with foul ground W and NW of it, lies 0.3 mile offshore, 1.5 miles E of Arsundbaen. A 1.2m patch lies about 0.6 mile ESE.

Volongoya (63°08'N., 8°09'E.) lies on the S side of Arsund-

fjorden, 2 miles ENE of Hestholmen. Langskjera, on which a beacon stands, lies 0.2 mile N of Volongoya; Hattholmen lies about 0.1 mile off its SW point.

The white sector of Haukomin Light (63°09'N., 8°16'E.) leads through Arsundfjorden to the entrance of Halsefjorden and into Korsnesfjorden.

6.46 Halsefjorden (63°04'N., 8°12'E.) is entered between Furuholmane, 0.4 mile SE of Hestholmen, and Volongoya. It leads 9 miles SSE from Arsundfjorden into Trangsfjorden.

Furunes Light stands on Furuneset, near the W entrance to Halsefjorden. The white sector of this light leads from Korsnesfjorden into Halsefjorden, keeping SE of Volongoya.

Anchorage is available off Vikan, on the W shore, about 1 mile SSE of Furuneset, in 9 to 22m.

Saksnes Light (63°02'N., 8°14'E.), situated on the E side of the fjord 5.5 miles SSE of Furuneset, bearing between 147° and 157° leads through the N part of Halsefjorden; pass W of this light and bring it astern bearing between 312° and 320°, which leads into Trangsfjorden.

An ammunition dump is charted with its center situated about 0.9 mile SSE of Saksnes Light.

Bofjorden is entered on the E side of Halsefjorden, 3 miles SE of Saksnes Light, and leads 2 miles E. Asskardfjorden continues 3 miles farther E.

Bosundet, the narrow channel leading from Bofjorden into Asskardfjorden, has a least depth of 6.7m. It is spanned by a drawbridge with a vertical clearance of 2m when closed.

Staknes Light (63°01'N., 8°21'E.) is situated on the SE side of Bofjorden, about 0.8 mile within the entrance. Numerous dangers lie on the N side of the fairway, N and NE of the light.

Trangsfjorden continues 2 miles SE from the entrance to Bofjorden, to an exit between **Aksneset** (62°57'N., 8°20'E.) and Batvikneset, a promontory, 1.25 miles ENE. A light is situated on Aksneset; a cable with a vertical clearance of 35m spans Trangsfjorden, close N of Aksneset.

6.47 Trangsfjorden exits into a basin from which several fjords open; they are discussed in order from S to N.

Ulvunfjorden (62°54'N., 8°22'E.) is entered between Aksneset and Nesoya, 2.75 miles SSE. For the most part the fjord is clear of dangers and is easy to navigate.

The white sector of the light on Aksneset, bearing astern, leads into the N part of Ulvunfjorden, keeping E of the dangers which lie SSE of the light.

Meistingsetvagen is entered on the S side of Ulvunfjorden, about 4 miles SSE of Akneset. It extends about 2 miles SW.

Ulvund lies at the head of Ulvundfjorden. It is connected to the national road network.

Stangvikfjorden is entered between Nesoya and **Soloyet** (62°57'N., 8°26'E.), 2 miles NNE.

A bank, which dries in places and is marked by a beacon, extends 0.2 mile offshore, 0.8 mile S of Soloyet.

Rokkem Light (62°53'N., 8°30'E.), situated on the S side of Stangvikfjorden, 3.75 miles within its entrance, is a good mark for entering the fjord. This light bearing between 133° and 151°, ahead, leads into the fjord, clear of the dangers. Pass on the N side of the light, then bring it astern bearing between 272° and 282°, which will lead into Todalsfjorden.

Todalsfjord is entered E of **Flesa** (62°52'N., 8°35'E.), a low islet lying close off a headland, 2.5 miles ESE of Rokkem Light, and extends 4.5 miles SSE.

Todalsfjorden ices over every year; in severe winters the ice extends into Stangvikfjorden.

A good anchorage is available in Svinvik, on the E side of the fjord 1.75 miles SSE of Flesa, in 17 to 19m, sand. The anchorage is exposed to mountain squalls.

An overhead cable, with a vertical clearance of 65m, spans Todalsfjorden close S of Svinvik.

Todalsfjorden Light (62°50'N., 8°38'E.) stands on the W shore 2.25 miles SSE of Flesa. The white sector of the light leads through the N part of Todalsfjorden. With the light bearing between 271° and 285°, astern, transit may be made toward the head of the bay.

A good anchorage is available on the W side of the head of the fjord, in 16m, clay, close N of Todalen.

6.48 Surnadalsfjorden extends 4.5 miles E from its entrance between **Torvikneset** (62°57'N., 8°26'E.) and Kjergroneset, 0.7 mile NW.

There are two quays, each 10m long, located at Arnes, a village on the N side of the fjord, situated 0.8 mile NE of Torvikneset. There are depths of 7.5 to 8.5m and 3 to 7.5m, respectively, alongside the quays.

Hamnesfjorden is entered W of **Kjergroneset** (62°58'N., 8°28'E.) and leads 5 miles NE. Vargoya, a small islet, lies 0.25 mile W of Kjergroneset A shoal, awash, lies off the SW point of the islet. Hamnesfjorden affords shelter for small vessels.

Korsnesfjorden is entered from Arsundfjorden N of Volongoya (63°08'N., 8°09'E.) and leads 5 miles E between Tunsta and Stabben on the N and the mainland on the S, into Arasvikfjorden.

Haukomkin Light (63°09'N., 8°16'E.) is situated on the S shore of Korsnesfjorden, about 3 miles E of Volongoya.

The white sector of Haukomkin Light leads from Arsundfjorden, N of Volongoya, toward the entrance to Skalvikfjorden. Overhead cable, with a vertical clearance of 40m, span Korsnesfjorden, close E of Haukomkin Light.

Skalvikfjorden, a relatively shallow fjord, extends 4.5 miles SSE from its entrance, close SW of Haukomkin Light.

One mile within the entrance of the fjord, an islet lies in the center of the fjord. An overhead cable spans the fjord at the islet, with a vertical clearance of 26m over the W channel and 30m over the E channel.

6.49 Solemsundet (63°12'N., 8°11'E.) leads from the N side of Korsnesfjorden between Tustna and Stabben, 5.5 miles NNW to Edoyfjorden. It has been reported to be navigable by vessels of 90m length, 13m beam and 6m draft.

Halsneset Light, situated on the SE extremity of Tustna, and other lights in Solemsundet provide marks for vessels in transit. A bridge, with a vertical clearance of 18m, spans the channel 3 miles within its S entrance. An overhead cable, with a vertical clearance of 20m, spans the channel close N of the bridge.

Imarsundet (63°12'N., 8°18'E.), a shallow passage, is entered from S between Oykan, the SE point of Stabben, and the SW point of Ertvagoya and leads NNW between these two islands for a distance of 4.5 miles, then 2 miles farther NNW into Edoyfjorden.

The fairway of Imarsundet, off the N point of Stabben, is spanned by an overhead cable with a vertical clearance of 20m.

Arasvikfjorden (63°09'N., 8°25'E.) is entered between **Takneset** (63°09'N., 8°20'E.), and the SW extremity of Ertvagoya, 0.9 mile NNW, and leads 7 miles ENE to Aroya, an islet lying on the W side of the entrance to Auresundet.

The fjord is, for the most part, clear of dangers and is steep-to up to the shore.

Risholmen Light (63°09'N., 8°32'E.) stands on an islet 5 miles E of Takneset. A white sector of the light leads through the W part of Arasvikfjorden, clear of the dangers.

A white sector of Risholmen Light, bearing astern, leads through the E part of Arasvikfjorden, keeping NW of **Aroya** (63°11'N., 8°36'E.), and into Auresundet. Another white sector leads S of Aroya and into Vinjefjorden.

Valsoyfjorden is entered between **Otneset** (63°08'N., 8°31'E.) and Stokkneset, 1.75 miles NE, and leads 4.5 miles SE.

Valsoya and Kjoloya lie on the S side of Korsnesfjorden, in the entrance to Valsoyfjorden. Although the outer part of Valsoyfjorden is foul, it is well marked. Channels leading E and W of Valsoya each have a least depth of 3.8m. A bridge, with a vertical clearance of 24m, spans the E channel.

Valsoyfjorden is often frozen in winter.

An overhead cable, with a vertical clearance of 28m, spans Valsoyfjorden 2.25 miles within its entrance.

Vessels should not enter Valsoyfjorden without local knowledge.

6.50 Auresundet is entered at the E end of Arasvikfjorden E of **Rumpenneset** (63°11'N., 8°35'E.), the SE extremity of Ertvagoya, and leads 7 miles NNW between Ertvagoya, Rottoya, and Ruoya on the W, and the mainland, on the E, into Gjerdesvika. It has been reported to be navigable by vessels up to 90m in length, 13m beam, and 6m draft.

The tidal current in Auresundet is usually flowing N and strongest during the rising tide. There may, however, be a S flow during the falling tide, which is considered to be a sign of bad weather at sea. The flow can be strong in the narrows at the N end of Auresundet.

A light stands on the W extremity of **Vikaneset** (63°12'N., 8°36'E.) just over 1 mile NNE of Rumpenneset. A white sector of the light leads W of Aroya and E of a spit with 1m depth 0.5 mile NNW of Aroya. Another white sector of the light leads E of Aroya and N into Auresundet.

There is anchorage, in 22m, in a cove W of the light on Vikaneset.

A cable spans Auresundet between Rottoya and the mainland. It has a vertical clearance of 30m.

The white sector of the light on Vikaneset, bearing astern, leads farther N into Auresundet. A shoal patch with a depth of 2.7m, lies within these bearings close NE of the N point of Rottoya. The light bearing 151° leads through the narrows between Rottoya and the mainland.

Sveholmen Light (63°17'N., 8°29'E.) is situated on the SW extremity of Sveholmen. The white sector of this light leads NE of Ruoya. When NE of Ruoya steer a mid-channel course and pass SW of Sveholmen Light and then into Gjerdesvika. Transit of Auresundet should not be attempted without local knowledge.

Vinjefjorden continues E from Arasvikfjorden, and leads 10 miles E from Aroya to Vinjeora, at its head.

Hovedehammaren Light (63°12'N., 8°51'E.) is situated on the S side of the fjord, 6.75 miles within its entrance.

A white sector of the light ahead, leads through the W part of Vinjefjorden; another white sector, bearing astern, leads through the E part of the fjord to its head.

Anchorage is available WNW of Vinjeora, in 16 to 20m, sand and clay.

Caution.—A bridge, with a maximum clearance of 15m, has been constructed spanning the N part of Auresundet.

The Outer Coast—Kristiansund to Trondheim

6.51 From **Grip Light**(63°14'N., 7°37'E.), at the seaward end of Gripholen, the islands and rocks off the coast extend about 75 miles NE to the island of Halten.

The Halten Islands are situated on the W side of the entrance to Frohavet, the primary approach channel from N to Trondheim, a distance of about 75 miles, through the various channels.

The three large islands of Smola, Hitra, and Froya front this stretch of coast. Smola, the farthest S, is low-lying in comparison with the mainland and other islands in its vicinity. It rises to a height of about 67m at the SE end. Hitra, situated NE, is the highest, about 305m high, and the largest of the three. Froya, the farthest N, lies close N of Hitra.

Numerous small islands, islets, and dangers extend seaward to a distance of about 8 miles from Smola and up to 12 miles N and more than 30 miles.

The tidal currents usually set ENE with the rising tide and WSW with the falling tide, following the trend of the coast.

Caution.—A maritime area in the Storneset area, marked with transponders close E, is positioned about 65 miles E of the mainland and Skalmen, NE of Froya, and SW of Froya Bank.

6.52 **Morkedalstua** (63°30'N., 8°31'E.), in the SW part of Hitra, and Havikfjellet, 5 miles NE, are both conspicuous.

When approaching the coast, at a distance of 5 or 10 miles N of Halten, the land may be seen as far as Tonnelsfjell, 372m high, which rises about 24 miles SSE of Halten.

To the N, Oksbasheia, 228m high, is visible at a distance of 32 miles ENE of Halten.

Store Kopperen (63°48'N., 8°44'E.), 476m high, rises about 3 miles ENE of Tonnelsfjell. It resembles a haystack. In clear weather, Store Kopperen may be seen from 40 miles distant.

On Linesoya, an island 14.5 miles SE of Halten, **Linesfjell** (64°01'N., 9°54'E.), rises to a height of 229m. Linesfjell is separated from a similar height by a steep cleft with a small round knot in it.

Almeningskollen, situated on an island about 16 miles E of Halten, can be seen from a distance of 15 to 20 miles. It appears rounded from W or N, and is easily identified. Tronningsfjell, 297m high, rises about 5 miles SE of Almeningskollen, can be seen from 15 to 17 miles seaward. It is marked by a conspicuous slanting road.

6.53 **Reimane** (63°31'N., 7°50'E.) lies in the S part of a large area of low light-colored rocks which cannot be distinguished from afar. Storbaen lies on the NE edge of this group.

Small islets, surrounded by above and below water rocks, extend about 12 miles N from the W extremity of Froya, then continue about 35 miles NE terminating in the Halten Islands.

Below-water rocks and dangers extend from 6 to 8 miles outside this line of islets, and in general the islets are not easily identified. The entire area should be given a good berth as it is dangerous. The 200m curve lies within a short distance of the outer dangers and soundings afford little warning.

The most important lights along this coast, from S to N, are Haugjegla Light, situated 4 miles N of Smola; **Sletringen Light** (63°40'N., 8°16'E.), situated close off the W extremity of Froya, about 11 miles NE of Haugjegla Light; and **Sula Light** (63°51'N., 8°28'E.), situated on the N part of Store Sula, well inside the dangers, about 12 miles NNE of Sletringen Light.

Farther N are **Vingleia Light** (63°55'N., 8°41'E.), situated 7 miles NE of Sula Light; **Finnvaer Light** (64°04'N., 9°07'E.), situated in an islet group about 22 miles NE of Sula Light; and **Halten Light** (64°10'N., 9°25'E.), situated on W side of the entrance to Frohavet about 10 miles NE of Finnvaer Light. A racon is located at Halten Light.

There are numerous lights and navigational aids charted along this section of the coast.

6.54 Gripholen is the principal S approach from seaward to Trondheimsleia, but it may also be entered through Ramsoyfjorden, which is entered about 24 miles NNE of Grip Light.

Ramsoyfjorden is formed between Smola, on the W side, and Hitra, on the E. It leads about 8 miles SSE toward a junction with Trondheimsleia.

A submarine gas pipeline extends from Heidrun (65°19.5N., 7°19.1E.), a platform described in paragraph 7.1, to Tjeldbergodden (63°25'N., 8°42'E.) and enters Ramsoyfjorden about 0.5 miles W of Saebuodden Light (63°29.4N., 8°14.3E.). The pipeline then extends to a position 3 miles NNW of Rognannes Light, where it extends SSE to a position about 0.2 mile SW of Stangnesflua.

Tjeldbergodden (63°25'N., 8°42'E.) is the site of a methanol terminal. The pipeline comes ashore on the E side of the terminal. A safety zone extends up to 0.3 mile seaward of the terminal. Concrete berths are located at a mole on the W side of the terminal and at a quay on the E side of the terminal, Berth information is, as follows:

1. The E side of mole is 93m long, with alongside depths of 5.6 to 9.5m.
2. The root of mole is 35m long, with alongside depths of 5.9 to 8.8m.
3. The quay is 78m long, with alongside depths of 12.9 to 16.3m.

Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The pilot boards about 1 mile NNW of Grip Light.

Vessels should contact the Kristainsund pilot station on VHF channel 16 about 2 hours prior to arrival at the pilot boarding position. Vessels that call on VHF channel 16 will be connected to the Kvitsoy Pilot Booking Center via Floro Coast Radio Station or Rogaland Coast Radio Station if the station does not respond.

Product tankers should send their ETA via their agent 72 hours prior to arrival. Confirmations should be sent 48 hours, 24 hours, and 12 hours prior to arrival. Any changes to the ETA must be sent immediately.

Coaster and dry cargo vessels shall send their ETA via their agent 24 hours prior to arrival. The terminal shall be contacted no later than 30 minutes prior to arrival on VHF channel 11 to receive berthing instructions.

The Main Control Room of the terminal can be contacted, as follows:

1.	Call sign:	Statoil Tjeldbergodden
2.	VHF:	VHF channels 11 and 16
3.	Telephone:	47-71-649393
4.	Facsimile:	47-71-649055

Steinsoy, close off the NE coast of Smola, 5.75 miles SSE of Haugjegla Light, and **Saebuoy** (63°30'N., 8°15'E.), 3 miles ENE are the N entrance points of Ramsoyfjorden. A light is situated on the SW end of Saebuoy.

Tides—Currents.—In Ramsoyfjorden, the tidal currents set S with the rising tide and N with the falling tide. The N current is always stronger, and when it is opposed by N winds at springs, considerable turbulence occurs in the NW entrance to the fjord.

Kvaloy Light (63°24.6'N., 7°50.8'E.) stands on the W end of Kvaloya, close E of Maholmen.

Dyrnes Light (63°26'N., 7°51'E.) stands at the N entrance point of Dyrnesvagen, a cove on the NW side of Smola; the white sector of the light leads towards the cove from the vicinity of Store Kvaloya.

Dyrnesvagen is protected from NW by a breakwater that extends 160m SW from Kalvoya, about 0.15 mile NW of Dyrnes Light. The breakwater has several alongside berths on its NE side; the berths have lengths of 12 to 40m, with alongside depths of 3 to 7m.

Sorgrunnen (63°33'N., 8°00'E.) and Nordgrunnen, patches with depths of 20 and 32m, lie in the NW approach to Ramsoyfjorden, 1.25 and 1.75 miles, respectively, NE of Haugjegla Light.

Gjesingboerne, awash in places, lies 2 miles NW of Steinsoy, and Mefjordbaen, a drying patch, lies 1.25 miles ENE of that island.

Austre Reiflua (63°27'N., 8°13'E.), a 6m patch, lies in the fairway about 2 miles SE of Steinsoy. Ramsoybaen, drying and marked by a beacon, lies on the E side of the fairway 2.75 miles SSE of Austre Reiflua. Fosflua, a 6m patch, lies 1.5 miles SSE of Ramsoybaen. Ramsoygalten, marked by a beacon, lies 1.5 miles SE of Fosflua. Austklakkane, 10m patches, lies 1.25 miles ENE of Ramsoygalten.

Shoal water extends about 2 miles into Ramsoyfjorden from the E coast of Smola, and 1.75 miles W from Hitra.

6.55 Vessels may approach Ramsoyfjorden from N or NW by steering in the white sector of the light on the SW side of Saebuoy. Steer to a position 1.5 miles NW of the light and enter the white sector of **Remmingskjer Light** (63°22'N., 8°17'E.), which course leads into Ramsoyfjorden, between the dangers off each coast of the fjord.

When the vessel is abeam of Fosflua, with the light about 2 miles distant, steer SE to pass about midway between Remmingskjer Light and Ramsoygalten and enter Trondheimsleia, steering as required to destination.

Froyfjorden (63°40'N., 8°40'E.) lies 9 miles N of the W en-

trance to Ramsoyfjorden. The whole W side of Hitra from Saebuoy to the entrance of Froyfjorden is fronted by islets which extend up to 4.5 miles offshore.

Froyfjorden extends about 16 miles ENE from its W entrance, S of Sletringen Light, and leads into Frohavet.

The W half of the fjord is relatively free from danger, but the E half is narrow and encumbered with many dangers in or near the fairway. Local knowledge is necessary to transit this fjord.

Regulations.—A speed limit of 5 knots is in force along the coastal waters of Ulvoya (63°40'N., 8°04'E.) and Fjellvaeroy, Lille Helsoy (63°40'N., 8°04'E.), Store Helsoya, Kvaenvaer, and Kvernvaer. This speed limit applies to all vessels except those engaged in operations for the Norwegian armed forces or craft engaged in emergency police, custom, fire fighting, ambulance, or search and rescue missions.

6.56 Kya (63°46'N., 8°19'E.), marked by a light, is a small islet situated 6 miles N of Sletringen Light.

Foul ground extends 2.5 miles SW from Kya, and the same distance NNW. Synstflua, a 9m patch, lies 2.75 miles WSW and Oreklakken, with a least charted depth of 13m, lies 3.25 miles WNW, respectively, from Kya. They are the farthest W of these dangers.

Sula Light (63°51'N., 8°27'E.) is located about 6 miles NE of Kya, at the S end of Froan.

Froan, the waters lying between Sula and Halten, 30 miles NE, are foul and large areas are not navigable. A few channels lead between the islets and reefs, but local knowledge is essential.

Vingleia, entered 7.5 miles NNE of Sula, affords the only passage for large vessels, in the vicinity, from the sea to Frohavet, but as the entrance is difficult to distinguish, use of the channel is not recommended unless a local mariner is embarked.

6.57 Frohavet, a deep arm of the sea, is entered between Halten Light (64°10'N., 9°25'E.) and Almenningen, an island situated 16 miles E. The channel leads SSW to Krakvagfjorden, and is formed between Froan and Froya on the W side and the islands lying off the mainland on the E.

From a position 5 miles E of Halten, the distance to Trondheim is 75 miles.

Vessels bound for Trondheim and entering Frohavet from the offing W of Halten should keep at least 5 miles N of Halten Light. When the light bears not less than 236°, course may be altered S, steering to pass from 4 to 5 miles E of the light and then in about mid-channel.

Vessels proceeding from the N should approach Halten Light on a bearing of about 183°, so as to pass well W of the dangers off the mainland; they should then pass E of the light and through mid-channel as directed above.

Tides—Currents.—Currents in Frohavet flow S on the rising tide and N on the falling tide. These directions are opposite those at Halten and farther seaward. During the rising tide, the current runs S to join the flood current in Trondheimsleia.

The tidal current often runs strongly, notably on the W side of Frohavet.

When a S or SW gale is imminent, there is usually a W flow in Frohavet. In winter, an E and N flow is considered a sure indication of an E gale.

An unusually strong flood current is considered to be an indication of W or NW gales. An unusually low tide is an indication of N winds.

The W side of Frohavet is comparatively free from dangers, but the E side is encumbered by numerous fringing islands and shoals.

Borklakken, a shoal with a least charted depth of 8.5m, lies on the E side of the entrance about 6 miles NNW of **Almeningskollen** (64°11'N., 10°01'E.), the summit of Almenningen, and Ranen, with a least charted depth of 4.9m lies about 5 miles NW of the summit.

Ravnfaldet, awash, 3.25 miles W of the S point of Almenningen, is the farthest W of the dangers off that island.

Flessa (64°06'N., 9°54'E.) is the largest and farthest N of a group of islets situated about 5 miles SW of Almenningen. The islets and shoal water extend 3.5 miles farther SW.

Borklakken and Ranen are considered the most dangerous of the shoals W of Almenningen.

6.58 Melsteinen (63°58'N., 9°35'E.), comprised of a group of low flat islets and rocks lying between 8 and 15 miles SW of Flessa, is separated from that island group by a deep wide channel.

In the Melsteinen group, the tidal currents are S on the rising tide and N on the falling tide. The currents are strong and considerable overfalls occur.

To the SSW of Melsteinen is the Tarva Group of islets and rocks. which lie from 7 to 12 miles distant from the light in Melsteinen. Husoya is the largest islet in the group. A light is situated on a small islet off the N extremity of Husoya.

Krakvagfjorden (63°40'N., 9°15'E.) connects Frohavet and Trondheimsleia, and leads on the E side of Ulvoya and Fjellvaeroya, and W of Krakvagoya.

Tides—Currents.—In the vicinity of Flesa, in the center of Krakvagfjorden, the incoming current sets S during the rising tide, continuing so as to pass on either side of Sore Leksa and Nordre Leksa, and join the E flood current in Trondheimsleia. The outgoing currents set in the opposite directions.

6.59 Gronholmen Light (63°41'N., 9°09'E.) stands on Gronholmen, 9 miles SW of Husoya, in a position about 1 mile off the E coast of Ulvoya.

Tarnet, above water in places, lies on the E side of the entrance to Krakvagfjorden, about 5 miles ENE of Gronholmen Light. Ugsteinskjerane, with a least charted depth of 4.6m, lies 2.25 miles SW and an 18.3m patch lies 2 miles WSW, respectively, from Tarnet.

Flesa Light (63°39'N., 9°14'E.) is situated on the W side of Krakvagfjorden, 3 miles SE of Gronholmen Light. A racon is located at the light tower which stands on Flesa Islet.

The dangers off Fjellvaeroya lie W of a line joining these two lights. A patch, with a depth of 20m, is charted 0.45 mile N of Flesa Light. A pilot boarding station is located 0.75 mile NE of the light.

Krakvagoya, 31m high, is situated 2.25 miles E of Flesa Light. Kommersoyflua, a 7.3m patch, lies 0.6 mile SSE.

A vessel bound for Trondheim should pass in mid-channel E of Flesa Light and then round the SW end of Krakvagoya at a distance of about 1 mile.

Course should then be altered to pass about midway between

Nordre Leksa, 3 miles SSE of Krakvagoya, and Smellingflua, awash, 3 miles NE of Nodre Leksa. The normal route into Trondheimsleia leads E of Sore Leksa.

The white sector of **Rognan Light** (63°34'N., 9°17'E.) leads from Krakvagfjorden, W of Ugsteinskjerane, and E of Sliskjertaren and Sliskjeret, which lie just over 2 miles and 1.25 miles, respectively, NNW of the light.

When clear of Sliskjeret, alter course to pass W of Rognan Light and W of Storaflua, a 1m patch lying 1.3 miles SSE of the light, then into Trondheimsleia, altering course toward the ENE to Trondheim or WSW toward Kristiansund.

The Main Route—Kristiansund to Trondheim

6.60 The main route from Kristiansund to Trondheim leads through Ytrefjorden, Edoyfjorden, and Trondheimsleia, passing S of Smola, Hitra, Sore Leksa, and Nordre Leksa to Agdeneset, which is situated at the entrance to Trondheimsfjorden.

A route leading seaward of the Froan Archipelago, NE of Smola, branches NW through Ramsoyfjorden, between Smola and Hitra.

A route leading N through Krakvagfjorden and Frohavet, branches N between Hitra and Sore Leksa.

Ytrefjorden, Edoyfjorden, and the greater part of Trondheimsleia form part of Indreleia, the N continuation of which, through Grandevika, is approached NNE of Nordre Leksa.

Ytrefjorden, from its junction with Gripholen, N of **Ytre Langholmen Light** (63°11'N., 7°52'E.), leads 7 miles ENE into Edoyfjorden. Ytrefjorden is deep and in mid-channel, clear of dangers, presents no navigational difficulty.

Baeflua (63°14'N., 7°52'E.), a 3.5m patch, lies 2.25 miles NNE of Ytre Langholmen Light. Kutmannsflua, a 6m patch, lies 3 miles ENE of Baeflua. Depths of 1m, 6m, and 3m lie, respectively, 1 mile, 1.5 miles and 2.5 miles, ENE of Baeflua.

Edoyfjorden is entered from Ytrefjorden and leads ENE into Trondheimsleia. The channel is deep and free from dangers in the fairway; from abreast Ytre Langholmen Light, vessels should steer a mid-channel course, passing about 1 mile SE of Tyrhaugh Light.

Tyrhaug Light (63°19'N., 8°14'E.) is situated close off the NE end of Edoya, on the N side of Edoyfjorden, about 12 miles NE of Ytre Langholmen Light.

Trondheimsleia is considered to extend from Tyrhaug Light to Beian Light and Agdenes Light, or to the mouth of Trondheimsfjorden, a distance of about 45 miles ENE; the channel, for the most part, is free from sunken dangers. It can be navigated by the largest vessels.

Tides—Currents.—The tidal currents in Trondheimsleia set E with the rising tide and W with the falling tide. At the narrows, about 25 miles ENE of Tyrhaug Light, they run with considerable velocity.

Gjerdesvika leads 7 miles E from the junction of Edoyfjorden and Trondheimsleia.

Tidal currents flow to the E on the rising tide and W on the ebb. The flow can be strong in the W entrance.

6.61 **Svartskjeret** (63°18'N., 8°18'E.) lies near the center of the E entrance to Gjerdesvika, 2 miles SE of Tyrhaug Light. It is marked by a beacon. A chain of islets extends ENE from Svartskjeret to Grisvagoya, about 2 miles distant.

Gjerdesvika is entered between Svartskjeret and Omoyflua, awash, 0.8 mile S.

Steinholmen Light (63°17'N., 8°20'E.) is situated on the S side of Gjerdesvika, just over 1 mile SE of Svartskjeret. The white sector of this light bearing between 078° and 112° leads from Edoyfjorden into Gjerdesvika.

Charted depths of 5, 9, 12 and 11m lie in the white sector above, and are situated 0.35 mile S, 0.5 mile SSW, 0.9 mile SW and 1.25 miles SW, respectively, from the beacon on Svartskjeret.

When within 0.75 mile of Steinholmen Light, steer to pass N of the light, then steer ENE on a midchannel course.

Auresundet, previously described in paragraph 6.50, may be entered from Gjerdesvika by steering in the white sector of **Sveholmen Light** (63°17'N., 8°29'E.). Sveholmen Light is situated about 4 miles ESE of Steinholmen Light.

Torsetsundet is formed between Skarsoya and the mainland on the S and extends 4.75 miles ENE. It is entered from Gjerdesvika, S of Alfartangen, and terminates at its junction with Arvagfjorden and Dromnessundet.

Alfartangen (63°19'N., 8°34'E.), the SW extremity of Skarsoya, lies 3 miles NE of Sveholmen Light. A 2.1m patch lies 0.5 mile WSW of Alfartangen.

Torsetsundet is narrowest off Tua, 1.25 miles E of Alfartangen. The least depth in the fairway is 7.5m.

A bridge, with a vertical clearance of 16m, spans Torsetsundet at Tua.

6.62 **Glomstadholmen Light** (63°19'N., 8°38'E.) is situated on the S side of the fairway, 0.7 mile ENE of the bridge. The white sector of the light leads through the W part of Torsetsundet, N of foul ground which lies close E of Tua.

Glomstadholmen Light bearing between 246° and 250°, astern, leads through the E part of Torsetsundet. A charted depth of 11m lies within this white sector, about 1 mile ENE from the light.

Lilleoya Light (63°20'N., 8°44'E.) stands on the N point of an island, Lilleoya, at the E end of Torsetsundet. A 5.5m patch lies 183m NNW and Russen, a drying patch, lies about 0.1 mile N. Storoya, an island, lies 0.2 mile NNW from the light.

Three routes lead NE or E from the E end of Torsetsundet, as follows:

1. A route W of Storoya.
2. The channel E between Russen and Lilleoya Light.
3. The channel S of Lilleoya Light.

Arvagfjorden is the continuation of Torsetsundet, leading 3.5 miles E from Lilleoya and is entered S of Hellandneset, a promontory standing 0.8 mile ENE of Lilleoya.

Arvag lies at the head of the fjord.

Dromnessundet leads 4 miles NNW along the E side of Skarsoya into Trondheimsleia. It is foul in places, but well marked.

There is usually a N flow at all stages of the tide; a S flow occurs only during strong NW winds.

Espenes Light (63°21'N., 8°43'E.) stands on a point on the E side of Dromnessundet, 0.75 mile NW of Lilleoya Light. Rognannes Light is situated on the W side of the channel, 2.5 miles NNW of Espenes Light.

Vessels should enter Dromnessundet by passing E of Storoya in the white sector of Espenes Light. When N of Storoya, alter

course to the W, then steer to pass W of the light and bring it astern bearing between 173° and 187°, which course leads E of a point 0.75 mile N of the light.

Rognannes Light (63°23'N., 8°39'E.), bearing between 313° and 316°, ahead, leads farther N through Dromnessundet, passing between dangers which lie off either coast.

The white sectors of Rognannes Light, astern, offer three alternative routes farther N into Trondheimsleia, depending on the destination.

A bridge, with a vertical clearance of 15m, crosses Dromnessundet at Ulvnestangen, about 0.7 mile NNW of Espenes Light.

6.63 **Remmingskjer Light** (63°22'N., 8°17'E.) is situated 3.5 miles NNE of Tyrhaug Light at the junction of Trondheimsleia and Ramsoyfjorden.

Klakksbroren Light (63°21'N., 8°25'E.) is on the S side of Trondheimsleia, 5.5 miles ENE of Tyrhaug Light.

A line of above-water rocks and shoals extends from Kvitholmen, 2.75 miles ENE of Tyrhaug Light, NE to Klakksbroren Light. Friskjeret, marked by a beacon, lies 0.8 mile NE of the light.

Vessels proceeding E through Trondheimsleia steer with the white sector of Tyrhaug Light, astern, which leads N of Klakksbroren Light. Austklakkane, 6.5 miles NE of the light, falls within the sector.

When reaching a position S of **Austklakkane** (63°23'N., 8°24'E.), vessels should steer E, keeping a mid-channel course.

The channel is broad and free from dangers in the fairway, though a number of rocks lie close under the land on either side. Terningen Light, bearing about 070° ahead, may be steered for, which course will lead clear of the dangers.

Terningen Light (63°30'N., 9°03'E.) stands on the S side of Store Terningen, about 19 miles E of Klakksbroren Light.

Hevnefjorden is entered on the S side of Trondheimsleia, in a position 1.5 miles SSE of Terningen Light and leads 133 miles S. Astfjorden extends nearly 9 miles E, 4 miles within the entrance; Snildfjorden extends 8 miles E, 8 miles within the entrance.

Hevnefjorden is, to a large extent, deep and clear of dangers.

Anchorage is available at the head of Hevnefjorden, in 23 to 28m, sand and clay, but is not recommended in N winds to which the bay is exposed.

6.64 To pass through the narrows situated close E of Terningen Light, vessels steering for the light, from W, should alter course when within about 1.5 miles; the fairway then leads S of the light and between Josnoya, on the N, and **Hevnskjelova** (63°29'N., 9°08'E.), on the S. These islands are nearly steep-to, but attention must be paid to the strength of the tidal currents.

Between Terningen Light and the entrance to Trondheimsfjorden, the distance is about 20 miles. The channel is entered by vessels proceeding from Frohavet and Kjrakvagfjorden, E of Nordre Leskka, about 10 miles ENE of the light.

Garten (63°39'N., 9°32'E.), an island 72m high, lies on the N side of Trondheimsleia, 4 miles ENE of Nordre Leksa. Smellingflua, awash and marked by a light, lies about 0.8 mile SW of Garten.

Vessels after passing Terningen steer a mid-channel course between the mainland and the islands to the N. After passing Smellingflua, the mainland coast should not be approached within 0.25 mile as it is foul, and the dangers W of Agdenes Light should be given a good berth. The light should be rounded at a distance of 0.75 mile.

Stornafjorden extends about 6 miles NE from the E end of Trondheimsleia, at the entrance to Trondheimsfjorden. It terminates in two inlets which are frozen over in severe winters. There is considerable traffic in the fjord during the herring fishing season.

Trondheimsfjorden

6.65 Trondheimsfjorden is entered E of **Agdeneset** (63°39'N., 9°46'E.), and, with its branches, leads SE and NE for a total distance of 70 miles to Steinkjer, which is situated 52 miles ENE of Agdeneset.

Trondheim lies 24 miles from Agdeneset.

Ice.—The outer part of Trondheimsfjorden is ice-free all year round and Skarnsundet is normally ice-free.

Beitstadfjorden is frozen over during January, February, and March in some years, and some of the other branch fjords may be frozen over at times.

Tides—Currents.—A normal tidal current runs in Trondheimsfjorden. Off Agdeneset and W of Tautra, the maximum rate is 1 knot, and the currents are reported to run strongly in Skarnsundet and in the entrance to Borgenfjorden and in Beitstadsundet. Elsewhere the rate does not exceed 0.5 knot.

Pilotage.—Trondheim has a pilot office, which has a pilot boat station at Hetvika. A pilot boat station has been established off Flesa Light. Pilots for ports in Trondheimsfjorden can be obtained at Kristiansund.

Caution.—Gunnery firing practice takes place, in an area which includes the outer part of Trondheimsfjorden, within 3.5 miles of Agdeneset. For further information on gunnery firing areas, see Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

An ammunition dumping ground is situated in Trondheimsfjorden and is centered about 2 miles SSE of Agdeneset.

6.66 From Agdeneset, Trondheimsfjorden trends about 12 miles SSE to **Rodberg** (63°29'N., 10°00'E.). A light is situated on the mole at Rodberg.

Selvbukta (63°37'N., 9°43'E.), a cove on the W side of the fjord, 1.5 miles S of Agdeneset, affords anchorage to medium-sized vessels, in 13 to 28m. The cove dries within 183m of its head. Larger vessels may anchor, in 37m, sand, 0.2 to 0.25 mile offshore, in the vicinity of a cove 2.5 miles S of Selvbukta. This anchorage is exposed, particularly in N and S winds.

A light is situated on Gjetneset, a promontory situated 2.75 miles S of Rodberg.

Vessels may transit this part of Trondheimsfjorden by steering a mid-channel course to a position off Rodberg, which leads clear of danger.

Orkedalsfjorden and Gaulosen comprise a branch of Trondheimsfjorden which is entered between Gjetneset and **Froskjeret** (63°25'N., 10°07'E.), 4 miles ESE.

A light is situated near the end of a spit extending 0.2 mile NW from Froskjeret.

The E part of the entrance to Orkedalsfjorden and Gaulosen

Trondheim

forms part of the harbor area of Trondheim.

The white sector of the light at Rodberg, bearing astern, leads E of Gjetneset to the mouth of Orkedalsfjorden.

Orkedalsfjorden is entered W of a point 5.5 miles S of Gjetneset. The fjord is deep except at its head, where drying banks lie at the mouth of the river flowing into it.

6.67 Thamshamn (Thamshavn) (63°19'N., 9°53'E.) (World Port Index No. 23095) is part of the harbor area named Orkdalsora. It extends 1.5 miles along the SE side of the fjord near its head where the town of Orkanger is located.

Depths—Limitations.—Information on berthing facilities is given in the table titled **Thamshamn—Berthing Information**.

Pilotage.—Pilotage is compulsory for all foreign vessels arriving, departing, and shifting berths. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The pilot boards in position 63°39.0'N, 9°14.9'E.

Contact Information.—Port Control can be contacted, as follows:

1. Call sign: Trondheim Port Control
1. VHF: VHF channels 12 and 16
2. Telephone: 47-73-991710
   47-91112600 (mobile)
3. E-mail: havnevakt@trondheimhavn.no

Thamshamn—Berthing Information		
Berth Name	**Length**	**Depth Alongside**
Thamshamn		
Timber Quay	95m	7.0-8.0m
Concrete Quay	77m	8.2-9.7m
Timber Quay	94m	9.0-9.7m
Orkanger		
West side	48m	1.5-6.0m
North side	20m	5.2-6.0m
East side	34m	1.2-5.2m
No. II	82m	10.3m
No. III	32m	8.4m

The Port Authority can be contacted, as follows:

1. Telephone: 47-73-991700
2. Facsimile: 47-73-991717
3. E-mail: firmapost@trondheimhavn.no

Anchorage.—Anchorage is available, in 9 to 28m, mud, N of the berths at Orkanger.

Gaulosen is entered between **Lundsneset** (63°20'N., 10°02'E.) and Vevikneset, 1.5 miles NE. It extends 4.5 miles SE. The E part forms part of the harbor area of Trondheim.

Borsa is situated on the S shore of Gaulosen 1.75 miles SSE of Lundsneset. A quay, 15m long, with depths of 6.7 to 12m alongside, is situated 1.25 miles E of the church at Borsa.

Anchorage, in 22 to 30m, clay, steeply shelving, is available about 1 mile SE of the quay.

Buvika (63°18'N., 10°11'E.) is situated at the head of Gaulosen, 3.25 miles ESE of Borsa. A narrow dredged channel, with a least depth of 6.5m, leads into a basin at the mill. A quay on the W side of the basin is 103m long, with depths of 8.5m alongside and a quay on the E side is 65m long, with 3 to 4m depths alongside.

Munkholmen Light (63°27'N., 10°23'E.) is situated on the island of Munkholmen at Trondheim Road, off the city of Trondheim.

Trondheim Road is a nearly unobstructed basin affording anchorage to a large number of vessels. The limits of the harbor area are as charted.

The roadstead is open to the NW, N, and NE, which are the directions of prevailing winds, and a considerable sea is raised by these winds at times.

Vessels may approach Trondheim Road by giving the light at Rodberg a berth of about 1 mile. They should then proceed E in mid-channel until Munkholmen Light bears about 113°, when course may be altered S into the roadstead, passing W of Munkholmen.

Holmgrunnane, a shoal which extends about 0.8 mile NNE from Munkholmen, is marked by a light on Tua, near its N extremity. Depths of 1.5m are charted on Holmgrunnane.

Caution.—Shallower depths than charted may be encountered between Munkholmen Light and the light on Tua.

Trondheim (63°26'N., 10°24'E.)

World Port Index No. 23090

6.68 Trondheim is a coastal natural harbor, but the main port facilities are sheltered by breakwaters which divide the harbor into several protected basins. The Nidelva flows into Trondheimsfjorden here and is crossed by several bridges.

The city is the junction for both land and sea traffic between S and N Norway, and with rail service to Sweden.

Port Authority of Trondheim

http://www.tih.no

Winds—Weather.—The predominant winds in Trondheim are from the S throughout the year; however, during the months of April through September, the afternoon winds will shift to the NW and N. The average winds are about 6 knots, with some 13 days of the year when gale force winds of 34 knots or more occur. Gales are rare from May through August.

The harbor is always ice-free, and almost always free from fog.

Tides—Currents.—The mean tidal range is 2m and the spring range is 2.7m.

The ebb current from Nidelva sets out fairly strong, occasionally attaining a maximum velocity of 5 to 6 knots during the thawing season.

Trondheim—Berthing Information

Berth Name	Length	Depth Alongside
Pier I		
Quay No. 1 and No. 2	135m	8.0m
Ro-Ro ramp	15m	—
Tavern		
Honour Quay	66m	6.4m
Pier II		
Quay No. 4	58m	5.5m
Quay No. 5	68m	5.5m
Quay No. 6	68m	6.3m
Quay No. 7	90m	6.9m
Quay No. 8	102m	6.9m
Quay No. 9	104m	9.0m
Quay No. 10	60m	9.2m
Quay No. 11	56m	9.2m
Quay No. 12	70m	9.2m
Quay No. 13	94m	9.2m
Quay No. 14	130m	6.5m
Quay No. 15	50m	3.0m
Brattor Quay		
Quay No. 16	150m	6.5m
Quay No. 17	90m	6.5m
Quay No. 67.1	30m	4.5m
Quay No. 67.2	40m	4.5m
West Canal Quay		
Quay No. 19	105m	5.1m
Quay No. 20	65m	5.1m
Quay No. 21	70m	5.1m
Quay No. 22	70m	5.0m
Quay No. 23	140m	3.8m
Quay No. 24	70m	3.0m
Ila Pier		
Quay No. 26	191m	8.4m
Quay No. 27	100m	8.4m
Quay No. 28	132m	8.7m
Quay No. 29	66m	8.4m

Trondheim—Berthing Information		
Berth Name	**Length**	**Depth Alongside**
Quay No. 30	90m	8.7m
Quay No. 31	132m	10.6m
Quay No. 32	155m	8.4m
Frostakaia	115m	3.6m
Ravnklokaia		
Quay No. 35	80m	3.6m
Kystenkaia		
Quay No. 36	115m	3.6m
Quay No. 37	155m	3.6m
Gryta		
Quay No. 38	240m	0.0-3.6m
Quay No. 39	250m	0.0-3.6m
Fosenkaia		
Quay No. 40 A-D	290m	5.1m
Transittkaia		
Quay No. 41	70m	8.0m
Quay No. 42	42m	8.0m
Quay No. 43	80m	8.0m
Kullkranpiren		
Quay No. 45	130m	1.5m
Quay No. 46	95m	8.0m
Quay No. 47	95m	6.0m
Quay No. 48	80m	4.5m
Quay No. 49	80m	5.0m
Quay No. 50	70m	4.5m
Strandveikaia		
Quay No. 52	165m	6.0m
Quay No. 53	105m	6.0m
Quay No. 54	70m	6.0m
Ladehammerkaia		
Quay No. 55	141m	6.0m
Quay No. 56	91m	6.0m
Quay No. 57	50m	7.0m
Other Berths		
Fagervika—Statoil	57m	11.0m
Haggdalen—Biologisk	10m	6.2m
Haggdalen—Norske Shell	28m	6.0m
Hovringen—Esso	50m	11.3m

Trondheim—Berthing Information		
Berth Name	**Length**	**Depth Alongside**
Cruise Ship Quay—Brattora	96m	13.0m

Depths—Limitations.—Several berths are available at the port. Berthing details are shown in the accompanying table titled **Trondheim—Berthing Information.**

Aspect.—The cathedral situated 1.5 miles SSE of Munkholmen Light has a green roof and a tall conspicuous green spire. Stiftsgarden, a large wooden house 0.25 mile N of the cathedral, is conspicuous.

Pilotage.—A pilot station has been established off Flesa Light in position 63°39'N, 9°15'E.

Harbor pilotage is compulsory for foreign vessels arriving, departing, or shifting berths. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. They normally embark on the landward side of Munkholmen, or, in bad weather, off the appropriate harbor entrance.

The pilot for Krakvagfjorden boards in position 63°39.0'N, 9°14.9'E. Trondheim also provides pilotage for Stjordal and Orkanger.

A pilot station, with State Pilots, who do outbound transit and coastal pilotage, is established at the public pilot office at Trondheim on Pier 2.

Vessels approaching from the S should contact the pilot when about 10 miles from Grip Light. The pilot station monitors on VHF channel 16.

Regulations.—An arrival message should be sent 72 hours prior to arrival via Rogaland Radio and also 24 hours prior to arrival via Kristiansund Radio. Any significant change in the 24 hours ETA must be advised to the Pilots.

In addition, tankers radio the agent "Petroleum Trondheim" at least 72 hours prior to arrival via Rogaland Radio giving ETA at Grip in UTC and advising all requirements and other information pertinent to the turnaround of the vessel. Confirm the ETA via Kristiansund Radio 12 hours before arrival at Grip.

Contact Information.—The Port Authority can be contacted, as follows:

1. Telephone: 47-73-991700
2. Facsimile: 47-73-991717
3. E-mail: firmapost@trondheim.havn.no

Port Control can be contacted, as follows:

1. Call sign: Trondheim Port Control
2. VHF: VHF channels 14 and 16
3. Telephone: 47-91112600 (mobile)

Anchorage.—Anchorage may be taken in Trondheim Roadstead, in 22 to 42m, fine sand and mud, about 1 mile SW of Munkholmen Light. There is also anchorage 0.5 mile SSE of Munkholmen, in 34m, 0.5 mile SE.

6.69 The main part of Trondheimsfjord, with its continuations, extends about 45 miles NE from Trondheim. It is irregular in shape and varies greatly in width.

The fjord is deep and navigable throughout the year. The SE shore is indented by several large bays and toward its head is less rugged than in the vicinity of Trondheim.

Storegrunnen (63°30'N., 10°26'E.), a 7.3m patch, lies near the middle of Trondheimsfjorden, 2.75 miles NNW of the light on Tua. Indregrunnen and Treungsgrunnen, two 14.6m patches, lie 1.75 and 2.5 miles, respectively, NE of Storegrund.

Strindfjorden is the water area on the SE side of Trondheimsfjorden, and is entered between **Ostmarktangen** (63°27'N., 10°27'E.) and Tautra, an island situated about 8 miles NNE of the point. From its entrance, the fjord trends about 6 miles E to Stjordalsfjorden, on the SE side, and Asenfjorden, on the NE side. The fjord is free from dangers in its middle part.

Saksvikskjer, above water, lies 0.6 mile offshore, 3.75 miles ESE of Ostmarktangen.

A conspicuous tower, with a restaurant near the top, stands about 2 miles S of Ostmarktangen Light. A mast stands close E of the tower.

Litlegrunnen (63°28'N., 10°46'E.), a 6.7m patch, lies in the E part of Strindfjorden, 4.75 miles ENE of Saksvikskjer. Fiskvikgrunnen, a 12.8m patch about 2 miles N of Litlegrunnen, lies 0.3 mile offshore.

Stjordalsfjorden is entered between **Haugberget** (63°26'N., 10°41'E.), a point 6.25 miles ESE of Ostmarktangen, and Skjervauran, 4 miles NE.

Hommelvik (63°25'N., 10°48'E.) (World Port Index No. 23080) stands at the head of a small bay of the same name, which is entered SE of Rota Light. There are two quays at the head of the bay up to 165m long, with depths from 5.2 to 11m alongside. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The pilot boards in position 63°39.0'N, 9°14.9'E. The port monitors VHF channels 9 and 16.

Anchorage may be taken, in 25 to 35m, sand, on the W side of Hommelvik, near its head.

6.70 Muruvik (63°26'N., 10°51'E.) (World Port Index No. 23075), 2 miles NE of Hommelvik, lies at the head of a small bay between two drying coves. There are two berths. The export quay has depths of 5 to 6.5m alongside; the import quay has depths of 7.5 to 9.5m alongside. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The pilot boards in position 63°39.0'N, 9°14.9'E. The port monitors VHF channel 9.

There is anchorage near the entrance to the bay, in 22 to 30m, clay. A submarine cable lies across the bay's entrance.

In a cove close E of Muruvik, an oil transit installation has a quay 80m long, with a depth of 11.5m alongside. Vessels berth either side.

The town of Stjordalshalsen, lies 2.5 miles NE of Muruvik, at the head of Stjordalsfjorden.

Asenfjorden is entered between **Vaberget** (63°31'N., 10°46'E.) and Slaegga, 3 miles WNW. From its entrance on the NE side of Strindfjorden, Asenfjorden trends about 8 miles ENE.

Steinviksholm, close offshore 2 miles NE of Vaberget, is the site of the ruins of a monastery. Anchorage for medium-size vessels may be taken, in 20 to 30m, clay, close E of Steinviksholm.

Storgrunnen, an 11m patch, lies 0.8 mile NNE of Steinviksholm. Storholmen and Smaskjera, which are partly awash, lie 0.5 to 1 mile farther NNE.

Skarvholmane and Furuholmen, with foul ground close NE, lie in the entrance to the E arm of Asenfjorden, from 1.25 to 1.75 miles ENE of Steinviksholm.

Saltoya (63°33'N., 10°54'E.) lies in the S central part of the E arm, 0.35 mile SSE of Furuholmen. A light stands on its W end. The white sector of the light on Saltoya leads clear of dangers into the E arm of Asenfjorden.

Langstein (63°33'N., 10°54'E.) is situated in a cove on the S shore, 73m SE of Saltoya. A quay, 36m long, with depths of 6 to 7.2m, is situated at the W entrance point of the cove.

Korsnesodden Light (63°35'N., 10°50'E.) is situated on the N side of Asenfjorden, 5.25 miles NE of Slaegga. The white sector of the light leads into the fjord, clear of the entrance points.

Lofjorden is entered between a point 1.5 miles ENE of Korsnesodden Light and a point 0.3 mile NE. Vessels can anchor anywhere in the fjord, clay, clear of the submarine cables.

6.71 Ambornes Light (63°34'N., 10°26'E.) is situated on the W side of Trondheimsfjorden, 4.5 miles W of the S extremity of Tautra. From Ambornes Light, the NW coast of Trondheimsfjorden trends 18 miles NE to the S entrance of Norviksundet. This coast is free of off-lying dangers.

On the SE side of Trondheimsfjorden, foul ground extends 0.4 mile SSW from Tautra, with a depth of 1.5m charted near the edge of the foul area. An 18m depth is charted 0.7 mile WSW of the SW end of Tautra.

Tautra Light (63°35'N., 10°37'E.) stands on the NW side of Tautra. A 1m patch lies 0.3 mile NE of the light; patches with depths of 12.8m, lie 0.35 mile W and 0.75 mile SW, from the light. The E side of Tautra is joined to the mainland by a causeway.

Fanes Light, situated on the SE side of Trondheimsfjorden, stands on a point about 6 miles NE of Tautra Light. Vessels can find anchorage SE of the light, in 20m.

Flagrunnen, with depths of 6.5 to 7m, lies 0.5 mile NE of Fanes Light. Nordrunnane, a group of shoal patches, lies up to 1.5 miles offshore, 2.25 miles NE of the light.

Vesterholmen (63°43'N., 11°00'E.), a promontory, lies about 8 miles NE of Fanes Light.

6.72 Head of Trondheimsfjorden.—At its head, Trondheimsfjorden opens into a basin; and Ytteroy, an island, lies in this basin. Skarnsundet leads from the NW side of the basin into Beitstadfjorden.

Sandsora Light (63°45'N., 11°03'E.) is situated on the SE extremity of Ytteroy, 2.25 miles NNE of Vesterholmen.

The dangers off the SE side of Ytteroy lie W of a line drawn from Sandsora Light, to a point on the island, 5 miles NE.

Hokstad, on the NE side of a bay 4.75 miles NE of Sandsora Light, has a quay, 17m long, with depths of 4.4 to 7.8m alongside.

Hestoyflua (63°43'N., 11°04'E.), marked by a light, lies about 2 miles SSE of Sandsora Light. South of this danger are patches with depths of 8 and 8.5m.

Hestoya, an island, lies 1.5 miles ENE of Hestoyflua. Submarine cables extend from the island in a SSE direction to a point of land. A 9.5m patch and a 1m patch lie 0.4 mile SSW and 0.8 mile SSE, respectively, from the S extremity of Hestoya.

Fiborgtangen (63°43'N., 11°09'E.), situated 1 mile SSE of Hestoya, is a peninsula consisting of a former, island and reclaimed land. The N face is 141m long with 10.4m alongside, while the E face is 216m long, with 6.4m alongside.

Levangerbukta is entered between Langneset, a point 4.25 miles ENE of Hestoya, and Borgsoen 1.25 miles farther ENE.

Levanger (63°45'N., 11°18'E.) (World Port Index No. 23060) is an ice-free harbor situated at the head of Levangerbukta. Pilotage is compulsory for vessels over 100 gt. Pilotage should be ordered through SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The pilot boards in position 63°39.0'N, 9°14.9'E. The port monitors VHF channels 12, 14, and 16.

The controlling depth is 4.2m. The berths are 16 to 81m long and have depths of 3 to 6m alongside.

Vessels arriving without a reserved berth are required to anchor in Levangerbukta, in depths of 8 to 24m. A submarine cable extends about 0.3 mile NNE into the W part of the bay, from a position on shore close S of Langneset.

6.73 Verdal Havn (63°47'N., 11°27'E.) (World Port Index No. 23058) is built on reclaimed land situated 3 miles ENE of Borgsoen. The basin is enclosed by breakwaters and is 212m by 272m, with a dredged depth of 10m.

The harbor can be approached in the white sector of the light situated on the outer end of the N breakwater.

Fjordgrunnskjeret (63°48'N., 11°19'E.), awash, lies 2 miles E of the E extremity of Ytteroy, in the middle of Trondheimsfjorden.

Fjordgrunntaren, a 0.3m patch, and Skallen a 0.7m patch, lie 0.25 mile NE and 0.6 mile ENE, respectively, from Fjordgrunnskjeret.

Norviksundet is entered from S between the SW extremity of Ytteroy and Rodberget, 1.25 miles W, and leads N between the island and the mainland. It is clear of dangers in the fairway.

Saltvikhamn Light (63°47'N., 11°00'E.) is situated on the W side of Norviksundet, 2 miles N of Rodberget. The white sector of this light leads E of Rodberget into the fairway. Pass E of the light and bring it astern bearing between 210° and 229° which will lead clear of the dangers and NNE to the S entrance of Skarnsundet.

6.74 Skarnsundet is entered from S between **Brasethammeren** (63°50'N., 11°04'E.), a point about 4 miles NNE of Saltvikhamn Light, and Vangsholmen, a point 0.8 mile E. It is formed between Inderoy on the E and the mainland on the W. The fairway leads 2.75 miles N to the S end of Beitstadfjorden.

A bridge, with a vertical clearance of 45m, crosses Skarnsundet.

Though narrow, Skarnsundet has a deep channel free of dangers; however, some ice usually appears at the beginning of the year, but it seldom obstructs the fairway.

The tidal currents in Skarnsundet are strong, reaching a maximum velocity at about half tide.

Vennesodden Light (63°53'N., 11°03'E.) stands on a low-lying point, on the W side of the N entrance to Skarnsundet.

A good anchorage is available in Venneshamn, a cove located close SW of Vennesodden Light, in 20 to 40m, sand.

Beitstadfjorden and Steinkjerfjorden together form a landlocked basin in which all known dangers lie within about 0.6 mile offshore. On the N side of the junction of the two fjords, Beistadsundet trends about 7 miles NNW.

Giplingoya (63°54'N., 11°01'E.), a small island, lies on the SW side of Beitstadfjorden, 1.5 miles NW of Vennesodden Light. A 5m patch lies about 0.3 mile SE of the island.

A good anchorage is available between Giplingoya and the shore, in depths of 12 to 20m, sand and shingle.

Verrasundet is entered from the W extremity of Beitstadfjorden, about 2 miles NW of Giplingoya. Foul ground, with a charted depth of 5m at its outer end, extends 0.4 mile N from the E entrance point of Verrasundet.

Verrasundet extends about 11 miles WSW from its entrance and is narrow about 8 miles within its entrance. A submarine cable is laid close within its entrance. An overhead cable, with a vertical clearance of 45m, crosses the channel 2.25 miles within the entrance; another overhead cable, with a vertical clearance of 47m, crosses at the narrows.

6.75 Hooya (63°54'N., 11°05'E.), on the E side of the entrance to Beitstadfjorden, lies 1.25 miles NE of Vennesodden Light. A 7.3m patch lies close N of the island, with a 15m patch lying 0.5 miles farther N.

A 2m patch lies at the end of a shoal spit extending NNE from a point lying 1.5 miles NE of Hooya.

Kirknestangen Light (63°55'N., 11°12'E.) stands on a point 3 miles NE of Hooya.

Kirknesvagen, a cove on the E side of the light, affords good anchorage, in depths of 12 to 30m, sand and clay.

Stornesora Light (63°59'N., 11°18'E.) stands on a point at the NE end of Beitstadfjorden, about 4 miles NNE of Kirknestangen Light.

Follafoss (63°59'N., 11°07'E.), situated on the NW side of Beitstadfjorden, about 5 miles NNW of Kirknestangen Light, stands on the W bank of the Folla River.

A wood pulp factory situated close SW of the river mouth has an export quay, 116m long, with depths of 8 to 9.8m alongside.

Beistadsundet is entered on the N side of the junction of Beitstadfjorden and Steinkjerfjorden. The sound is narrow but free from dangers in the fairway.

Tidal currents in Beitstadsundet can be strong, and are strongest at half tide.

Beitstadsundet is entered between **Rambergholmen** (64°02'N., 11°14'E.) and a point 0.25 mile E.

A submarine cable is laid across the entrance and an overhead cable, with a vertical clearance of 45m, spans the sound close N of Rambergholmen.

The white sector of the light on Rambergholmen, bearing astern, leads N to the anchorage off Malm, 2.5 miles distant N.

Malm (64°04'N., 11°14'E.) (World Port Index No. 23053) is situated on the W side of Beitstadsundet and is the administrative center for the district.

There is a jetty at Malm, with a berth at its head, 11m long, with depths of 10 to 11.5m, and a berth on each side, 38m long, with depths of 3 to 10m. It is reported that vessels up to 35,000 dwt can be berthed at the jetty.

Pilotage is not compulsory for merchant vessels, but pilotage and berthing are usually undertaken by the sea pilot.

Vessels can anchor off Malm, in 23m, clay, about 0.2 mile E of the church.

A 2m patch lies about 183m off the S shore opposite the jetty.

Beitstadsundet continues about 5 miles ENE from Malm.

6.76 Steinkjerfjorden extends 6 miles E from Beitstadfjorden from its entrance between Stornesora Light and the E entrance to Beitstadsundet, 3 miles NNW.

Ytre Logrunnen (64°01'N., 11°24'E.), a 2.5m patch, lies 0.5 mile off the N shore, 3.5 miles NE of Stornesora Light. A 5m patch lies 0.5 mile farther E.

Eggebogtangen Light stands on the S part of a peninsula in the E part of Steinkjerfjorden, 5.5 miles ENE of Stornesora Light. Rodskjeret, above-water and marked by a beacon, lies 0.5 mile S of Eggebogtangen Light.

In the approach to Steinkjer, at the head of the fjord, the white sector of Eggebogtangen Light, ahead, leads between the dangers off either shore.

Steinkjer may be approached by passing either N or S of Rodskjeret, however, the N side is preferred. Rodskjeret should be given a wide berth.

6.77 **Steinkjer** (64°01'N., 11°30'E.) (World Port Index No. 23055) lies at the head of Steinkjerfjorden; the harbor is bound on the W by a N-S line approximately 2 miles W of Eggebogtangen Light and on the E by the highway and railroad bridges over the rivers.

A noticeable current flows among the quays. There are six quays, with alongside depths of 3.3 to 9.5m.

The harbor is frozen up from January to March in some years.

The depth in the approach to Steinkjer is 9.1m. The quays are up to 452m in length, with depths of up to 8.2m alongside.

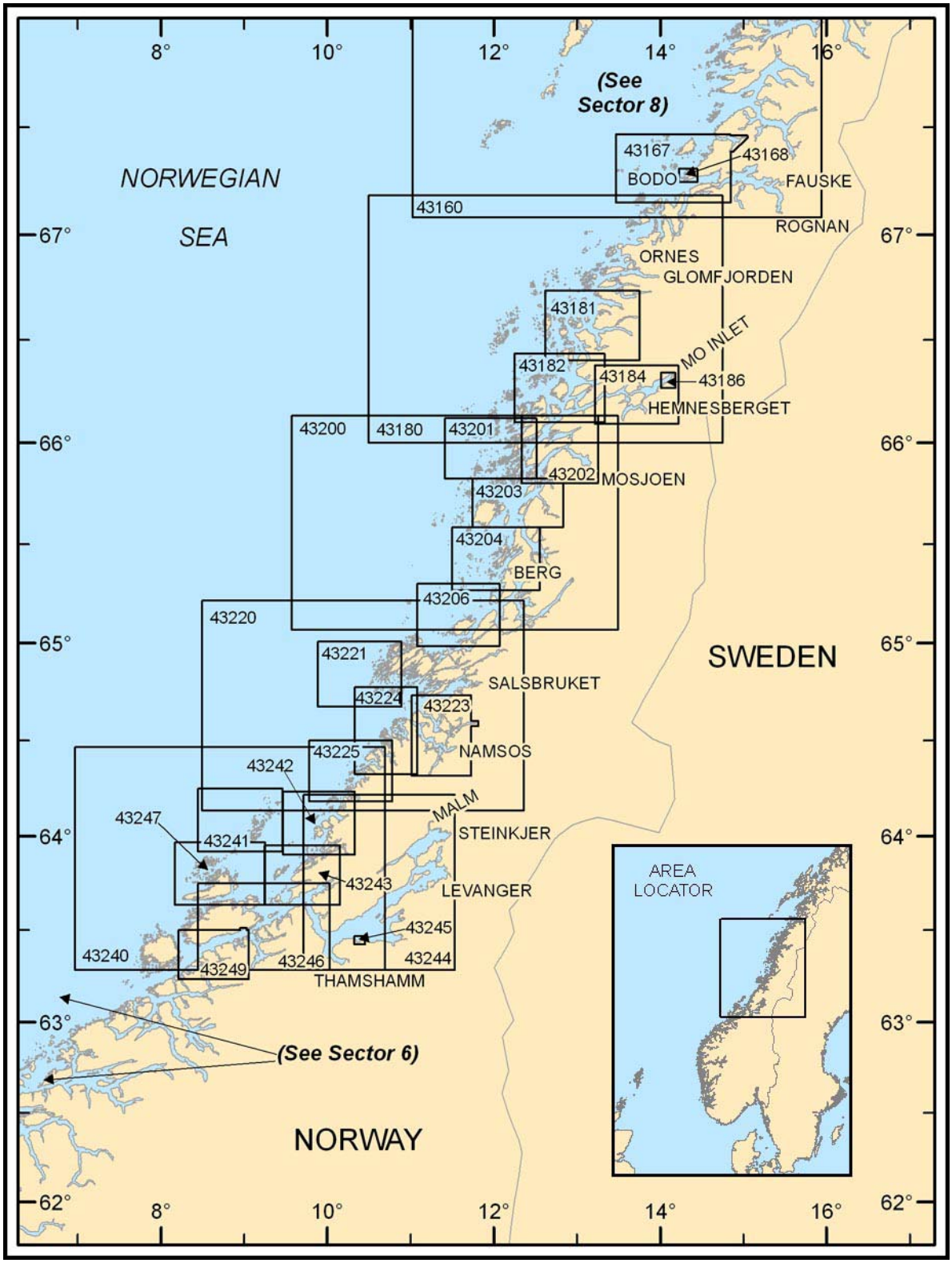
There is a private wharf, 100m long, with alongside depths of 9.1m. The port will accommodate a vessel with a mean draft of 7.6m.

Harbor pilotage is not compulsory for merchant vessels, but harbor pilots are available if required. Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The pilot boards in position 63°39.0'N, 9°14.9'E. The port monitors VHF channels 12, 14 and 16.

The port can be contacted, as follows:

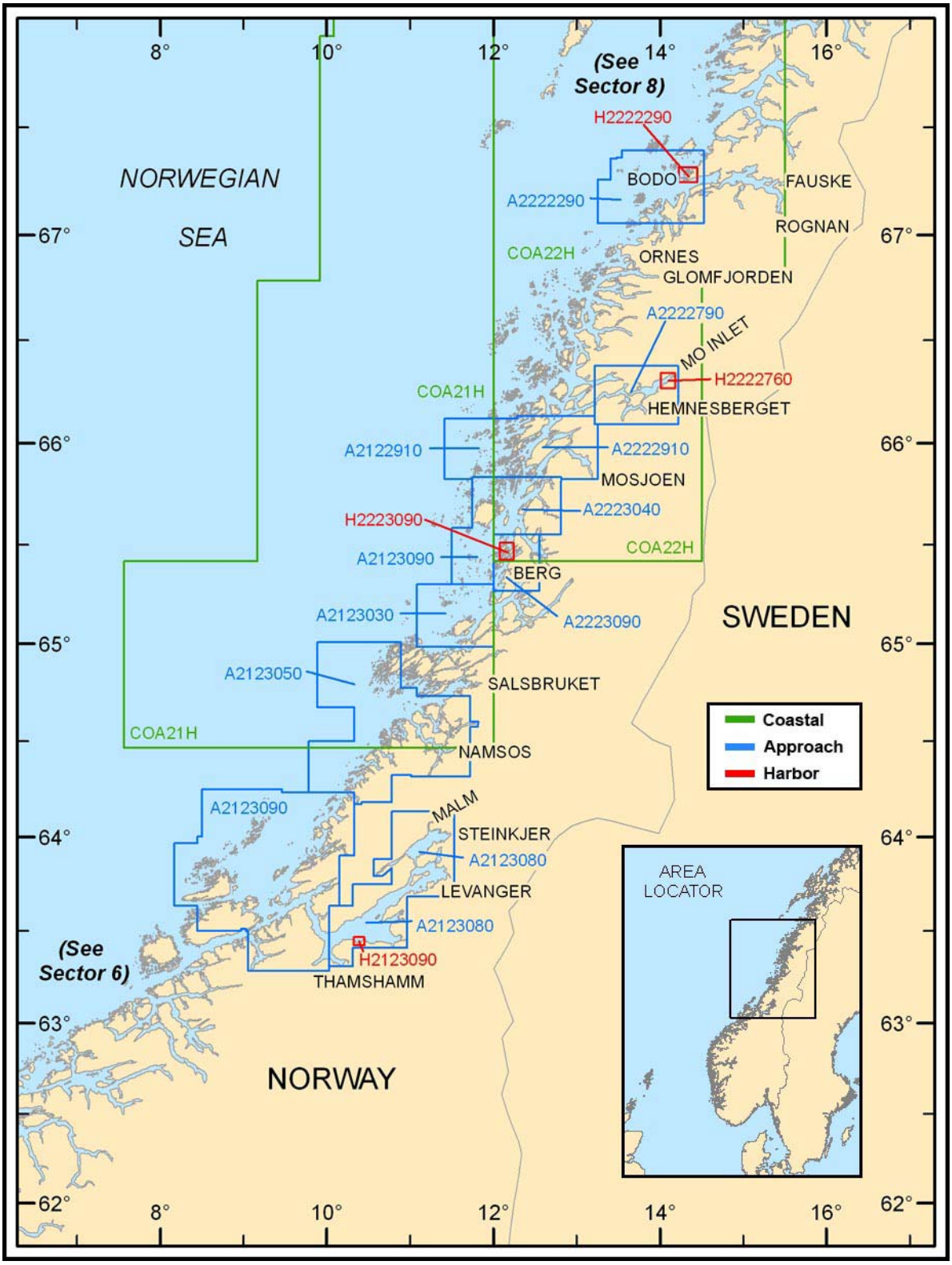
1. VHF: VHF channels 12, 14, and 16
2. Telephone: 47-74-161825
3. Facsimile: 47-74-164606

Vessels can anchor, in 25 to 30m, clay, on a line joining Eggebogtangen Light and the beacon on Rodskjeret. The anchorage is unsafe in bad weather from SW to NW.



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

SECTOR **7** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNCs 21 and 22 (Limited Distribution) disc within the README\ ICS folder.

SECTOR 7 — DNC LIBRARY INFORMATION

SECTOR 7

NORWAY—TRONDHEIM TO BODO

Plan.—This sector describes the outer coast from Trondheim to the approaches to Bodo and Saltenfjorden.

General Remarks

7.1 Winds—Weather.—Weather reports and forecasts are broadcast regularly from shore stations. Warnings of hazardous conditions are also issued when appropriate.

This is an area of frequent changes in barometric pressure which result in frequent change in the direction of the wind. There are frequent depressions in this area.

Fairly large and rapid changes of pressure occur in this area. A change of 24 millibars in 24 hours is relatively common, and a larger 24 hour change is not rare. Also, the actual pressure on a particular day may differ from the average, and on occasions by perhaps 50 millibars.

Since most depressions approach from the Atlantic, and cross N of the area, the most common sequence is that of backing and increasing, followed by veering and decreasing as a depression moves away. The sequence can vary if a depression moves further S over the area or if a polar low move S in a strong N air current in winter.

Because of the rugged topography in this area, strong winds may blow from different directions at places relatively close to each other.

Strong winds outside a fjord may give way to calm weather within, gales may be generated in the fjord or strait through funneling of wind on occasions when winds are light outside. Accordingly, any generalizations made about winds around these coasts must be regarded as subject to large local variations.

In the area of this sector, the average number of days per month with gales force winds of force 8 or above, for the months of November, December, January, and February is 9.8. The average number of days per month with gales force winds of force 8 or above, for the months of May, June, July, and August is 1.1.

Fog forms more often over the coast than over the open sea. Coastal fog is more frequent in summer than in winter, and early in the morning than later in the day. Frequency in the summer is more than 5 per cent about 2 days a month and from 2 to 5 per cent in winter, between 1 and 2 days monthly.

The conditions which favor fog at sea and over exposed coast do not usually favor fog formations inland or in the sheltered inner parts of the fjords. As a result, when there is a widespread fog at sea the inner reaches of landlocked fjords are usually clear and when fog affects the inner reaches there is usually clear weather in the offing.

Tides—Currents.—During fine weather, the flood current sets to the NE and the ebb to the SW. In general the NE current, increased by the prevailing ocean current, is the stronger, especially at a distance of 20 to 30 miles offshore.

In periods of stormy weather the current runs strongly and constantly to the NE when the wind is S or W, and with N or E gales the set is constantly SW, but with less velocity.

Within the fringing islands, the flood current always sets to the NE and the ebb to the SW; here the NE current is also the stronger.

Aspect.—From Halten, a generally steep coast trends about 50 miles NE to Vikna, 3 conspicuous islands close N of the seaward approach to the port of Namsos.

This stretch of coast is fringed with rocky islands, but there are comparatively few off-lying dangers. It is heavily indented by small fjords and inlets which penetrate in all directions, and is remarkably barren except from some cultivation and forests at the heads of the fjords.

This part of the coast can be approached with greater safety than that farther N, but is fully exposed to the SW gales.

From **Nordoerne Light** (64°48'N., 10°33'E.) on the W side of Vikna, the coast trends about 80 miles NNE to Ytreholmen Light. Along this coast off-lying islands and reefs extend, generally, to a distance of 25 to 30 miles from the mainland.

Along this part of the coast the outer rocks and islets are almost without exception, low and without distinctive features, so a vessels position can be determined by bearings of distant objects. The mountains on the larger islands and the mainland possess such striking characteristics and attain such elevations that in fairly clear weather they may be identified at 40 to 65 miles distant. These conspicuous landmarks may be selected to fix the vessel's position before the off-lying dangers are approached.

The sea breaks over the outer shoals more readily with W and NW winds, partly because the winds raise the heaviest sea, and partly because the reefs are generally steep-to on their W and NW sides.

Along the coast extending about 100 mile NNE from **Ytreholmen Light** (66°01'N., 11°42'E.) to Bodo, the aspect is bleak and precipitous. There is, however, some low land at the seaward ends of the promontories which separate the fjords.

The off-lying islets and reefs extend from 25 to 30 miles seaward as far N as Traena, a group of islands about 35 miles N of Ytreholmen Light. It has been reported (2008) that an obstruction lies 95 miles W of Ytterholmen Light near Traena Bank.

North of this group, there is a gradual decrease in the offshore distance of the outer dangers until W of Kunna, a headland some 40 miles NE of Traena, where the distance is about 10 or 11 miles from the mainland.

North of Kunna, the offshore distance again increases; W of Bodo the dangers lie about 20 miles offshore.

The principal fjords within this sector are Bindalsfjorden, Velfjorden, Vefsnfjorden, Ranafjorden, Sjonafjorden, Melfjorden, Tjongsfjorden, Skarsfjorden, Sorfjorden, Nordfjorden, Saltfjorden, and Skjerstadfjorden.

In general, the channels leading from seaward to Indreleia are longer and more difficult to navigate than those to the S. In the N part of the sector, the entrances are difficult to make out and a vessel's position must be determined by the peaks on the larger islands and on the mainland.

For details and information concerning the color and bearings of the sector lights mentioned within this sector, see the Light List.

Pilotage.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Caution.—Three patches with depths of 16.8m, 19.8m, and 24m, lie, respectively, 5, 6.25 and 7.5 miles, NNE of Kya (64°28'N., 10°13'E.). A restricted area, with a radius of 500m centered on position 64°58'13.8"N, 07°37'13.2"E is located about 23 miles S of the Heidrun platform and 88 miles W of Sklinna Light.

Heidrun (65°19.5'N., 7°19.1'E.), a platform equipped with a racon, lies 92 miles W of **Sklinna Light** (65°12'N., 11°00'E.). Awell lies 5 miles NNE. Gas is delivered to Trondheimsleia (63°30'N., 9°00'E.) via a 130-mile long pipeline.

Statoil Marin VTS conducts radar surveillance from the Heidrun platform and can be contacted on VHF channel 9. Vessels are requested to pass all installations at a distance of at least 3 miles.

Numerous structures, both above-water and submerged, sometimes marked by buoys, as well as moored storage tankers, all associated with oil and gas activity, are located off this section of the coast.

Trondheim to Buholmrasa

7.2 The portion of Indreleia leading N from Trondheim and **Grandevika** (63°41'N., 9°29'E.) to Buholmrasa requires exact knowledge to avoid the shoals close to the fairway, which in some places is reduced to a width of only 46m; because of this, only an outline of the routes is given.

Between **Valsoya** (63°52'N., 9°44'E.), an island, and Stokkoya, an island about 13 miles NNE, the fairway is quite narrow in places, but from abreast the S end of Valsoya large vessels can take an outer, and broader, channel known as Asenleia, which rejoins Indreleia in the fairway N of Stokkoya.

The inner channel passes W and N of Valsoya, through the narrow channel between Skjoroya and Lysoya, then E of Leikua, 1.5 miles N of Lysoya, and W of Lauvoy.

Linesfjorden, entered NW of Lauvoy, may be navigated by large vessels, and Stokksundet, between Stokkoya and the mainland, may be used by vessels of about 6.1m draft; however, there is a sharp turn E of Stokkoya.

Stokken, which separates the NE side of Stokkoya from the mainland, is deep and free from dangers in the fairway; it leads 2.5 miles NW from Stokksundet to the junction with Asenleia.

Asenleia lies between Hosenoyan, on the W, and Linesoya, Stokkoya, and the mainland, on the E. Indreleia, N of the junction of Stokken and Asenleia, is deeper and wider than farther S.

7.3 **Marflessa Light** (64°10'N., 10°08'E.), situated on an islet about 5 miles NE of the junction of Stokksundet and Asenleia, may be passed on either side. Kjeoya lies on the W side of the fairway, 2 miles NNE of Marflesa Light, and is passed on its E side. A light is situated on the SE extremity of Kjeoya. Northeast of Kjeoya, the track passes W of **Terningen Light** (64°13'N., 10°15'E.) and then farther N toward Borova.

Kaurleia leads into this part of Indreleia from seaward, passing N of **Kaura** (64°14'N., 10°08'E.); this entrance is difficult and local knowledge is necessary.

Boroya (64°16'N., 10°17'E.) lies with its S extremity about 1.75 miles NE of Terningen Light. Indreleia leads between Boroya and the mainland, and then proceeds N passing E of the Skjervoyan group. From the Skjervoyan group, the track leads E of Ramsoya and then E of the Rodoya group, farther N.

7.4 **Saksa Light** (64°24'N., 10°26'E.) lies on the W side of Indreleia, at the S entrance to Buholmrasa; a lighted buoy is situated about 250m E of Saksa Light; a patch with a charted depth of 7.9m lies in the fairway 90m NW of this light. Lights in range, situated on the W side of Sondre Rodoya, lead through the S entrance to Bulholmrasa.

Bulholmrasa can be navigated by large vessels, but the channel is narrow and is considered to be one of the most difficult to transit, in bad weather, on the Norwegian coast.

Buholmrasa Light (64°24'N., 10°27'E.) is shown from a tower, 23m in height, standing about 1 mile E of Saksa Light. A racon is located at the light.

Langro Light (64°29'N., 10°30'E.) is shown from a tower standing about 5 miles NNE of Buholmrasa Light and 7.5 miles ENE of Kya. The tower is equipped with a racon and is located on the SE side of Grunnane, a group of dangerous rocks and islets.

Grandevika to Folla

7.5 Between Grandevika and Folla, about 65 miles N, numerous small fjords lie E of Indreleia. In general, the fjords have no significant ports.

Bjugnfjorden, the fjord next N of Grandevika, leads E from Indreleia and extends about 7 miles from **Bjugnskjaer Light** (63°46'N., 9°33'E.), its N entrance point.

An islet fringed on its S side by foul ground, lies 2.75 miles E of the light.

Bjugnfjorden may be entered from the SE part of Frohavet.

Tarvfjorden (63°46'N., 9°25'E.) separates Tarva from the mainland, and lies in a NE and SW direction. It is entered between Gyltingtarren, off the S extremity of Tarva, and Bjugnskjaer Light, 5 miles E.

Torskjaer Light (63°46'N., 9°28'E.), is situated in the S part of Tarvfjorden, 2.5 miles W of Bjugnskjaer Light. The fjord is divided by foul ground running in a SSW-NNE direction.

The W part of the fjord, between the foul ground and Tarva, should not be entered without local knowledge. Indreleia leads through the E part of the fjord, between the foul ground and the mainland.

Kjeungskjer Light (63°43.6'N., 9°32.2'E.) stands on 20m high red stone tower on Kjeungskeret, that lies on the W side of Indreleia fairway at the N entrance of Grandevika.

Valsfjorden extends 2.5 miles NE from its entrance between **Valsholmskjaer Light** (63°49'N., 9°36'E.) and the foul ground

Buholmrasa Light

about 0.5 mile S. It is reported that a racon is located at Valsholmskjaer Light.

The fjord is free from dangers in the fairway. Lauvoyfjorden, about 10 miles NE of Valsholmskjaer Light, on the SE side of Indreleia, leads into Afjorden E and Skrafjorden NE. Vessels with local knowledge can enter the fjord from Indreleia when NE of **Skjelholmen** (63°54'N., 9°51'E.). Afjorden extends 8 miles in a general NE direction from its junction with Lauvoyfjorden. It has depths of 80m but there are isolated shoal patches in the fjord.

Skrafjorden, entered from Lauvoyfjorden, extends about 5 miles NE from abreast the S end of **Lauvoy** (63°56'N., 9°56'E.). It is foul and should only be entered by small vessels with local knowledge.

7.6 Linesfjorden is formed between the dangers SSW of **Linesoya** (64°01'N., 9°54'E.), and Linesoya on the NW and the mainland on the E. Indreleia passes through this fjord from SSW to NNE. The track passes over a charted depth of 7.9m in the S part of Linesfjorden.

Skjorafjorden (64°06'N., 10°10'E.), about 6 miles NE of Linesfjorden, is entered from Indreleia, and is deep and free of dangers in the fairway, with the exception of a 3m shoal lying about 2 miles within the entrance. A 10m patch lies 0.35 mile SE of the shoal.

The fjord extends about 2 miles SE and then continues about 2.5 miles NE.

Anchorage is available, in depths of 20 to 23m, sand and clay, in a cove extending SSW from the S extremity of Skjorafjorden. Foul ground lies in the vicinity of the anchorage.

Brandsfjorden, situated 3 miles E of **Kaura** (64°14'N., 10°08'E.), is entered N of Terningen. The fjord extends 5 miles SE and S and is deep and free from dangers.

Kaurleia leads from seaward in a SSE direction toward Kaura and joins Indreleia ESE of that islet.

Svefjorden (64°23'N., 10°30'E.) is entered from Indreleia close S of the S entrance to Buholmrasa. It extends 5 miles ESE and is deep and fairly clear of dangers. There is little traffic in the fjord.

Folla—Namsfjorden

7.7 Folla is the body of water extending between the S rocks of Vikna and the mainland S; it is entered between **Buholmen** (64°25'N., 10°26'E.) and Nylandskjeret, marked by a light, 12 miles N.

Folla gives access at its E end to Namsfjorden and the port of Namsos, to Foldfjorden, and to Naeroysundet and the port of Rorvik.

The passage outside Folla has particularly severe weather; the seas go straight towards the coast when the winds are from the WNW.

The passage is very deep immediately outside the coastline and reflections against the steep continental shelf may be one of the reasons for the turbulent seas. In combination with outgoing current, this may possibly be one of the reasons that the seas are particularly heavy W of the shoals.

The open sea passage across Folla, from Bulholmrasa to Naeroysundet, forms part of Indreleia.

Kya (64°28'N., 10°13'E.), an isolated islet marked by a light,

Kjeungskjer Light

is an excellent mark in the approach to Folla.

Some of the mountains are visible from the vicinity of Kya for a distance of 45 miles SSW and as far as 60 miles NE.

Halsfjell (64°19'N., 10°'37'E.), 13.5 miles SE of Kya and 504m high, is seen as a prominent mountain with a deep cleft, and a large round hummock S of the cleft. Helvikkeipen, 3.5 miles NNW of Halsfjell, is 347m high, it is identifiable by its prominent location on a peninsula, with a fjord on either side.

Oksbasheia (64°25'N., 10°31'E.), 8.5 miles ESE of Kya and 228m high, is prominently situated on a peninsula. Nesvagklubben, consisting of two hummocks about 103m high, rises in the SW part of the same peninsula.

The tidal current seaward of Namsfjorden sets W with the falling tide and E with the rising tide. The direction, however, is greatly affected by the wind and at times the velocity is fairly strong.

The islet of Kya lies in the S approach to Namsfjorden. On the N side of the fairway, about 15 miles NNE of Kya, is **Nylandskjeret** (64°41'N., 10°33'E.), which consists of several rocks.

Hilleroen (64°46'N., 10°25'E.), covered by 2.7m, always breaks. It is the farthest W of the shoal patches off Vikna and lies 5 miles NW of Nylandskjeret.

Klakken, a 16.7m patch, lies about 2 miles W of Nylandskjeret.

7.8 **Sveskallen** (64°33'N., 10°15'E.), with a least charted depth of 16.8m, lies 5 miles N of Kya Light. Ostvikklakken, a 19.8m patch, lies 1.75 miles ENE of Sveskallen; Skillengen, a 24m patch lies 1.25 miles farther NE. These three patches break and the area should be avoided.

Kya, situated about 5 miles seaward of the dangers to the S, affords a good landmark when approaching Folla from the SW. From abreast this islet course, should be shaped to pass about 2 miles NW of the islets and dangers lying off the mainland in the approach to Namsfjorden.

When approaching Folla from N, a wide berth should be given to the dangers lying off the W side of Vikna; course should be shaped to pass S of **Klakken** (64°40'N., 10°27'E.).

After clearing Klakken, course should be adjusted to pass 1 mile NW of **Bjoroyvaer** (64°36'N., 10°48'E.), lying 18 miles NE of Kya. Continue NE and pass S of Sorhunden, a small islet 3.75 miles NNE of Bjoroyvaer, then steer SE and enter Namsfjorden, W of Otteroya.

7.9 On the S side of Folla is a large indentation in the mainland, in which are the islands of Otteroya, Joa, and Elva.

The fjords which separate these islands have distinctive names. They are collectively known as Namsfjorden, but the fjord which leads W of Otteroya to Namsos is the one to which the name is specifically assigned.

Namsfjorden is entered between **Knapholmene** (64°36'N., 11°02'E.), an islet off the W end of Otteroya, and the mainland 1 mile W.

The fjord, which is deep throughout, with an average width

of 1 mile, leads 18 miles SE to the port of Namsos.

Tides—Currents.—From the entrance of Namsfjorden to Finsneset, 3.5 miles SE, the tidal currents can be quite strong.

Pilotage.—The services of a State Pilot in the Namsos area can be arranged through the harbor authority at Trondheim.

7.10 Mefaldtaren (64°37'N., 11°00'E.), a 14.9m patch, lies about 1 mile NNW of the light on Knapholmene; Svarttaren, a 2.4m patch, lies 2.5 miles WNW. Foul ground extends 0.25 mile from the mainland, 0.8 mile WSW from the light.

Finsneset, marked by a light, is located on the W side of Namsfjorden, 3 miles SSW of Knapholmene; it rises to a height of 151m, 0.25 mile inland.

Anchorage is available, in 23 to 32m, sand, off Lovika on the W side of Namsfjorden, 1 mile SSW of Finsneset.

During bad weather from SW of Folla, large vessels seeking shelter anchor SE of **Krokvik** (64°31'N., 11°04'E.), in the SW part of Leirfjorden, 3 miles SSW of Finsneset, in depths of 40 to 44m, clay.

7.11 Hoddoya (64°28'N., 11°14'E.), an island which rises to a height of 208m on its W side, is located on the W side of Namsfjorden, about 9 miles within its entrance. Hoddoygrunnen, a 1.5m patch, lies 0.25 mile off the N side of Hoddoya.

Shoal water extends about 0.1 mile off the NE extremity of Hoddoya. Namsfjorden is about 0.7 mile wide in this area.

Bromsneset Light stands on a point in Otteroya, E of Hoddoya. A series of islands lies on the S side of the fairway from 1 to 2.75 miles ESE of the light.

Ansneset (64°28'N., 11°24'E.), the S point of Otteroya, has a drying spit extending about 0.2 mile S from it. A rocky shoal, covered by less than 1.8m, lies on the S side of the fairway, 1 mile S of the point.

Maerranes, a promontory on the mainland, lies 1.5 miles SE of Ansneset. Namsos is situated 1.25 miles NE of Maerranes.

Vessels in transit to Namsfjorden steer a mid-channel course until abreast of Hoddoya. Shape a course to pass N of Hoddoygrunnen, then between Hoddoya and Otteroya.

The white sector of Bromsneset Light bearing between 286° and 293°, astern, leads clear of the dangers until SW of Ansneset, when a course should be shaped to pass S of Maerranes, then NE to Namsos.

Namsos

Namsos (64°28'N., 11°30'E.)

World Port Index No. 23050

7.12 The coastal port of Namsos is situated on the N side of mouth of Namsen. The S part is called the Spillum harbor, with berths on reclaimed land.

Ice.—The harbor is well sheltered and cargo operations are seldom interfered with. Navigation is seldom impeded by ice except during exceptionally severe winters, when entrances may be blocked; the port is kept open by icebreakers.

Port of Namsos

http://www.namsos.kommune.no

Tides—Currents.—The spring range of tide is 2.7m.

Strong tidal currents may be experienced in Namsos. The flow is affected by the outflow from Namsenelva, the shallow water area E of Namsos, and can cause difficulty in berthing.

Depths—Limitations.—The quays of Namsos are situated around a small bay. The older part of the town, including the railway station and the church, occupies the E side.

Berthing details are shown in the accompanying table titled **Namsos—Berthing Information**.

Namsos—Berthing Information

Berth Name	Length	Depth Alongside
Private		
Nexans Norway AS	120m	3.0-4.0m
Moelven Van Severn	120m	5.0m
Municipal		
Lokalrutekaien	60m	4.5m
Ekspedisjonskaien	150m	7.5m
Sandkaia	65m	5.0m
Jernbanekaien (Inner)	45m	3.2-5.2m
Jernbanekaien (Outer)	45m	5.2-7.3m
Kiskai	55m	6.0m
Spillum North	65m	10.0m
Spillum South	45m	10.0m
Tanker Berth		
Shell Namsen Depot	60m	16.5m

The tanker berth is capable of accommodating vessels up to 100,000 dwt, with a maximum length of 250m in and a maximum draft of 15.5m at LW.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. Pilots board 1 mile NNW of Grip Light, but if heavy swell is present, vessels may be directed into smooth water by the pilot boat. Contact the pilot office by VHF at Kristiansund.

Regulations.—A speed limit of 5 knots is in force. This speed limit applies to all vessels except those engaged in operations for the Norwegian armed forces or craft engaged in emergency police, custom, fire fighting, ambulance, or search and rescue missions along the Namsos coastal region.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-74-272400
3. Facsimile: 47-74-272550
4. E-mail: havnekontoret@namsos.kommune.no

Anchorage.—There is a good, spacious anchorage available in the harbor, in depths of 50 to 60m. Anchorage is available closer in, in depths of 18 to 42m.

7.13 Lygnenfjorden is entered from Namsfjorden and extends about 9 miles SSE from its entrance between Skjerpoya on the W and Kvarvodden, 1.5 miles E.

Bangsund Light (64°25'N., 11°21'E.) is situated on an islet on the E side of the fjord 1.5 miles S of Skjerpoya.

On each side of the entrance to the fjord are several dangers, whose positions may be seen on the chart. The white sectors of Bangsund Light lead clear of the dangers lying 0.25 mile E of Skjerpoya.

Anchorage, in 10 to 19m, mud, with mooring rings, is available off Bangsund, 1 mile SE of the light.

Lokkaren, Surviksundet, Lauvoyfjorden, and Rodsunda

7.14 Lokkaren, Surviksundet, Lauvoyfjorden, and Rodsunda lead N from Namsfjorden, along the E and NE sides of Otteroya, to join Folla N of Otteroya.

Lokkaren (64°30'N., 11°26'E.) is entered E of Ansneset and extends 3.5 miles N, along the E side of Otteroya, to its junction with Surviksundet, in the vicinity of Levra.

A bridge, with a vertical clearance of 30m, spans the fairway 2 miles within the entrance. A depth of 4.9m is charted close S of the bridge. Lokkaren may be entered within the white sectors of the light situated on the W side of the fairway 0.75 mile NNE of its S entrance. Another white sector of this light, astern, leads farther NNE.

Levra Light (64°32'N., 11°28'E.) changing from red to green leads W of the 4.9m patch S of the bridge.

Surviksundet (64°33'N., 11°24'E.), a narrow sound lying between Otteroya on the SW and Elva and Hooya on the NE, connects Lokkaren with Lauvoyfjorden. The sound is spanned by several overhead cables, the lowest having a vertical clearance of 30m.

An 8.8m patch lies in the NW entrance of Surviksundet; otherwise it is clear of dangers.

Levra Light, bearing 124° astern, changing from red to green, leads through the middle of the sound, to Kraka, foul ground extending 160m NE from Otteroya, 2.75 miles NW of the light. From Kraka, the white sector of the light situated on Lauvoy leads into Lauvoyfjorden; however, the 8.8m patch lies within this sector.

7.15 **Lauvoyfjorden** (64°35'N., 11°20'E.) lies between Otteroya and Joa on the W and Elva on the E; it is mostly clear of dangers and is well marked.

Lauvoytaren (64°33'N., 11°20'E.), a 3m patch, lies 0.5 mile SW of the SW point of Elva. Lauvoy, a small islet, is located 0.3 mile W of the SW point of Elva. Foul ground extends 0.2 mile N from the islet; a 4m patch lies 0.6 mile N.

Lyngholmen (64°35'N., 11°24'E.) lies in the middle of the fjord, 0.8 mile N of Lauvoy; a drying patch lies 183m N.

Vessels which have entered Lauvoyfjorden from Surviksundet, pass W of Lauvoy, and steer with the white sector of that light, astern, which leads into the SW part of Rodsunda.

Anchorage may be taken off Fosslandsosen, in the SW part of Lauvoyfjorden, in 44m, clay.

Rodsunda (64°38'N., 11°10'E.) is formed between Otteroya, on the S and W, and by Joa on the E; it is about 6 miles from its junction with Lauvoyfjorden to its NW entrance. The fairway is mostly clear of dangers.

Holviktaren (64°36'N., 11°18'E.), a 1m patch marked by a light, lies 0.15 mile offshore, 0.6 mile NW of Holvikneset, the S extremity of Joa.

Stonga, drying, lies at the extremity of a spit extending 0.5 mile from Joa, at the NW entrance to Rodsunda.

Vessels which have entered Rodsunda from Lauvoyfjorden steer a mid-channel course and pass E of **Jervika Light** (64°38'N., 11°09'E.), close within the NW entrance point. The white sector of Jervika Light, astern, leads W of Gauvene into Folla.

7.16 **Gyltefjorden** (64°39'N., 11°22'E.) is entered between Skreddarneset, the NE point of Joa and Storhovedet, 2.5 miles NE, and leads 3.5 miles S to the entrance to Seirstadfjorden and Nordsunda. The fjord is deep and clear of dangers.

A mid-channel course will lead SSW to the entrance to Seirstadfjorden.

Anchorage may be taken, in 20 to 24m, clay, in Movika, close within the N entrance to Gyltefjorden, on the E side.

Seirstadfjorden (64°37'N., 11°22'E.) is entered W of Olhammeren, the N point of Elva, and leads 2.5 miles S into Lauvoyfjorden. An overhead cable, with a vertical clearance of 45m, spans the fjord in the vicinity of the light on Olhammeren.

Shoal water extends up to about 0.2 mile off the E side of Joa, which reduces the fairway to about 0.2 mile in places.

Nordsunda and Arbustraumen, which separate Elva from the mainland, lead SSE from Gyltefjorden and connect with the various fjords E of Elva.

Nordsund and Arbustraumen, especially the latter, are frequently difficult and even dangerous to navigate, due to the strong tidal currents and to the squalls which come off the high land E. These channels, which can be used only by small vessels, are not recommended in the absence of good local knowledge.

Foldfjorden

7.17 Follfjorden is entered at the inner end of Folla and extends 25 miles ENE towards the entrances to Opployfjorden, and Indre Foldjorden.

Flottra (64°40'N., 11°04'E.), an island marked by a light, is situated at the E end of Folla, just over 1 mile N of Otteroya.

Foul ground extends about 0.4 mile W and 0.3 mile N and E

from the island.

Stokkgrunnen (64°39'N., 11°00'E.), a dangerous drying reef, lies in the middle of the fairway, 2 miles SW of Flottra.

Smatarene, a patch with a depth of 11.9m, lies 0.5 mile NE of Flottra; isolated patches, with depths of 9.8m and 9.1m, lie, respectively, 0.3 and 0.75 mile, N of Flottra.

Tarnfallene, islets and rocks which usually break, lies on the S side of the approach to Foldfjorden, 2 miles E of Flottra.

Vessels approaching Foldfjorden from Folla can pass on either side of Stokkgrunnen and then SE of Flottra. Then shape a course to enter the white sector of **Abelvaer Light** (64°43'N., 11°10'E.), 4 miles NE of Flottra.

When N of Tarnfallene, shape an ENE course to pass about midway between **Mefallstaren** (64°46'N., 11°29'E.), awash, and Kvalholmen, 1.25 miles SE. When clear of Mefallstaren, steer E toward Opployfjorden.

Opployfjorden (64°48'N., 11°45'E.), the E continuation of Foldfjorden, is entered between **Digermulen** (64°47'N., 11°43'E.) and Galtnesodden, 0.75 mile NE and extends 3.5 miles E to Salsbruket.

Galtnesskjaer Light is situated on a rock which lies in the entrance to Opployfjorden.

Several overhead cables, with a vertical clearance of 30m, cross the entrance to the fjord approximately 0.3 miles E of Galtnesskjeret. Overhead cables with a vertical clearance of 10m cross from the S side of Krokoya to Monsoya.

The fjord may be entered by passing N or S of Galtnesskjaer Light, then E with the white sector of that light astern, passing S of the island about 1 mile E.

Steer to pass N of Garsoya, just over 1 mile farther E, then N of Opployskjeret, 0.2 mile E of Garsoya, then directly to Salsbruket.

7.18 Salsbruket (64°48'N., 11°52'E.) stands on the N side of the head of Opployfjorden, 0.5 mile ENE of Opployskjeret. Salsbruket Church, situated 0.5 mile W of Salsbruket is floodlit and makes a good landmark. The harbor is good, but winds can be troublesome.

The export quay is 70m long and has depths of 7.5 to 9.2m alongside. Vessels of 1,000 to 3,000 gt regularly use the quay; vessels of 10,000 gt have berthed there but have only been partly loaded.

Anchorage is available off the quays, in 25 to 30m, sand and clay.

Indre Foldfjorden (64°53'N., 11°44'E.) is connected to the NE end of Foldfjorden through Korsnesstraumen, a narrow sound. From the N end of Korsnesstraumen, Indre Foldfjorden extends ENE 13 miles, then SE for 10 miles.

Korsnesstraumen and Indre Foldfjorden are mostly clear of dangers but are narrow in places. Korsnesstraumen is navigable without difficulty, even though the tidal currents run strongly in it.

Indre Foldfjorden is narrowest at Foldereidstraumen, about 16 miles ENE of the S entrance to Korsnesstraumen; large vessels should not pass it without a pilot or a local mariner on board.

Korsnesstraumen is entered between **Falskeneset** (64°50'N., 11°39'E.), a headland, and a point 0.35 mile WNW.

The white sector of **Kjeoy Light** (64°48'N., 11°35'E.), astern, leads into the fairway of Korsnesstraumen. A mid-channel course leads N through Korsnesstraumen to Indre Foldfjorden; the sound is spanned by an overhead cable, with a vertical clearance of 45m.

7.19 Kvalbakskjer Light (64°52'N., 11°41'E.) is situated at the extremity of a spit which extends 0.15 mile W from the mainland, at the entrance to Indre Foldfjorden; the fairway passes W and N of this light. The fjord is spanned by overhead cables, with a vertical clearance of 43m, 1 mile NE of the light.

The white sector of **Skaftenes Light** (64°57'N., 12°01'E.) leads from the vicinity of the overhead cables above to within about 1 mile of the light. Steer a mid-channel course to pass S of Skaftenes Light; then steer in the white sector of that light, astern, which leads N of Ahamaren, a point 2.5 miles ENE of the light.

A 5m patch lies on the S side of the fairway 0.75 mile ENE of Ahamaren. There is a light situated on shore N of Ahamaren; the white sector of this light, astern, leads N of the 5m patch.From this area SE to the head of the fjord, passage should not be attempted without local knowledge.

Kongsmoen (64°53'N., 12°26'E.), situated at the head of the fjord, 9.75 miles SE of Ahamaren, is the site of a quay, 50m long, with depths of 9.2 to 10.3m alongside.

Anchorage can be obtained, in charted depths of 49m, off Kongsmoen.

Arnoyfjorden (64°46'N., 11°15'E.) lies ENE of Tviberg and may be entered by passing either N or SE of the island; the SE side, however, is preferred. A 4m rocky shoal lies on the SE side of the fairway, about 1 mile ENE of the S point of Tviberg.

Naeroysundet

7.20 Indreleia crosses Folla in open sea for a distance of 20 miles, then leads through **Naeroysundet** (64°50'N., 11°11'E.) between Indre Vikan on the NW and Naeroya, Maroya, and the mainland on the SE.

Tidal currents in Naeroysundet are NE on the flood current and SW on the ebb current. The spring rate in each direction is 3 knots off the W side of Maroya and 4 knots off the E side of Stromoya.

The group of shoals which separates the NW side of the entrance to Foldfjorden from the SE side of the approach to Naeroysundet includes the following significant dangers; the positions are given from the islet **Sorhunden** (64°39'N., 10°53'E.):

1. Bondfallet, a 4.6m patch, lying 1.5 miles NW.
2. A 2m patch lying 1.75 miles NNW.
3. A 5.8m patch lying 2 miles NNW.

Gjeslingene Light (64°44'N., 10°51'E.) is situated on the NW side of the approach to Naeroysundet, 4.75 miles N of Sohunden. A racon is located at the light tower, which is 24m in height.

Grinna Light is situated about 3.75 miles ENE of Gjeslingene Light.

Finskjerane, a group of rocks partly awash, extends NE from Grinna Light. Spygrunnsfallet, awash, lies on the E side of the fairway, 1.5 miles ESE of the light.

Naeroysundet is entered between **Finskjerslua** (64°46'N., 11°00'E.), at the E extremity of Finskjerane, and Spygrunsfallet.

Naeroysund Light stands on the NW side of Naeroysundet, 7.75 miles NE of Grinna Light. A bridge, with a vertical clearance of 41m, stands 0.8 mile NE of Naeroysund Light.

Vessels approaching Naeroysundet should adjust course to pass about 1 mile SE of Gjeslingene Light, then pass 0.7 mile SE of Grinna and continue NE into Naeroysundet, and in mid-channel to Rorvik.

7.21 **Rorvik** (64°52'N., 11°14'E.) (World Port Index No. 23040) is a resort and fishing harbor protected by moles. The entrance is about 50m wide. The harbor is separated into two parts by a peninsula situated in Indre Vikna at the NE end of Naeroysundet.

Rorvik

Winds—Weather.—Strong SW winds raise a considerable sea, sometimes making the quays untenable. Southeast winds can bind vessels to many of the quays.

Depths—Limitations.—The quays are up to 143m in length and have depths of 7.3 to 8.8m alongside. Other quays are from 10 to 60m in length and vary in depth from 2.2 to 8.2m. Vessels up to 1,000 dwt can be accommodated.

Pilotage.—Pilotage should be ordered using SafeSeaNet but may be ordered through the Kvitsoy Pilot Booking Center at an additional cost. The pilot boards in position 64°44.0'N, 10°58.0'E by arrangement.

Regulations.—The harbor area of Rorvik extends from Naeroysund Light, 1.5 miles SW of Rorvik, to Haganes Light, 1.5 miles NE of Rorvik, including the waters on the N side of Maroya.

Within the harbor area, powered vessels must not proceed at a greater speed than necessary for good seamanship and maneuverability. Cautionary notice boards are placed at the SW and NE limits of the harbor area.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-74-390081
3. Facsimile: 47-74-391470

Rorvik to Risvaerjorden

7.22 Indreleia continues from Rorvik to Risvaerfjorden, 12 miles NE, between Indre Vikna, **Stromoya** (64°52'N., 11°16'E.), Krakoya, Lauvoya, Gjerdingen, and **Risvaer** (64°55'N., 11°32'E.) a group of islets, on the NW, and Kvingla and the mainland on the SE, passing either side of Svinoya.

A light is situated on the SE point of Stromoya; a 4m patch, marked on its W side by a lighted buoy, lies 0.25 mile NE of the light.

The tidal flow off the 4m patch above is 4 knots at springs tide. It is 3 knots off Krakoya, 1.25 miles NNE.

Humulrasa Light (64°55'N., 11°22'E.) stands on the SW point of Svinoya. The following features positions are given from this light:

1. Krigsborgene Islets, lying about 1 mile SW, on the NW side of the fairway.
2. Krigsborntaren, a rock marked by a light, lying 0.8 mile SW.
3. A light standing on the E coast of Svinoya, 0.7 mile NE.
4. A light standing on Valhaugen, on the NW coast of Kvingla, 0.7 mile ENE.

A light is situated on **Gjerdinggalten** (64°56'N., 11°28'E.), on the NW side of the fairway, SE of Gjerdingen. A light is situated on Stangholmgalten, on the SE side of the fairway, 0.4 mile E of Gjerdinggalten.

Vessels proceeding N from Rorvik and vicinity, pass E of Stromoya and W of the 4m patch, and then in mid-channel, passing E of Krakoya about 1 mile NNE of Stromoya. The white sectors of the charted lights lead clear of the dangers.

The main fairway E of Stromoya has been used by vessels of 20,000 gt with a draft of 10m. Larger vessels can pass if assisted by tugs. Large vessels should only use this channel during the period of slack water.

The narrow channel W of Stromoya, in which the least charted depth is 7m, can be used by vessels up to 1,200 gt.

Powered vessels should observe the speed as required for Rorvik. When the vessel has cleared Krakoya and **Krigsborntaren** (64°54'N., 11°20'E.), 1 mile NE, course may be shaped to pass either E or W of Svinoya.

Svinestien, the passage between Svinoya and Kvingla, may be entered with the light on the NW coast of Kvingla, bearing between 051° and 059°; steer to clear the light, then bring it astern to bear between 227° and 231°, which will lead NE between Gjerdinggalten and Stangholmgalten.

7.23 **Humulrasa** (64°57'N., 11°23'E.) is entered off the NW side of Indreleia, N of Svinoya, and leads N between Lauvoya and Gjerdingen into the open sea.

Indre Haugoytaren (64°56'N., 11°22'E.), a 6.3m patch, lies 1 mile N of the SW point of Svinoya. A 6m patch lies 0.3 mile W of Indre Haugoytaren.

Range lights are situated on Lamholmen, off the NW coast of Gjerdingen.

The recommended route through Humulrasa passes close E of Indre Haugoytaren, with the white sector of Humulrasa Light astern. When clear of Lamholmen, vessels may proceed to the open sea or NE toward Lekafjorden and Indreleia.

Risvaersundet (64°58'N., 11°31'E.) is a much-used passage which extends NNE from **Oteren** (64°58'N., 11°31'E.), located 1.75 miles NE of Gjerdinggalten, and leads between Blikoya, Kalvoya, Skarvholmen, Hamneholmen, and Leroya on the W and Risvaer, Risvaeroya, and Stensoya on the E.

Oterholmflakket, a 3m patch, lies 0.25 mile WSW of Oteren. Patches of 6 and 8m lie between Oterholmflakket and Oteren.

Risvaersundet may be entered either between Oterholmflakket and Oteren, where the least depth is 6m, or E of Oteren in deeper water. The white sector of the light on Risvaer will lead in the fairway NNE, E of Blikoya.

Steer to pass W of the light, then bring it astern bearing between 209° and 215°. After passing clear of Leroya, course may be altered WNW into Risvaerfjorden or NE into Dolmsundet.

7.24 From **Stangholmgalten** (64°56'N., 11°28'E.), Indreleia leads close off the mainland, passing SE of Oteren and Store Oterholmen, 0.3 mile NE, and then 183m W of Eiternestangen which is situated 4 miles ENE of Stangholmgalten, then NNE into the E end of Risvaerfjorden.

Risvaergalten, rocks partly awash and marked by a beacon, lies 1 mile NE of Oteren. A 2m patch lies 0.2 mile farther NNE.

Ivarholmen, marked by a light, Lamholmen, Drenken, and Bardskjeret lie across the passage between Risvaer and Eiternestangen.

From the vicinity of Stangholmgalten, the white sector of that light, bearing between 230° and 238°, astern, leads SE of **Store Oterholmen** (64°58'N., 11°32'E.). From a position 0.2 mile SE of Oteren the fairway leads NE between Eiternestangen and Bardskjeret, taking care to avoid the 7m patch, 0.15 mile NE of Bardskjeret and **Hornbaen** (64°59'N., 11°35'E.), rocks, partly awash, about 0.6 mile NNE of Bardskjeret.

When the vessel has cleared the passage E of Bardskjeret, steer NW into Risvaerfjorden, passing SW of Hornbaen, or midway between Hornbaen and the mainland, then NE into Dolmsundet.

Folla to Yetterholmen

7.25 **Sklinna Banken** (65°16'N., 10°10'E.), an extensive bank with general depths of less than 183m, and a least charted depth of 121m, lies with its center about 21 miles WNW of Sklinna.

Sklinna (65°12'N., 11°00'E.), a small group of isolated islands, lies 26.75 miles NNE of Nordoyan.

Sklinna Light is shown from a tower, 14m in height, standing on Heimoya, the principal island of the group. Several rocky patches, which sometimes break, lie N of the W shoals off Vikna.

Galttaren (65°09'N., 10°41'E.) has a least charted depth of 11m and lies 8 miles WSW of Sklinna. Breigrund, 2.75 miles S of Galttaren, has a charted depth of 14.6m. A shoal, with a depth of 2.7m, lies 2.75 miles NNE of Galttaren.

Hogbraken (65°24'N., 11°02'E.), an isolated islet located 11.5 miles N of Sklinna, is visible for a distance of about 4 miles. Two above water rocks lie about 2.5 miles S of the islet; in moderate weather these two rocks are marked by heavy breakers. Shoals, which always break, extend about 1 mile W of these two rocks.

Steinan (65°36'N., 11°17'E.), a group of islets and rocks, lies 14 miles NNE of Hogbraken. They lie at the SW end of a larger group of islets known as Bremsteinan, which lies 9 miles W of Vega.

Skjaervaergrunnan, located 9 miles N of Bremsteinan, has depths of 16.4 to 18.3m and is rocky; this area should be avoided in heavy weather, when the flow in the vicinity is strong and the sea troublesome. Nordvaer, Skjaevaer, and Hysvaer are three groups of islets which lie 4.5 miles NE, 4 miles E, and 7.5 miles ESE, respectively, from Skjaervaergrunnan; these areas are foul and should be avoided.

The area 14 miles NE of Nordvaer is a mass of islets and reefs which are unapproachable from seaward.

Ytreholmen (Ytterholmen) (66°01'N., 11°42'E.), 13 miles NNE of Nordvaer, lies about 15 miles W of the SW point of Donna; the island is marked by a light. Skalsveskolten, Skalsveet, and Baksveet, covered by depths of 24 to 29m, lie 4.5 to 6.25 miles W and WSW of Ytreholmen (Ytterholmen) and are the farthest patches W in the approach to Ytreholmen.

The sea breaks over these rocky patches in bad weather.

Meloya (66°04'N., 11°37'E.), a rock, awash, with surrounding shoals, lies about 2 miles NW of Ytterholmen. In bad weather, these dangers form a large breaker which extends in a NE to SW direction.

Caution.—From the vicinity of Hogbraken to Ytterholmen, a wide berth should be given to the 183m contour; this is little more than 1 mile seaward of the outer line of islets and shoals in some places.

Vikna to Donna

7.26 **Vikna** (64°55'N., 11°00'E.) consists of three large islands, Indre Vikna, Mellem Vikna, and Ytre Vikna. These are surrounded by a number of islets, rocks, and shoals.

Among the several shoal areas S and W of Vikna, the tidal currents set towards the land.

In the vicinity of Vikna, mariners bound for Indreleia or the inner fjords are strongly advised to enter through Folla or Maholmrasa.

Maholmrasa (65°00'N., 10°55'E.) is a good and deep channel leading ESE, from seaward, between the coastal reefs off the NW side of Vikna, then S of the islets **Maholmen** (65°00'N., 10°58'E.), Rauoya, and Kvaloya, lying off the N side of Vikna. Indreleia can be reached through Humulrasa or Risvaerfjorden.

Maholmrasa is approached from W by passing N of the Arsgrunnane patches, which lie 2 miles NW of **Arsflesa** (65°01'N., 10°41'E.); these shoal patches, with a least charted depth of 12.8m, break in bad weather.

The range lights on Maholmen, in line bearing 105°, ahead, lead 0.15 mile N of Djupbaen, awash, lying 0.75 miles ENE of Arsflesa, then S of Brosjetarene, patches with a depth of 10m, lying 0.5 mile farther ENE.

Oksrevltaren (65°01'N., 10°51'E.), a 16.5m patch, which breaks in heavy weather, lies close N of the range line, 2.5

miles WNW of the front range light.

It is advisable to keep the rear light open of the front range light in order to pass safely S of Oksrevltaren and the 1 and 2m patches which lie close N of the track, 1.5 miles ESE of Oksrevltaren.

The fairway of Maholmrasa S and E of Maholmen is flanked by numerous dangers, which are charted. The white sector of **Ternholmen Light** (65°00'N., 11°07'E.), standing on an islet off the S side of Kvaloya, leads clear of the dangers; however, Maholmtaren, a 1m patch, situated 0.5 mile WSW of the rear range light, lies within these bearings.

In the E approach to Maholmrasa, a drying reef lies 0.7 mile E of Ternholmen Light. A 10m patch lies 1 mile ESE of the light, and Ytre Ragnildtaren, a 3m patch, lies about 2 miles ESE of the same light.

Mefjordsbaen, with a least charted depth of 3.9m, lies 1 mile SE of Ternholmen Light.

The white sector of Ternholmen Light bearing leads clear of the above danger.

The range lights on Gjerdingen bearing 147° leads SE toward Indreleia; it may be reached alternatively, by continuing E and entering Risvaerfjorden.

7.27 **Helmoya** (65°12'N., 11°00'E.), 35m high, is the largest and highest of the Sklinna group; it is marked by Sklinna Light. A vessel proceeding to Indreleia may pass either N or S of the group, but only the N approach will be described.

From positions NW of Sklinna, the approach to a position about 4 miles W of **Sklinna Light** (65°12'N., 11°00'E.) is clear of dangers in the fairway. With the light bearing not less than 087°, a vessel will pass N of Horsgrunnskoltane, which has a least depth of 6.7m, and Horsgrunnen, with a least depth of 2.7m, situated about 5 miles WSW of the light; these patches sometimes break.

The light on **Sklinnaflesan** (65°08'N., 10°59'E.), 4.5 miles S of Helmoya, bearing between 125.5° and 142°, leads NE of Horsgrunnskoltane, and SW of Sawgrunnen, an 11.9m patch lying 2.25 miles NNW of the light.

From a position 4 miles W of Sklinna Light, the route leads ESE, passing N of **Sawgrunnen** (65°09'N., 10°56'E.) and S of Breidgrunnen, a 2.7m patch which breaks, 1.25 miles SSW of the light. Flotran, 0.5 mile SSE of Breidgrunnen, a patch with a depth of 8.5m, is passed on its S side.

7.28 **Stortaren** (65°08'N., 11°01'E.), a rocky patch with a least depth of 4.8m, lies 1 mile NE of Sklinnaflesan. Lilletaren, a patch with a depth of about 10m, lies 1.25 miles ESE of Stortaren. Both of these patches are passed on the N side.

From a position in **Storgrunden** (65°09'N., 11°07'E.), 3.25 miles ENE of Sklinnaflesan, the range lights on Gjerdingen bear 147°, 15 miles distant; however, they will not be visible. This alignment leads toward Humulrasa passing about 2 miles SW of **Mefjordbaen** (65°08'N., 11°12'E.), which breaks and is reported to always be visible.

The track continues SE. passing NE of Gjuvtaren, a rocky patch with a least charted depth of 4.9m, lying 3.25 miles SSW of Mefjordbaen. The track also passes NE of Sporsluene, a 4.9m patch lying 1 mile SE of Gjuvtaren; an isolated 8.5m patch lies 0.5 mile NE of Sporsluene.

Brunflesan Light (65°03'N., 11°17'E.), which stands among drying patches about 2 miles ESE of Sporsluene, is passed to the SW, then SW of Vevlan 2.75 miles SSE of Brunflesan Light. It is advisable to keep on the SW side of the range light in the vicinity of Vevlan which lies almost on the line; a 7m patch lies 0.2 mile SE of Vevlan.

When the vessel is clear of Vevlan. the front range light on Gjerdingen. bearing between 143° and 200°. leads NE of **Djuptarskjeret** (64°58'N., 11°22'E.), a 7m patch marked by a beacon, situated 3.25 miles SE of Vevlan. From Djuptarskjeret. proceed to pass W of Lamholmen and then S as previously directed into Humulrasa.

7.29 From the vicinity of **Vevlan** (65°01'N., 11°19'E.). the route passes W of Vevlan, then W and S of a 7m patch lying 0.3 mile SSE.

When the N tangent of **Store Kvitholme** (65°01'N., 11°36'E.), 7 miles E of Vevlan, bears 080°, steer on that course, until clear of Skjeribaen, 3 miles E of Vevlan.

When the vessel is S of Skjeribaen, about 0.5 mile distant, a mid-channel route ENE passing about 0.4 mile N of Store Kvitholme and the same distance S of **Madsoygalten** (65°02'N., 11°41'E.), 2.5 miles NE of Store Kvitholme, leads into the S entrance of Lekafjorden and joins Indreleia.

A 2.4m patch lies 0.5 mile WSW of Madsoygalten.

From the vicinity of **Mefjordbaen** (65°08'N., 11°12'E.), 7 miles SE of Sklinna, a branch of the entrance channel leads NE through Hortafjorden, passing about 3 miles NW of Leka to join Indreleia in Melsteinfjorden by one of two alternative routes.

From a position clear S and E of Mefjordbaen**, Hortafjorden** (65°10'N., 11°30'E.) may be entered on an E course.

The alignment of Sorflesa, the S islet of Steinsflesan, and the summit of **Gutvikfjellet** (65°08'N., 11°56'E.), 11 miles farther E, bearing 091.5°, leads toward a position about 2 miles W of Sorflesa. Storslua, a large shoal area with a least charted depth of 3.3m, lies 0.4 mile N of this track about 4 miles W of Sorflesa.

From a position about 2 miles W of Sorflesa, a mid-channel route will lead into Hortafjorden, passing N of **Steinsflesa** (65°09'N., 11°31'E.) and SE of Breigrunnen, a shoal patch 2.25 miles WNW.

When N of Steinsflesa, a vessel may steer E and enter the white sector of the light on that island. This sector, astern, will lead into the white sector of **Helgelandsflesa Light** (65°13'N., 11°53'E.).

The S of two alternative routes into Melsteinfjorden leads ENE, E, and NE from the vicinity of Steinsflesa, passing N of the dangers lying off Leka. There are numerous less than charted depths exist in the W approaches to Leka.

When N of Steinsflesa, the S end of **Melsteinen** (65°11'N., 11°51'E.), in range 078° with the N extremity of a headland 10 miles farther E, leads 183m N of Kriskjaertaren, 3.75 miles ENE of Steinsflesa, and 0.25 mile N of Storgrunnen, 2 miles farther ENE.

Melsteinfjorden may be entered by passing either W or E of Melsteinen. Care is necessary to avoid shoal water extending 0.2 mile SSW of Melsteinen, and **Lilletaren** (65°10'N., 11°50'E.), 0.5 mile farther SSW.

The white sector of the light on Helgelandsflesa leads into Melsteinfjorden passing between Steinstaren on the W and

Melsteinen on the E.

Lekafjorden may be entered from N by rounding the dangers NE of Leka and passing SW of **Stortaren** (65°09'N., 11°50'E.), 2 miles S of Melsteinen, and then SSW into the fairway of the fjord.

7.30 Ytreholmen (66°01'N., 11°42'E.), previously described in paragraph 7.25, may be approached from the SW, avoiding Baksveet, Skalsveskolten, and Skalsveet, which lie 6 miles WSW, 6 miles W and 5.5 miles W, respectively, from that islet. The sea breaks over these shoals in heavy weather.

From a position SW of Ytterholmen, the SW summit of **Store Steinen** (66°00'N., 12°01'E.) is the only part of the Steinan group that can be seen. Vessels approaching Husvaetfjorden should keep this summit bearing between 072° and 080°, which will lead S of Langskolten and Storgrunnsveet, 1.5 miles S and 1.75 miles SSE, respectively, from Ytterholmen, and N of Kastsveet, which is reported to break in heavy weather, 3.5 miles S of Ytterholmen.

Langfallet, a 2m rocky patch, lies about 2 miles, ESE of Ytterholmen, on the N side of the fairway.

The white sector of the light on Store Steinen leads over the same area described above.

From a position about 2 miles WSW of Store Steinen, the white sector of the auxiliary light on Ytterholmen, astern, leads S of all dangers in Steinan and N of **Kvanflessveet** (65°58'N., 12°03'E.), an 11m patch 9 miles ESE of the light.

Husvaerfjorden (65°58'N., 12°05'E.) extends SE from the vicinity of Steinan to Husvaersundet, which is entered between **Traetholmen** (65°56'N., 12°12'E.), and Dragan, an islet 0.2 mile WSW. From a position about 2 miles SE, the white sector of the light on Store Steinen, bearing between 308° and 326°, astern, leads toward Traetholmen, passing SW of **Langodbaen** (65°58'N., 12°07'E.), which lies 1.75 miles ENE of Kvanflessveet. Indre Flesa, an extensive area of foul ground, lies S of Kvanflessveet.

Langobaen, 1.25 miles N of Traetholmen, should be passed on its SW side; then steer toward the light on Traetholmen passing SW of Stappen, which is marked by a beacon. A 6.4m patch lies 183m S of Stappen.

Husvaersundet (65°56'N., 12°12'E.) lies in a N-S direction; the white sector of the light on Traetholmen, astern, leads through the fairway for a distance of 1 mile.

Seisholmtaren, a 1.5m patch, lies on the E side of the fairway, 1 mile S of Traetholmen.

Two marine farms are situated on the E side of the fairway between Tennvalen and Seisholmtaren.

A submarine pipeline and submarine cable are laid across Husvaersundet between Brasoya and Tennvalen.

Tennsundet (65°57'N., 12°14'E.) lies between Heroya and Tenna; a track leads 2 miles ENE from Husvaerfjorden to the S entrance for Heroysundet. The controlling depth at the E end of the fairway at Tennsundet is 3m.

A submarine pipeline is extends SW from Lendingen, at the head of Tennsundet.

Altfjorden (65°56'N., 12°19'E.) is entered from the S end of Husvaersundet; the fairway passes S of Seisholmtaren and NW of **Springen Light** (65°55'N., 12°13'E.). Buoy Light, 2.75 miles ENE of Springen Light, bearing 069°, passes between Seisholmtaren and Springen Light.

From Springen, the white sector of Springen Light leads into the fairway, passing clear of the islets on each side.

Indreleia continues NNE through Alstfjorden to Ulvangen.

Risvaerfjorden to Ulvangen

7.31 Indreleia continues N from Risvaerfjorden to Ulvangen, about 70 miles distant. At position 65°08'N, 11°51'E, there is a choice of three different routes. The W route through Vegafjorden is the preferred route. Caution is advised in the W approaches to Leka (65°02'N, 11°26'E.) where many depths less than charted are known to exist.

Dolmsundet (65°00'N., 11°37'E.) leads ENE from Risvaerfjorden, passing between Dolma and the mainland SE, and forms the principal channel of Indreleia.

The white sector of the light close NNE of Eiternestangen, bearing between 199° and 203°, astern, leads toward Dolmsundet, leading E of Hornbaen, then E of an 11.9m patch, 0.35 mile NE of Hornbaen, and E of Abregtaren, 0.4 mile farther NE.

From a position E of Abregtaren, **Dolmsund Light** (65°00'N., 11°39'E.) ahead, leads clear of danger into Dolmsundet. This sector also leads from seaward passing N of Hornbaen and the 11.9m patch NE of it; however, Abregtaren lies within the light sector. With Dolmsund Light astern, this leads clear N of Tenfjordsluen, a 5.8m patch, lying 0.8 mile NE of the light. The 245.5° line of bearing should be favored.

Madsoygalten Light (65°03'N., 11°41'E.) ahead, leads into the center of the fairway of Lekafjorden.

Indreleia leads from the NE end of Dolmsundet through Lekafjorden, between Madsoya and Leka on the NW and Austra on the SE. Lekafjorden is joined at its SW end by one of the channels leading inwards from Sklinna.

Lekafjorden (65°05'N., 11°47'E.) may be entered from a mid-channel position SE of Magsoygalten Light, with the white sector of **Sore Gutvik Light** (65°05'N., 11°49'E.) ahead. When E of Magsoygalten Light, steer a mid-channel course to clear off-lying dangers on either side.

From the N end of Lekafjorden, the track of Indreleia passes between Melsteinen and Sorflesene, a group of partly submerged rocks about 0.4 mile E of the island, then between **Helgelandsflesa** (65°13'N., 11°54'E.), 2 miles NNE of Melsteinen, and Uertaren, a reef which dries, 0.7 mile SSE of Helgelandsflesa. Several shoals lie between Sorflesene and Uertaren on the E side of the fairway.

Vessels in the vicinity of Melsteinen may expect a SW tidal current out of Royningen, except during strong W winds, when a weak tidal current may set to the E.

Vessels approaching Melsteinenfjorden from the S should pass E of Lilletaren, 0.75 mile SSW of Melsteinen. The white sector of the light on Helgelandsflesa leads E of Lilletaren and then between **Melsteinen** (65°11'N., 11°51'E.) and the shoals to the E and NE of the island.

With the light on Melsteinen, astern, and showing green, this leads through the fairway between Helgelandsflesa and the NW side of Uertaren.

Langsundet (65°14'N., 11°58'E.) is formed between Langoya on the W, and Kvaloya on the E, and lies 2.25 miles NE of Melsteinen.

Good anchorage may be taken in Langsundet, in 10 to 17m,

Bronnoysund

sand and clay, abreast the summit of Langoya.

7.32 After passing SE of Helgelandsflesa in Melsteinfjorden, Indreleia continues NNE on the W sides of the islands of Langoya and Kvaloya.

Lyngvaer (65°16'N., 11°58'E.) is a group of islets and rocks extending about 3 miles N from Kvaloya. Tyven, lying about 1 mile NW of Kvaloya, and Vagoytaren, a 7m patch a little over 1 mile NNE of Tyven, are the farthest W of the dangers off Lyngvaer.

Gronstabben (65°16'N., 11°56'E.), a reef, lies on the W side of the fairway, 0.85 mile NW of Vagoytaren.

From Gronstabben, Indreleia passes between Gloven, 3.5 miles NE of Gronstabben, on the E side of the fairway, and Biskoptaren, a 1.8m patch on the W side of the fairway, 0.9 mile NW of Gloven.

Helbergotaren (65°20'N., 12°03'E.) lies on the E side of the fairway, 1.25 miles NNE of the light on Gloven; it has a least depth of 1.8m.

Helbergsoya, marked by a light, lies on the W side of the fairway, 0.7 mile NNE of Biskoptaren; foul ground extends 0.1 mile SSW and 0.8 mile NNE from the island. The many shoal patches in this area may be seen on the chart.

Torgfjorden extends NE from the vicinity of **Sandvaerodtaren** (65°22'N., 12°03'E.), situated at the extremity of the foul ground NNE of Helbergsoya.

Vessels proceeding N pass E of Helgelandsflesa; then a mid-channel course NNE will pass about 0.2 mile E of the light on Gronstabben. When abreast of Gronstabben, steer in the white sector of the light on Helbergsoya, which leads in the fairway passing W of Gloven and E of Biskoptaren.

When SE of Biskoptaren, steer a mid-channel course to pass about 0.2 mile E of Helbergsoya and the same distance E of Sandvaerodtaren, and then into the SW entrance of Torgfjorden.

7.33 **Lyngvaerfjorden** (65°15'N., 12°05'E.) is enclosed by Kvaloya and Lyngvaer, on the W, and the mainland, on the E.

Vessels entering Lyngvaerfjorden should proceed to a position about 1 mile NNE from the entrance, then steer E passing N of Lyngvaertaren, at the N end of Lyngvaer.

When in the white sector of **Lyngvaergalten Light** (65°16'N., 12°03'E.) steer a course mid-channel to pass 0.5 mile NE of the light.

The white sector of Lyngvaergalten Light, astern, will lead into Vikvagen, where anchorage may be taken, in 19m, hard sand.

Vikvagen (65°18'N., 12°07'E.) is encumbered with shoal patches and small islets; the approach to the anchorage passes close SE of a 1m patch and a 7m patch lies close off the S side of the fairway. These and other dangers may be seen on the chart.

Somnesvagen (65°23'N., 12°10'E.) is entered off the SE side of Torgfjorden, 2.25 miles from its S entrance. Somnesvagen is approached between Somnesoya, an islet, on the S side, and the S extremity of Sylskjaerene, 0.75 mile N.

Anchorage may be taken SE of Jarholme, an islet 0.75 mile within the entrance to Somnesvagen, in 18.3m, sand and clay.

Berg (65°22'N., 12°12'E.) (World Port Index No. 23020) close NE of Jarholme, has two quays. One quay is 62m long, with depths of 9.3 to 12m alongside; the other quay is 55m long, with depths of 7.6 to 10.8m alongside.

7.34 **Bronnoysundet** (65°27'N., 12°10'E.), on which the port of Bronnoysund is situated, is entered between **Ormoya** (65°26'N., 12°09'E.), situated on the W side of Torgfjorden 5

miles NE of its S entrance, and Stokholmen close E; it leads 3 miles NNE into Tilremfjorden.

The passage through Bronnoysundet is narrow and local knowledge is required; however, it is well-marked.

Tidal currents in Bronnoysundet are strong, making navigation difficult.

This channel can only be used by vessels drawing up to 5.2m, with a maximum beam of 12.2m.

7.35 Bronnoysund (65°28'N., 12°12'E.) (World Port Index No. 22990) is a coastal natural harbor situated on the E side of Bronnoysundet, 2 miles NNE of Ormoya. The harbor area covers most of Bronnoysundet.

Port of Bronnoysund
http://www.bronnoyhavn.com

Tides—Currents.—Tides rise about 2.7m at springs and 2.1m at neaps.

Depths—Linitations.—Bronnoysund may be approached from N or S. The least depth in the S approach from Torgfjorden is 6m and in the N exit to Tilremfjorden the least depth is 6.5m. A bridge with a vertical clearance of 30m spans the fairway in a position about 0.4 mile SW of the church in Bronnoysund. Berthing details are shown in the accompanying table titled Bronnoysund—Berthing Information.

Pilotage.—Pilotage should be ordered using the SafeSeaNet but may be ordered through the Londingen Pilot Booking Center at an additional cost. The pilot boards in the following positions:

a. 66°15.2'N, 12°35.9E for Asvaer.
b. 64°44.0'N, 10°58.0'E for Grinna.

Within the harbor area power-driven vessels are required to proceed at no greater speed than good seamanship and maneuverability demand to avoid creating a damaging wash.

Bronnoysund—Berthing Information

Berth Name	Length	Depth Alongside
Shell Bunkering	15m	3.8-4.3m
Algia Tangmellfabrik	14m	3.7m
Esso Bunkering	47m	6.9-8.2m
South Quay	74m	5.3-7.3m
North Quay	70m	7.7-10.0m
Felix Quay	46m	6.8-8.8m
Concrete Quays	102m	6.3-7.3m
South Stone Quay	45m	6.8m
North Quay	75m	6.5-8.3m

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12, 13, 14, and 16
2. Telephone: 47-75-012070
3. Facsimile: 47-75-012071
4. E-mail: bronnoy.havn@bronnoy.kommune.no

Anchorage.—Anchorage may be taken, in 12 to 16m, 1.25 miles SSW of the church in Bronnoysund, and in depths of 20 to 24m, sand, 1.5 miles NNE of the church.

Anchorage is prohibited close N of the quays to permit maneuvering for vessels berthing and unberthing at the packet boat quays.

7.36 The W route of Indrelia leads from the S entrance of Torgfjorden, WNW, N of **Sandvaer** (65°21'N., 11°58'E.), and Klubholmen Light, then NNW passing close E of Blabakflua Light, then the track passes S and W of Uttorgvaer, an island group 6 miles NNW of Helbergoya.

From the S entrance to Torgfjorden, vessels proceed WNW on a mid-channel course which will lead S of **Sandoytaren** (65°23'N., 12°00'E.), a reef with a charted depth of 4.9m, situated about 1 mile ENE of Klubholmen Light.

From E of Klubholmen Light, a vessel should alter course to pass E of **Hokstaren** (65°24'N., 11°58'E.), a 2.4m patch marked by a light, 1.5 miles N of Klubholmen Light,.

On the E side of the fairway, 0.35 mile E of Hokstaren, lies a 14.9m patch; a 5.5m patch lies 0.25 mile farther NE.

Fleina, marked by a light, is situated 0.75 mile NE of Hokstaren. Blabakflua Light lies 0.6 mile WNW of Fleina; the fairway passes between these two lights.

After passing between Fleina and Blabakflua, Indreleia leads NNW to pass between **Knutstaren** (65°26'N., 11°55'E.), a 1.8m patch marked by a light, 2 miles NW of Blabakflua. on the W side, and Flestaren, a 4.9m patch, 0.55 mile E, on the E side. The white sector of Blabakflua Light, astern, leads between these two dangers. Tvertaren, a 7m shoal patch, lies on the SW side of the fairway 0.5 mile NW of Blabakflua Light.

When the vessel is clear of Knutstaren, a NNE course may be set, passing about 0.5 mile WNW of **Uttorgflessa Light** (65°26'N., 11°57'E.) and W of the Uttorgvaer group.

This part of Indreleia crosses the E end of Vegafjorden in a SSW to NNE direction.

7.37 After passing into Vegafjorden, vessels should steer for the W edge of the 67m summit of Ylvingen, which lies 10.5 miles NNE of Uttorgflessa Light.

Halholmen Light (65°32'N., 12°05'E.) is located on the SE side of Indreleia, about 7 miles NNE of Uttorgflesa. Klabben Light is situated 2.75 miles NW of Halholmen Light.

The white sector of Ylvingen Light, about 4 miles NNE of Halholmen Light, leads through the fairway of Vegafjorden, passing between the dangers in the vicinity of Halholmen Light and the dangers off the SE side of Vega.

From Halholmen Light, vessels should alter course NE and pass S of **Ylvingen** (65°36'N., 12°10'E.) and N of the shoals lying about 0.5 to 1 mile N and NNE of the light.

Indreleia leads about 7 miles N through Tilremfjorden from Bronnoysundet to a junction between **Hornsneset** (65°35'N., 12°18'E.) and Ylvingen, 3.5 miles WNW, with the W route of Indreleia through Vegafjorden.

Nordtaren (65°34'N., 12°11'E.), a 1.8m shoal patch, lies on the W side of Tilremfjorden, 3.25 miles SW of Hornsneset.

Anchorage, in 14m, sand and clay, may be taken in a cove, near Tilrem, 3.5 miles NNE of Bronnoysund Church.

7.38 **Velfjorden** (65°35'N., 12°21'E.) is entered N of Hornsneset, the W entrance point. The fjord penetrates the coast about 11 miles SE to **Nevernes Light** (65°26'N., 12°35'E.); from the light, Langfjorden continues about 6 miles farther in the same direction. Okfjorden, Storfjorden, Litle Borja, and Stor Borja, all opening off the E side of Velfjorden, are deep and clear, but are unmarked.

Sorfjorden and Heggefjorden, branching off the S side of the fjord and the extension of Langfjorden, are neither so deep nor so free from dangers as the fjords on the E side; the land in their vicinity is less mountainous.

Hornstaren (65°35'N., 12°19'E.), a shoal patch with a charted depth of 1.8m, lies in the entrance of Velfjorden, 0.4 mile ENE of Hornsneset. Jenssluin, an 8.8m patch, lies 0.25 mile farther NE.

Manddauen Light is situated on a reef, 0.75 miles SE of Hornsneset.

The entrance to Storfjorden is encumbered with dangers, whose positions may best be seen on the chart.

Ice.—Sorfjorden, Heggefjorden, Stor Borja, and most of Storfjorden are usually frozen over in winter. Ice forms first and lasts longest in Langfjorden. Obstruction by ice is greatest after the New Year.

Tides—Currents.—The tidal currents usually set into Velfjorden with the rising tide and out with the falling tide. Currents usually set out of the branch fjords but they are affected by the tide and wind.

From the entrance N of Hornsneset, the W extremity of **Bjornholmen** (65°37'N., 12°18'E.) in range 329°, astern, with the E extremity of Kvitjerta, an islet 1 mile NNW of Bjornholmen, leads NE of Jenssluin, awash, and the shoal patches E.

A white sector of Manddauen Light, astern, leads through the fairway of Velfjorden to within about 2 miles of Nevernes Light; a white sector of that light ahead, leads through the fairway from abreast Okfjorden to within a short distance of the light.

All the branch fjords of Velfjorden afford suitable depths for anchorage during the ice-free season.

7.39 Vevelstadsundet is entered about 3.5 miles NNE of Hornsneset and lies between the mainland and the E side of Hamnoya. A 5.5m rocky shoal lies about 2 miles within the entrance. This danger lies within the white sector of **Snertholmen Light** (65°43'N., 12°28'E.).

Forvik, located on the mainland about 0.5 mile S of Snertholmen Light, has a timber quay, 36m long, with depths of 4.2 to 6.5m alongside.

Between the S end of **Ylvingen** (65°36'N., 12°10'E.) and Ulvangen, about 30 miles NNE, Indreleia is comparatively free from dangers.

Tides—Currents.—In this section of Indreleia, the tidal current sets N from about half rising tide to half falling tide; the period of the S current is the reverse of this. Their strength is variable and may be affected by the prevailing wind. The tidal currents set out of the adjacent fjords, and when the direction of the set coincides with that of the main tidal current the latter may run with great strength, particularly in the narrow channels.

In position 65°36' N, 12°13' E, off the SE side of Ylvingen, the W and E routes of Indreleia unite and continue 7.5 miles N to **Skjelva** (65°43'N., 12°19'E.), then 23 miles NNE through Tjottafjorden and Alstfjorden to Ulvangen.

7.40 Tjottafjorden consists of the waters around the junction of Indreleia and the entrance to Vefsnfjorden off the SW side of the island Tjotta. Mindvaeret, the foul ground NE of Skjelva, and Mindlandet, the 159m high island 2 miles NE of Skjelva, form the SE side of Tjottafjorden.

Breigtaren (65°45'N., 12°21'E.), awash, lies 2.25 miles NNE of Skjelva and Nordtaren, with a charted depth of 0.9m, lies 0.3 mile farther NNE; these dangers lie off the NW side of Mindvaeret.

Foul ground extends 1.25 miles into Tjottafjorden from the S extremity of Tjotta.

Tjotta (65°50'N., 12°26'E.), a small port, is located on the S side of the island Tjotta. Local knowledge is required to enter the harbor, which has depths of 3.6 to 5.1m alongside the steamer quay.

Tjotta Church, with a square tower and a dark gray roof, is prominent.

7.41 well, situated on the NW side of Mindlandet, 2.25 miles SSE of Tjotta Church, has a quay, 26m long, with alongside depths of 8.3 to 13m.

Vefsnfjorden is entered from Indreleia through Tjottafjorden, between **Langholmen** (65°49'N., 12°27'E.), off the SE coast of Tjotta, and the NW coast of Mindlandet, 1 mile SE. The W arm of the fjord extends 14 miles NE, between the mainland and Alsten; the SE arm of the fjord extends 12 miles SE to the port of Mosjoen.

The outer part of the fjord is sparsely vegetated and the landscape is dominated by De Syv Sostre, in the SE part of Alsten. The inner part of the fjord is wooded and most of the villages are situated there.

Tides—Currents.—The tidal currents run into Velsnfjorden with the rising tide and out of the fjord with the falling tide. At the entrance, when the ebb coincides in direction with the current in the channel off the entrance, the resultant flow may have considerable strength.

The fairway of Vefsnfjorden is free of dangers other than those shown on the chart. The head of the fjord is shallow for a distance of 0.75 miles N of Mosjoen.

The fairway of Vefsnfjorden is about 0.4 mile wide between **Sornes** (65°58'N., 12°52'E.), on the W side, and Nubben, on the E side, about 11 miles NW of Mosjoen.

Anchorage may be taken, in 17 to 20m, in the cove on the W side of Sornes; it shelves quickly to the N.

Mosjoen (65°51'N., 13°11'E.)

World Port Index No. 22920

7.42 Mosjoen is a small natural harbor situated at the head of Vefsnfjorden, about 26 miles from Indreleia. It consists of the quays and the city of Mosjoen, which is situated 0.75 mile

S of the quays.

Port of Mosjoen

http://www.mosjoenhaven.no

Winds—Weather.—Mosjoen is well sheltered and port cargo handling is seldom interrupted. The port is usually ice-free, except for some shallow bays which may freeze over in severe winters; shipping is rarely hampered by ice.

Tides—Currents.—Mean High Water Spring tides in Mosjoen are 2.7m and MLWS is 0.4m; the greatest spring range observed was 4m.

Depths—Limitations.—The channel leading to the port is narrow.

Berthing details are shown in the accompanying table titled **Mosjoen—Berthing Information**.

Mosjoen—Berthing Information

Berth Name	Length	Depth Alongside
Ny Kaia No. 1	90m	8.0m
Vestre Kai No. 2	122m	5.5m
Ubdystrikai No. 3	270m	11.5m
Holandsvika	60m	6.0m
Alcoa Mosjoen Anode	275m	8.3m

Vessels over 10.1m draft are berthed only at HW.

It was reported that a 55,000 dwt vessel, with a length of 212m and a draft of 11m, was accommodated in the port.

Pilotage.—Pilotage should be ordered through SafeSeaNet but may be ordered through the Londingen Pilot Booking Center at an additional cost.

The pilot boards in position 66°15.3'N, 12°36.7E (1.5 miles N of Donna) or position 66°17.0'N, 12°12.6'E (2.4 miles WNW of Asvaer Light).

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12, 14, and 16
2. Telephone: 47-75-101870
3. Facsimile: 47-75-101871

Anchorage.—Large vessels may anchor off Halsoy, 0.9 mile N of Mosjoen, in 30m, sand and clay, and off the aluminum works, in 40m, sand and clay.

7.43 The track of Indreleia, N of Tjottafjorden, leads between Sondre Rosoya and Norde Rosoya, on the W side, and Tjotta, on the E side.

Juledagene Light (65°51'N., 12°23'E.) is situated near the edge of the foul ground extending W from Tjotta, about 8 miles N of Skjelva. A patch, with a depth of 8.5m, lies on the W side of the fairway, 0.45 mile W of Juledagene Light.

Rosoytaren (65°52'N., 12°22'E.), with a charted depth of 5.8m, lies 0.25 mile off the NE extremity of Nordre Rosoya; it may be passed on either side.

Hamnesleira, a large open anchorage, is entered between Faksholmen, off the NW part of Tjotta and **Haugsneset** (65°53'N., 12°24'E.), 1.25 miles N. Large vessels anchor, in 25 to 30m, sand and shells, 0.75 mile ENE of Haugsneset; a rock is charted about 0.3 mile ENE of the anchorage.

From the vicinity of Rosoytaren, Indreleia continues NNW, passing between the SW end of Alsten and **Skarvoya** (65°53'N., 12°20'E.), which lies 1.5 miles NW of Haugsneset.

A rock, awash, lies on the foul ground extending NNE from Valoya, about 1 mile WNW of Haugsneset.

When E of Skarvoya, the fairway continues N about 1 mile, and passes between **Karholmen** (65°55'N., 12°23'E.) on the E side, and an 11m patch 0.4 mile W. Then a mid-channel course leads NNE passing E of Sondre Soroyholme, 0.45 mile NNW of Karholmen.

The NE extremity of Alteren is situated on the W side of Indreleia, 0.85 mile N of Sondre Soroyholme; **Valloygalten** (65°57'N., 12°24'E.), with a least depth of 4.9m, lies 0.8 mile NNE of Alteren.

7.44 Alstfjorden extends from the vicinity of **Sondre Soroyholme** (65°55'N., 12°22'E.) along the NW side of Alsten, to the vicinity of Sandnessjoen 9 miles NE, where it leads into Ulvangen.

A channel from seaward entered off Ytreholmen joins Alstfjorden, at its SW end, from Alterfjorden.

Vikholmen (65°57'N., 12°26'E.), a small islet, lies on the E side of the fairway through Alstfjorden, 1.5 miles ENE of Alteren. Foul ground extends 0.7 mile NNE from the islet.

Valloya and Svinoya lie in a NNE direction from 0.3 to 0.7 mile, respectively, NNE of Valloygalten; Svartskjaer lies 0.15 mile off the NE extremity of Svinoya.

From abreast Sondre Soroyholme, vessels can steer for the summit of **Skorpa** (66°02'N., 12°33'E.), which rises about 8 miles NNE. This course leads through the fairway of Indreleia into Alstfjorden. When well into the fjord, a mid-channel course will lead NE to the S entrance of Ulvangen.

7.45 **Sandnessjoen** (66°01'N., 12°38'E.) (World Port Index No. 22750), protected from the S by a road embankment and by the island of Holmen, lies on the NW side of Alsten, at the junction of Alstfjorden and Ulvangen. The entrance to the harbor is from the E.

During strong W winds, an unpleasant short sea is raised off Sandnessjoen; at times strong squalls come down from the mountains situated about 5 miles S.

The harbor authority operates a total quayage of about 780m. The berths vary in length from 18 to 148m, with depths of 2.6 to 10.5m alongside. Some of the berths and installations are situated in Sandnesvagen, on the SE side of town, and in Botnfjorden, 1.5 miles SE; these are accessible from Leirfjorden.

Pilotage.—Pilots should be ordered through SafeSeaNet but may be ordered through the Londingen Pilot Booking Center at an additional cost.

The pilot boards in position 66°15.3'N, 12°36.7E (1.5 miles N of Donna) or position 66°17.0'N, 12°12.6'E (2.4 miles WNW of Asvaer Light).

Local knowledge is required for vessels to take up berthing space, as the tidal currents are strong.

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The port can be contacted, as follows:

1. Telephone: 47-75-075700
2. Facsimile: 47-75-075701
3. E-mail: post@ath-havnevesen.no
4. Web site: http://www.alsthaug.no

Anchorage.—Anchorage is available, in 16.5 to 24m, 0.15 mile W of the S end of Holmen.

Donna to Bodo

7.46 The high peaks of the mainland and larger islands often rise to several thousand feet and at times are visible over 50 miles.

Sanna (66°30'N., 12°03'E.), the principal island of Traena, lies 30 miles NNE of Ytterholmen; it is by far the most important landmark on this coast. Its principal peak, Traenstaven, rises to about 331m, and may be seen at a distance of more than 40 miles; it is unmistakable.

Kunna, a headland on the mainland 44 miles NE of Sanna, can be made out when in the vicinity of Traena.

Three high peaks rise on the island of Tomma, about 21 miles SE of Sanna. The peak farthest N rises to a height of 916m and resembles Traenstaven.

Lovunden (66°22'N., 12°20'E.), 619m high, lies about 10 miles SE of Sanna. The island appears isolated but is easily identified by its nearly perpendicular W side and the gradual slope on its E side.

Luroy, an island lying about 11 miles ENE of Lovunden, is 689m high. It is more rounded and has less abrupt declivities than other islands in the vicinity. Hestmannoy lies with its S end about 4 miles N of Luroy and has a pointed peak 568m high.

Luroy

Telnestind, on the mainland, rises to a height of 967m, 0.75 mile inland, in a position 8.75 miles ENE of Hestmannoy.

Between Hestmannoy and Kunna, about 28 miles NNE, the coast line is rather indistinct, but Kunna, which appears as an island, is easily identified.

Fugloya (67°04'N., 13°50'E.), an island about 8 miles NE of Kunna, is steep and rises to a height of 765m. Sandhornet, a conspicuous mountain on the island of Sandhornoya, 5.5 miles NE of Fugloya, is 996m high; its W face is precipitous.

From this part of the coast, Svartisen, a range of glacier-bearing mountains, may be seen. It is one of the most remarkable features of this part of Norway. As there is no glacier so near the sea on any other part of the coast, it can be identified with certainty from a considerable distance seaward.

Svartisen stands out well from dark mountains in the background. In spring and cold summers, it appears white; in warm summers when surface snow melts, it becomes bluish-green. In winter, when all mountains are covered with snow, Svartisen, seen from NW and N, appears to run parallel with the horizon, with hardly any depression between peaks; the highest part only shows some dark patches of bare rock among the snow.

Landegode (67°24'N., 14°20'E.), 803m high, lies 6 miles NNW of Bodo; in clear weather the S part of the Lofoten Islands will be visible about 55 miles to the WSW.

7.47 A bank, with a depth of 12.8m, was reported to lie about 110 miles W of Sanna. A depth of 14.6m, the position of which is doubtful, was reported about 85 miles WNW of Sanna. A depth of 10m was reported to lie about 0.2 mile NW of the 14.6m patch.

The area for about 20 miles W of **Donna** (66°06'N., 12°33'E.) is foul. Ytreholmen lies about 15 miles W of the SW point of the island.

Courtesy of Kystriksyeien Reiseliv AS

Donna

Lillesveet (66°06'N., 11°31'E.) and Skolton, rocky banks situated about 7 miles NW of Ytterholmen, have least depths of 27m and 26m, respectively. Between these banks and Ytreholmen, there are other shoals and banks which break.

Floholman (66°10'N., 11°42'E.) lies 4 miles NE of Skolton; Floholm is the middle islet of the group. Lunboen the farthest SW of the group, lies 1.5 miles NE of Skolton. It dries at very LW and the breakers are visible from the offing for a considerable distance. Foul ground extends about 2 miles NW from Floholm.

Moholmssve, an isolated bank with a depth of 29m, lies 5 miles NNE of Floholm and Samskallen, also an isolated bank with a depth of 33m, lies 9 miles farther NNE.

Myken (66°45'N., 12°25'E.), the group of islands next N of Traena, lies with its S end about 15 miles NE of Sanna. The water surrounding Myken is deep almost to its outermost islets. This can cause the sea to break over the islets with strength.

Tennholmen, marked at its SW end by a light, lies 17 miles NE of Myken. Below-water rocks extend about 1 mile W from

the light and 5.75 miles NE. Sveboen, a rocky shoal with a charted depth of 4.8m, lies 5.75 miles WSW of the light; a rocky 5.8m shoal lies 2.5 miles S of Sveboen.

Gronna (67°01'N., 13°11'E.), a dangerous group of islets and rocks, lies 2.5 miles N of Tennholmen, and is the outermost danger WNW of **Kunna** (66°57'N., 13°31'E.). In stormy weather and with high tides, the sea breaks over the entire Gronna group.

Asvaer to Indreleia

7.48 **Asvaer** (66°14'N., 12°12'E.), an island group situated 19 miles NE of Ytterholmen, consists of a group of rocks and islets; some of them are of a moderate height.

Asvaer Light is shown from a prominent tower, 18m in height, standing near the NE extremity of the group. A racon is located at the light tower.

There are no dangers in the seaward approach to Asvaer, which leads between **Ovskallen** (66°25'N., 11°58'E.), an 11m depth lying about 5 miles SSW of Sanna, and the Floholman group, about 13 miles farther SSW.

A principal channel leads in through Nordre Asvaerfjorden, off the N side of Asvaer, through Stifjorden, 12 miles ESE of Tomfjorden, then 11 miles E to join Indreleia off the SE or NE side of Tomma.

The approach to Asvaer in not difficult in favorable weather.

Tides—Currents.—The tidal currents in Nordre Asvaerfjorden flow NE on the flood and SW on the ebb.

Pilotage.—A pilot station is situated on **Andersbakken** (66°16'N., 12°18'E.), the NE island of Asvaer. The pilots embark 2.5 miles WNW of the station.

The pilot radio calling frequency is VHF channel 16; the working frequencies are VHF channels 12 and 13.

Nordre Asvaerfjorden is not difficult to approach in daylight with clear weather. The peaks on Tomma are especially useful in making the entrance.

7.49 **Breifind** (66°15'N., 12°48'E.), 821m high, in the S part of Tomma, bearing about 098° leads in N of Asvaer.

After passing N of the light on Andersbakken, course should be altered to pass S of Syntholmbaen, a drying reef about 3.5 miles ESE of the light, and N of **Utoybaen** (66°14'N., 12°36'E.), about 4 miles ESE of Synstholmbaen. Utoybaen lies about 0.7 mile off the NE extremity of Donna.

Stifjorden, between the S side of Tomma and the N side of Lokta, is free from dangers, except for a small area of foul ground extending about 0.5 mile N from the NE end of Lokta; it joins Indreleia off the NE coast of Lokta.

Skifjorden, leading S from Stifjorden between the E side of Donna and the W side of Lokta, is part of the W route of Indreleia between Ulvangen and Gjeroya. The channel passes either side of **Svensskjeret** (66°06'N., 12°41'E.), an above-water rock lying 0.45 mile E of Donna. Dangers in the fairway may best be seen on the chart.

In Skifjorden, the tidal currents nearly always set N along the coast of Donna; northbound vessels should keep to the W side of the channel and southbound vessels should keep to the E side.

Ulvangen to Meloyfjorden

7.50 Between Ulvangen and Gjeroya, about 25 miles NNE of Donna, there are two channels of Indreleia. The W channel leads NW of Tomma through Tomfjorden. The E channel, passing E of Tomma, is the preferred route. It is less intricate and has a relatively wide fairway which is practically free from dangers.

From the N end of Ulvangen the fairway of Indreleia leads E of **Finnkona** (Finkonna) (66°07'N., 12°44'E.), Lokta and Tomma, passing W of Hugla and Handnesoy.

Rana, the approach to the port of Mo I Rana is entered from Indreleia, on the SE side of Lokta and NE of Finnkona. **Bruneset** (66°08'N., 12°50'E.), 2.25 miles ENE of Finnkona, is the S entrance point of Rana and Huglneset, 2.5 miles NNE of Bruneset, is the N entrance point.

Rana extends 24 miles ENE to Stromholmen where Nordana leads 11 miles farther ENE to Mo I Rana and the mouth of Ranelva.

Branch fjords include Utskarpen, Elsfjorden, and Sorfjorden.

Tides—Currents.—The tidal currents off Lokta are variable. In Rana, they usually set out with the falling tide and into the fjord with the rising tide. In the outer part of the fjord, the ebb current is strongest on the S side.

During thaws, accompanied by prevailing E winds, the set in the fjord may be continuously outward and the velocity may be 2 to 3 knots; in the vicinity of the head of the fjord there is usually a constant outward set.

7.51 **Ranskjeret** (66°09'N., 12°52'E.), an above-water rock, lies 1.5 miles NE of Bruneset in the entrance to Rana. From Ranskjeret, the fairway is free of dangers to Bardalsoya, a distance of about 13 miles.

Storgrunnen, a rocky 14m patch, lies 0.5 mile WSW of Bardalsoya. Mud flats extend S from Bardalsoya to the mainland.

At the head of the fjord, for about 1 mile SW of Mo I Rana, the coastal reef dries and extends up to 0.2 mile offshore in places.

An anchorage is charted on the SE side of Bardalsoya, in 25m. A 6m line is formed 183m S, W, and N of the anchorage.

Anchorage can be obtained in **Utskarpen** (66°15'N., 13°35'E.), 5 miles ENE of Bardalsoya, in 33m, clay, at the discretion of the pilot.

Nesna (66°12'N., 13°01'E.) is a small town with several light industries. Located at the end of a peninsula extending from the mainland, it is E of the island of Hugla and S of the island of Handnesoya. Nesna has a concrete jetty with a NNE-SSW orientation. It is 117m long and has depths of 6.5 to 8.1m alongside. At the head of the jetty, a berth, orientated ESE-WNW, also of concrete construction, is 66m long and has depths of 3.9 to 7.1m alongside. Both the jetty and berth protect a ferry and boat harbor on the N side of town.

Hemnesberget (66°13'N., 13°36'E.) is a small natural coastal port situated on the E entrance point of Elsfjorden, about 2 miles SSE of the entrance to Utskarpen. A mooring buoy is moored off the quays, which are up to 60m long and have depths from 3.9 to 14.5m alongside.

Mo I Rana

Mo I Rana (66°19'N., 14°08'E.)

World Port Index No. 22760

7.52 Mo I Rana, also known as Mo, is situated at the head of Nordrana, near the mouth of Ranelv, and is approached through Rana. It consists of the city, with an inner harbor with berthing facilities for small vessels and an outer harbor that can accommodate large vessels alongside and at anchor.

Port of Mo I Rana

http://www.portofmoirana.no

Winds—Weather.—The port is well sheltered and normal operations are seldom interfered with by weather conditions. The harbor is ice free.

Tides—Currents.—The range of spring tides is 2.7m, a range of 3.6m was observed during 1951-53.

Depths—Limitations.—Berthing details are shown in the accompanying table titled Mo I Rana—Berthing Information.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered through SafeSeaNet but may be ordered through the Londingen Pilot Booking Center at an additional cost. The pilots are provided by the Aesvaer pilot station.

The pilot boards in positions 66°17.0'N, 12°12.5'E (2 miles WNW of Asvaer Light) or 66°15.3'N, 12°36.7'E (smaller vessels after agreement with the pilot station).

The pilot calling frequency is VHF channel 16; the pilot working frequencies are VHF channels 12 and 14.

Tugs are recommended for vessels of more than 10,000 dwt and are available with 24 hours notice.

Mo I Rana

Regulations.—Vessels operating within the seaplane harbor, N of the harbormaster's office, are required to maneuver with care and comply with the regulations governing the transit of seaplane operating areas. A patrol boat displaying a yellow and black flag patrols the seaplane harbor when seaplanes are operating.

Contact Information.—The Port Authority can be contacted, as follows:

1. VHF: VHF channels 12, 14, and 16
2. Telephone: 47-75-101870
3. Facsimile: 47-75-101871
4. E-mail: havna@rana.kommune.no

The harbormaster can be contacted by telephone (47-75-134703).

Mo I Rana—Berthing Information

Berth Name	Length	Depth Alongside	Remarks
Rana Gruber AS	272m	11.4m	Iron ore. Maximum vessel loa of 260m. Maximum vessel size of 75,000 dwt.
Bukterminalen			
North side	129m	11.0m	Bulk cargo and tankers.
South side	80m	7.3m	Bulk cargo and tanker terminal. Maximum vessel loa of 100m, maximum beam of 32m, and maximum draft of 8.0m.
Toraneskaia			
Town Quay	330m	8.0-12.0m	General cargo, ro-ro, and containers.

Mo I Rana—Berthing Information			
Berth Name	**Length**	**Depth Alongside**	**Remarks**
Rana Industrial Terminal			
Terminal AS	330m	8.0m	General cargo, containers, and bulk cargo.
Aga Quay	29m	4.1-9.5m	Zinc, lead, and copper ore.

Anchorage.—Anchorage in the harbor is to be advised by the harbor pilot.

Caution.—A dumping ground was established 0.7 mile NNE of Hauknesbukta Light.

7.53 Indreleia continues N of Rana passing W of **Huglneset** (66°10'N., 12°51'E.), the SW extremity of Hugla, an island which rises to a height of 623m, in its S part.

Mefjordsholman (66°12'N., 12°50'E.), consisting of two small islets fringed by reefs, lies on the W side of the fairway, off the SE end of Tomma, about 24 miles N of Huglneset.

Handnesholmen, an islet marked by a light, lies on the E side of the fairway about 2 miles NE of Mefjordsholman. Foul ground extends about 0.3 mile NNE from the islet.

A white sector of the light on Handnesholmen will lead through the fairway from a position 0.3 mile W of Huglneset, to within about 1 mile of the light.

Tomfjorden, which leads NE from the inner end of Nordre Asvaerfjorden, passes N of Tomma and joins Indreleia NE of **Kjerringskjeret** (66°20'N., 12°53'E.), a foul area marked by a light, situated 1.75 miles NNE of Tomma.

Odoyflua (66°21'N., 12°55'E.), a drying rock, lies at the SW entrance point of Stigfjorden, 1.5 miles NNE of Kjerringskjeret.

Stigfjorden, formed between Stigen on the W and Aldra on the E, is the N continuation of Indreleia to Bonetskjeret, 9 miles N, and is free from dangers in the fairway.

Teisten (66°22'N., 12°56'E.), a small islet on the W side of the fairway, lies 1.25 miles NNE of Odoyflua.

Aldersundet is entered E of Teisten; it is clear of dangers in the fairway. Aldra forms the W side of the passage; the E side of the passage is formed by the mainland. Three overhead cables span Aldersundet between Aldra and the mainland.

At the N end of Stigfjorden, the track of Indreleia passes W of three small islands, Brusoya, Rundvedoya and Langvedoya; it then leads E of **Bonetskjeret** (66°29'N., 12°58'E.), 1.5 miles NW of Langvedoya.

Kvina, an inlet entered off the E side of Indreleia, ENE of Rundvedoya, is free from dangers in the fairway.

Kvina (66°28'N., 13°10'E.), a village at the head of the inlet, has a jetty, with a berth 18m long, at its head; there are depths of 4.5 to 5.8m alongside.

7.54 From Bonetskjeret, Indreleia passes through Kvaroyfjorden, in a NNW direction; then it turns E passing N of **Vikingen Light** (66°32'N., 12°58'E.), and S of Rangsundoya. A 14.9m patch lies in the SW entrance to Kvaroyfjorden, 0.35 mile NE of Bonetskjeret.

There is a 4.3m shoal patch on the E side of the fairway, 1.25 miles ENE of Bonetskjeret. A 10m patch lies 0.2 mile NW of the 4.3m depth.

After passing SE of Rangsundoya, 3 miles NE of Vikingen Light, a vessel should steer N to pass between Rangsundoya and Gjeroya on the W and the island of Renga located about 1 mile E.

Lamannskjeret (66°36'N., 13°05'E.), a reef, lies on the E side of the fairway, about 2 miles NNW of the S extremity of Renga. Other dangers, which may be seen on the chart, lie off the W side of Renga.

From abreast the N extremity of Renga, vessels should steer N through Rodoyfjorden, passing between Rodoya and the mainland.

Rodoy (66°39'N., 13°05'E.) is a small coastal harbor situated at the SE extremity of Rodoya. It may be entered from the S through Rodoysundet. The timber quay is 31m long and has depths of 6.3 to 8.5m alongside; however, local knowledge is required.

Courtesy of Kystriksveien Reiseliv AS

Rodoy

7.55 **Sandverken** (66°39'N., 13°06'E.) lies on the W side of the fairway, 0.6 mile SE of Rodoy. Sorskallen, a 0.9m isolated patch, lies 0.2 mile SSW of Sandverken.

Ronvikskjerane (66°40'N., 13°11'E.), a group of above-water rocks on the E side of Indreleia, lies about 3 miles NE of Sandverken. Klauskjeret, an above-water rock, is about 1 mile NNE of Ronvikskjerane, in about mid-channel of the entrance to Tjonsfjorden.

A mid-channel course through Rodoyfjorden leads clear of the dangers.

Svinvaer (66°45'N., 13°10'E.) is situated on the W side of Indreleia, 2.75 miles NNE of Rodoya. In the fairway between Svinvaer and Amnoya, 2.25 miles E, are two 14m shoals located, respectively, 0.8 mile E, and 1.25 miles E of the NE ex-

tremity of Svinvaer. A small islet lies 0.25 mile E of Svinvaer.

Meloyfjorden is entered between Svinvaer and Amnoya.

Meloyfjorden to Saltfjorden

7.56 Indreleia continues from the junction of Rodoyfjorden, Otervaerfjorden, and Skarsfjorden for 11 miles NNE and ENE through Meloyfjorden, then turning NE through Meloysundet. When clear of Meloysundet, Indreleia continues 7 miles NNW across Gasvaerfjorden and Stottfjorden to Stottsundet. This route is suitable for large vessels.

An entrance from seaward through Tennholmfjorden gives access to Indreleia through Gasvaerfjorden and Stottfjorden.

Angersholmen Light (66°46'N., 13°16'E.) is situated on the E side of the fairway, 0.35 mile off Amnoya.

Mefjordholmen, a group of islets and rocks, lies on the W side of the fairway, about 1 mile WNW of Angersholmen Light. A shoal, with a depth of 8m, is situated 1.25 miles NE of the light, on the SE side of the fairway.

Hatboen (66°48'N., 13°21'E.), marked by a beacon, is about 3 miles NE of Angersholmen Light on the N side of the fairway.

A mid-channel course will lead through Meloyfjorden, passing between the N extremity of Amnoya and Hatboen. Between Hatboen and Meloysund Light, 5 miles ENE, the fairway is free from dangers.

Glomfjorden, the E continuation of Meloyfjorden, extends 10.5 miles E from its entrance S of the Meloysund Light; the fairway is deep and free of dangers.

An overhead cable, with a vertical clearance of 42m, spans Glomfjorden, about 6 miles within its entrance.

Glomfjord (66°49'N., 13°59'E.) (World Port Index No. 22540) is situated on the N shore at the head of Glomfjorden.

A private bulk quay, about 317m, long will accommodate a vessel up to 15,000 dwt, with a draft of 8m.

Pilots should be ordered through SafeSeaNet but may be ordered through the Londingen Pilot Booking Center at an additional cost. The pilot boards, as follows:

1. North approach—2 miles N of Fleinvaer.
2. South approach—2 miles WNW of Asvaer Light.

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The port can be contacted, as follows:

1.	Call sign:	Hydrom Glomfjord Glomfjord Port Radio
2.	VHF:	VHF channels 12, 14, and 16
3.	Telephone:	47-75-719100
4.	Facsimile:	47-75-719400
5.	E-mail:	hydro.glomfjord@hydro.com

7.57 Meloysundet, the continuation of Indreleia, is formed between Meloya on the W side and Skjaerpa on the E side.

Meloyneset Light (66°50'N., 13°35'E.) is situated on the E extremity of Meloya, 0.75 mile NE of Meloysund Light.

An overhead cable, with a vertical clearance of 60m, spans the S end of Meloysundet.

A white sector of Meloysund Light bearing astern, leads through the fairway of Meloysundet to the E end of Gasvaerfjorden.

Mesoya (66°51'N., 13°40'E.), an island 318m high, lies with its SW part 1 mile E of Meloya. It forms the E side of Mesoyfjorden; Eiet, formed on its E side leads NNE from Glomfjorden.

Ornes (66°52'N., 13°42'E.) is situated on the mainland about 0.5 mile E of the NE end of Mesoya. It is the administrative center for the Meloy district.

Ornes may be approached from the N by rounding the N end of Mesoya from Mesoyfjorden, or from the S through Glomfjorden then NNE through Eiet. The quays at the fish factories have a total length of 152m; the main quay has a depth of 5.2m alongside. The packet boat quay is 92m long, with depths of 4 to 9.7m alongside.

Indreleia route leads across Gasvaerfjorden, then passes through Stottsundet, between the Stottvaer group of islands and the mainland. Kunna, the conspicuous headland at the NE end of this stretch, lies with its seaward end about 7 miles NNW of Meloysundet.

From Kunna NE to Fugloyfjorden, a distance of about 5 miles, Indreleia is open sea sheltered by the low-lying **Gronna** (67°01'N., 13°10'E.) group of islets and rocks.

After entering Fugloyfjorden, the track continues in a general NE direction and passes SE of Fugloya; then the trend is N past the W side of Sandhornoya Island into Saltfjorden.

Caution.—During N gales, a heavy sea is raised on the bank N of Kunna. This part of Indreleia is considered to be one of the most difficult to navigate in bad weather and under such conditions the area should be avoided by vessels without local knowledge.

7.58 **Gasvaer** (66°53'N., 13°29'E.) is a group of islands lying 3.25 miles NW of Meloysund Light. Teksmona, an island, lies on the E side of Indreleia, about 1 mile E of Gasvaer. The fairway in this area is free of danger; however, a 7.6m patch lies about 0.3 mile W of the W extremity of Teksmona.

Ostholmen (66°53'N., 13°31'E.) is the farthest E of the Gasvaer group. A reef, with some above-water rocks, extends about 0.3 mile SW from a point on the mainland 1.75 miles NNE of Ostholmen.

Stott (66°55'N., 13°28'E.) is the name for the general vicinity of Stottsundet and the island group Stottvaer.

Skarvskjer Light is situated close off the E side of Stott, 2.75 miles NNW of Ostholmen.

Stottsundet, formed between Stott and the mainland, is free of dangers except for Litlegrunnen, a 10m patch 0.9 mile N of Skarvskjer Light, and Bonetskjergrunnen, a 7m patch lying 0.35 mile farther NNW.

Tides—Currents.—Though much influenced by the wind, the tidal currents in Stottsundet have a tendency to set N with the rising tide and S with the falling tide. During or after fresh S or SW winds, the tidal currents may set continuously N.

A white sector of Skarvskjer Light, astern, leads N through the fairway of Stottsundet.

When clear of Stottsundet, vessels bound for Fugloyfjorden can alter course E, taking care to avoid the foul ground extending about 0.4 mile N from the N face of Kunna.

On the W side of the channel, from about 0.5 mile to 1.25 miles N of **Stott Light** (66°57'N., 13°28'E.), is a rocky shoal with a least depth of 7.6m. An 18.3m rocky patch lies in the

Saltstraumen

channel about 0.7 mile NE of the light; on the N side of the fairway, about 2 miles NE of the light is Meloygrunnen, a 2.5m shoal. A 14.6m patch lies S of Meloygrunnen, in about mid-channel, between the shoal and Kunna.

A white sector of **Digerflesa Light** (66°58'N., 13°38'E.), leads between the coastal reef N of Kunna and the S end of Meloygrunnen, but it should be noted that the 14.6m patch lies in this sector. A white sector of Finneset Light, located 2.5 miles E of Digerflesa Light, ahead, leads through the same channel and S of Digerflesa.

7.59 From the vicinity of Meloygrunnen and Digerflesa, the track leads NE through Fugloyfjorden, passing SE of **Floholman** (67°01'N., 13°42'E.), and then passing between the E side of Fugloya and Rossoya, 1.75 miles E.

In Fugloyfjorden, the tidal currents are usually strong, setting N on the flood and S on the ebb; heavy overfalls occur during W and NW winds.

Fuglesangen (66°59'N., 13°38'E.), lying about 0.9 mile WNW of Digerflesa Light, consists of some above and below-water rocks which break in bad weather.

Above-water rocks lie on the E side of the fairway, about 0.4 mile off the W side of Rossoya.

Fugloya Light (67°04'N., 13°52'E.) is situated at the E end of Fugloya. A rock, with a depth of 5.2m, lies 1 mile N of the light.

From NE of Fugloya Light, Indreleia passes SE of Fleina, an island lying 1.25 miles N of Fugloya, and E of Sor-Arnoya and Nord-Arnoya and W of Veoya and Sandhornoya to the vicinity of **Marnesskagen** (67°10'N., 14°05'E.), at the junction with Saltfjorden.

A shore reef extends about 1 mile SE from Sor-Arnoya; the fairway narrows to about 0.4 mile in this area.

7.60 Sorfjorden, on the E side of Fugloyfjorden, is approached from its N end from Indreleia between Fugloya and Sandhornoya, 3.5 miles ENE. The fjord extends S for 7.75 miles and is formed between Rossoya and Femris and a peninsula of the mainland on the W and by a peninsula of the mainland on the E. It is free of danger in the fairway, but its inner part is icebound in the winter.

Stavsundet (67°01'N., 13°56'E.), formed between Femris and the mainland to the S, leads into Sorfjorden; it can be used by vessels up to 1,500 gt and 5.2m draft.

Rosoysundet, formed between Rosoya and Femris, connects Fugloyfjorden and Sorfjorden. This narrow passage has no known dangers in the fairway and can be used by vessels up to 11,000 gt and 7.9m draft.

Anchorage may be taken by vessels of moderate size, with local knowledge, in 20 to 40m, on the E side of Sorfjorden, 2.5 miles SE of the N extremity of Femris. Care must be taken to anchor close inshore as the depths increase rapidly to the W.

The W approach to Morsdalsfjorden from Indreleia is at the N end of Sorfjorden; the fjord proper lies between the mainland peninsula on the E side of Sorfjorden and the SW side of Sandhornoya. It extends about 6 miles SSE to the S end of

Sandhornoya, and then Holmsundfjorden continues E and N to the S end of Nordfjorden.

Morsdalsfjorden is free from dangers, except for two rocky shoals, with depths of 5.5m and 8.5m, which lie 0.5 mile W and 0.4 mile N, respectively, of **Sundsodden Light** (67°05'N., 14°04'E.).

There is anchorage for moderate-size vessels, in a depth of 18.3m, on the W side of Morsdalsfjorden, about 0.4 mile SSE of Sundsodden Light. Vessels should get close under the land, as the depths increase rapidly offshore.

Saltfjorden, extending from **Fleinvaer** (67°10'N., 13°45'E.) to Hopen, 23 miles ENE is crossed by Indreleia. The E part of Saltfjorden is entered between **Skarneset** (67°12'N., 14°17'E.), the N point of Sandhornoya, and Kvannoya, 3.25 miles NNE. It gives access to Nordfjorden and through Saltstraumen to Skjerstadfjorden and other inner fjords.

This part of Saltfjorden is deep and wide and is free of dangers, though coastal reefs fringe each side; it is exposed to seaward.

The tidal currents in the E part of Saltfjorden are strong; they are usually E along the S shore and W along the N shore.

A mid-channel course in a NE direction will lead through Saltfjorden to the entrance of Saltstraumen.

7.61 Saltstraumen, a narrow channel on the S side of the inner end of Saltfjorden, is entered between **Kvitberget** (67°14'N., 14°36'E.), the NE extremity of Straumoya, and the NW point of Knaplundoya, 0.45 mile NE. This channel leads to the fjords E, which are collectively known as Indre Saltfjorden.

A bridge, with a vertical clearance of 41m over a navigable width of 80m, spans Saltstaumen.

Overhead cables span Saltstaumen; the least vertical clearance is 32m.

Winds—Weather.—With W winds, the flow is irregular, and slack water may occur up to 1 hour earlier or later than usual.

In springtime, with E winds and with the rivers in flood, the beginning of the N current is advanced,; that current may run for 7 hours, and the S current for only 5 hours.

Tides—Currents.—Skjerstadfjorden and its branch fjords are filled and emptied by semidiurnal tides through two narrow openings. These openings so restrict the volume of water that can pass, as to cause:

1. A substantial difference between the outer and inner levels.
2. Very strong tidal currents, especially in Saltstraumen.
3. A delay of about 1 hour 45 minutes in the times of HW and LW within.

In Saltstraumen generally, the spring rate of the tidal current is at least 3 knots, but attains 7.5 to 8.5 knots, and considerably more in extreme conditions, in the narrows abreast Storholmen.

Tidal intervals in Saltstraumen are shown below:

HW at Narvik	Remarks
-5 hours, 50 minutes	LW at N entrance
-4 hours, 10 minutes	LW at S entrance
-3 hours, 55 minutes	Slack water
-0 hour, 10 minutes	HW at N entrance
+1 hour, 25 minutes	HW at S entrance
+2 hours, 00 minutes	Slack water

Vigorous eddies, several meters wide and with markedly deep vortices, form when the flow is strong.

During the S current, eddies form between the S point of Storholmen and Tuv, 0.7 mile SE; on the S shore of Svefjorden; and beyond. They are strongest in the basin formed by Storholmen and the cove 0.2 mile E.

In that basin, the S current sets strongly towards the S point of Storholmen, then ESE towards Ripnespynten 0.2 mile ESE. During the S current, eddies do not form along the coast of Knaplundoya, SE and E of Ripnespynten.

During the N current, eddies form between the N point of Storholmen and the N entrance to Saltstraumen; the strongest eddies are off Storholmen. The currents which set on to the projecting points of Storholmen and Knaplundoya, beneath the bridge, cause an easily-visible ridge to form in the water, this extending 0.5 mile NNW to Kvitberget, the NW entrance point of Saltstraumen.

In Svefjorden, the incoming tidal current at the surface is the stronger, and can set up unpleasant overfalls in opposition to a strong E wind.

The strength of the tidal current and the powerful eddies in their wake cause Saltstaumen to be navigable only at brief periods of slack water and then only with local knowledge.

Signals.—Saltstraumen Signal Stations, which inform vessels when the passage of Saltstraumen may be made, are situated, as follows:

1. For inbound vessels—on the E shore, by the King Oscar II statue 0.3 mile N of the bridge.
2. For outbound vessels—at Ytre Tuv, 0.7 mile SSE of the bridge, on the S shore of Svefjorden.

Signals are shown from masts (yellow and white) and consist of red balls by day and red lights by night.

Saltstraumen Signal Stations are manned 1 hour before and after each current change within the period 0800 to 1900. A watch is maintained on VHF channels 14 and 16.

Information on times of transit through the Saltstraumen passage can be obtained through a 24-hour information service contacted by telephone (08-18-77-00).

Mariners are held responsible for meeting the passage schedule and any other required conditions. Local regulations state that to avoid passing situations in the narrows, vessels with the current running against them should wait.

Anchorage.—Vessels proceeding to Saltstraumen can obtain anchorage, in depths of 20 to 29m, N of the W entrance point of Saltstraumen, but care must be taken to avoid the reef fringing Straumoya.

7.62 Svefjorden continues ESE from the S entrance of Saltstraumen; it is free of dangers in mid-channel. An overhead cable spans Svefjorden 1 mile E of its entrance.

Skjerstadfjorden is entered from Svefjorden abreast **Buneset** (67°13'N., 14°42'E.) and extends to **Gjelbuneset** (67°11'N.,

15°24'E.) 16 miles E, on the S side of the fjord. From this point Saltdalsfjorden extends 5 miles farther SSE.

As in Svefjorden, the incoming tidal current at the surface is the stronger, and can set up unpleasant overfalls in opposition to strong E winds. These conditions are particularly dangerous in Skjerstadfjorden, which is liable to squalls. Squalls often develop suddenly and are generally followed by periods of calm.

The white sector of the light on Buneset, bearing astern, leads in the fairway towards position about 3 miles NE of the light. The white sector of **Alvnestangen Light** (67°16'N., 15°02'E.) leads E in the fairway, passing N of Oygrunnane, an area of foul ground which extends about 1 mile N of the S shore.

From a position about 1 mile W of Alvnestangen Light a SE course will lead through the E part of Skjerstadfjorden to Gjelbuneset.

Fauske (67°16'N., 15°24'E.) lies at the head of Fauskevika, which is entered 7 miles SE of Alvnestangen Light; this is the administrative center for the surrounding district.

There is a stone and concrete quay here, 39m long, with depths of 4.2 to 7.2m alongside.

Finneid, about 1 mile E of Fauske, has a quay 126m long, with depths of 5.2 to 11m alongside.

Rognan (67°06'N., 15°25'E.) lies at the head of Saltdalsfjorden, which extends 5 miles S from its entrance abreast Gjelbuneset; it is the administrative center for Saltdal district.

Berths are available in Rognan, at quays up to 130m long, with depths of 3.4 to 10m alongside. Anchorage is available, in 21m, clay and sand, in a position about 0.3 mile WNW of Rognan Church.

Donna to Saltfjorden

7.63 Indreleia may be reached from seaward by passing S of the S end of **Traena** (66°25'N., 12°00'E.), then proceeding across the S part of Traenfjorden, into the W arm of Sjona, then toward the S end of Stigfjorden. Traenfjorden is the fjord next N of Nordre Asvaerfjorden.

Traenfjorden, which lies in a NNE to SSW direction, is bound on the W by the Traena group and on the E by Mavaer and Nesoya. The navigable channel is about 4 miles wide at its entrance and about 3 miles wide between **Selvaer** (66°36'N., 12°18'E.) and the dangers W of Nesoya.

Tides—Currents.—In Traenfjorden the tidal currents set N and NE with the rising tide and S and SW with the falling tide.

When bound from the S end of Traenfjorden to Indreleia, a vessel should steer ENE passing between **Samskallen** (66°22'N., 11°58'E.) and Ovskallen, 2.25 miles N, and pass N of **Kvalholmen Light** (66°25'N., 12°28'E.); from this position the track leads about 0.5 mile N of Kvitingan, which lies 3.25 miles ESE of the light.

Indre Solvaerrevet (66°24'N., 12°41'E.), an isolated patch with a charted depth of 5.8m, lies about 2 miles E of the light on Kvitingan. Other dangers in this area may best be seen on the chart.

From the vicinity of Kvitingan, steer toward Eggelosa, passing S of Indre Solvaerrevet. A vessel can steer from Eggelosa SE between Onoya and Kvitaer into Sjona and then into Indreleia.

The dangers in Sjona and the vicinity may best be seen on the chart.

Although there are several different ways through and across Traenfjorden, care should be taken to avoid **Stokholmen** (66°29'N., 12°21'E.), 4.75 miles NNW of Kvalholmen Light, and the shoals which are charted within 1.75 miles.

Vessels may proceed N from a position N of Kvalholmen Light, passing in mid-channel between Skjaerflesa Light and Stokholmen, steering to pass W of **Asbraken** (66°30'N., 12°32'E.), a foul area 3 miles E of Stokholmen.

From a mid-channel position E of Dorvaer, 4 miles NNW of Stokholmen, a deep fairway leads N toward the W end of Lyngvaerfjorden passing between the many dangers charted off Traena and Nesoya.

7.64 Lyngvaerfjorden, N of Traenfjorden, is broad and deep and separates Traena from **Myken** (66°46'N., 12°29'E.).

Valvaerfjorden lies E of Valvaer, the island group close NE of Myken. This fjord is encumbered by a large number of rocky shoals; navigation is dangerous without local knowledge.

Tennholmfjorden, 16 miles NE of Lyngvaerfjorden, is entered S of **Kalsholmen Light** (66°55'N., 13°06'E.). The fjord is free from dangers but Lyjosboen, a reef with less than 1.8m lies in the W approach 6 miles SW of Kalsholmen Light, and Sveboen, a reef with a least depth of 4.6m, lies 5.5 miles WSW of the light.

Stapfjorden leads N from the inner end of Tennholmfjorden, along the W side of the **Stottvaer** (66°56'N., 13°20'E.). The fairway of this fjord is free from dangers.

7.65 Fleinvaerfjorden, leading NE into Saltenfjorden, is deep and free from dangers in the fairway. Fleinvaer, a group of low islands, lies on the NW side of Fleinvaerfjorden. Fuglovaer, Fleina, Sor Arnoya, and Nord Arnoya lie on the SW and SE side of the fjord.

Nupen (67°08'N., 13°43'E.) is the farthest S of the Fleinvaer group. The most dangerous shoals in the approach to Fleinvaerfjorden extend 4 miles W of Nupen. Other shoals lie off Fleinvaer; their positions may be seen on the chart.

The outer dangers in the approach are usually indicated by the great number of sea birds seen in their vicinity.

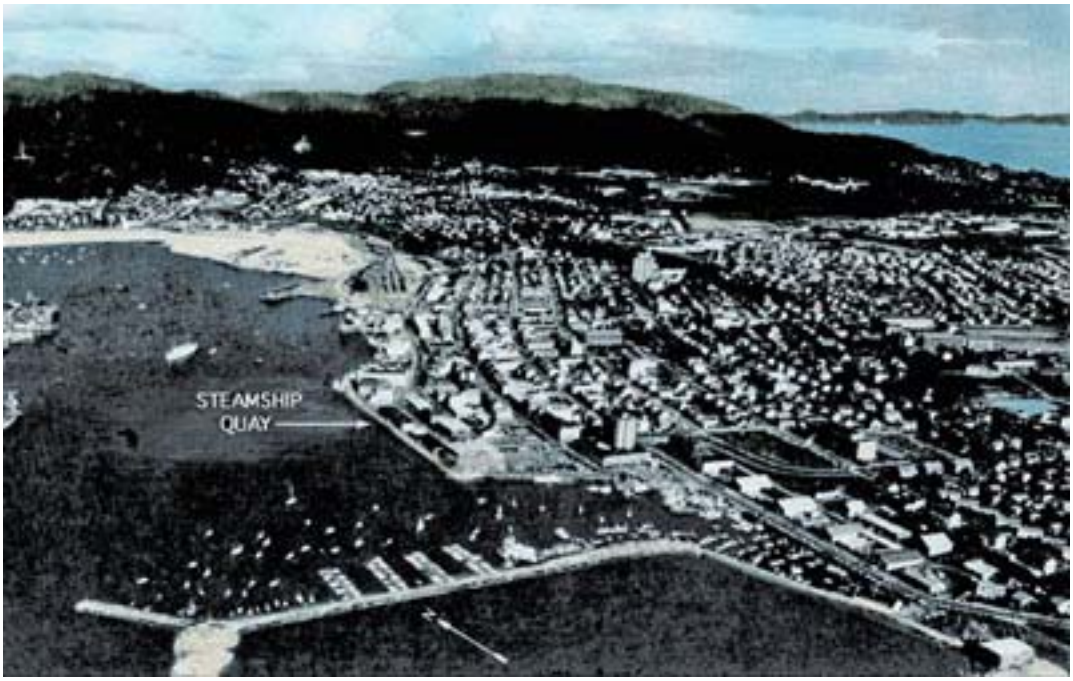
A vessel approaching Fleinvaerfjorden, when in the vicinity of **Gronna** (67°01'N., 13°11'E.), should steer well N of that group. When clear N of Gronna, steer ENE, passing S of Nupen, then in mid-channel to join Saltfjorden NE of Nord Arnoya

The principal channel to Bodo, is the one which leads S of **Tennholmen** (67°18'N., 13°30'E.), then N of Fleinvaer into Saltfjorden in approximate position 67°12'N, 14°08'E; this is specified for entrance into the Restricted Sea Area.

Tides—Currents.—Tidal currents around Tennholmen are rotary. At local LW, the current begins to run SW, changing gradually through W, NW, and N as the tide rises.; at local HW, the current begins to run NE, changing gradually through E, SE, and S as the tide falls.

7.66 Tennholmen lies about 20 miles W of Bodo and about 9 miles NW of Fleinvaer.

Seioskallen (67°17'N., 13°31'E.), a shoal with a least charted depth of 7m, lies about 2 miles SSE of the light on Tennhol-



Bodo

men. A shoal, with a depth of 15.9m, lies 0.25 mile SW of Seioskallen. This is the farthest S of the dangers off Tennholmen.

For dangers E of Tennholmen and the dangers in the vicinity of Givaer, 5 miles E of Tennholmen, refer to the chart.

From a position clear of Seioskallen, the entrance channel passes midway between Fleinvaer and Kjaervaer, 3 miles NE, then into the W end of Saltfjorden.

Mesjoygrunnen (67°12'N., 13°59'E.), with a least charted depth of 4.6m, lies about 1.0 mile SE of the light in Kjaervaer.

7.67 Indreleia crosses Saltfjorden from Marnesskagen to the vicinity of **Store Svartoksen** (67°16'N., 14°14'E.), 7 miles NE, where the route divides.

Svartoksleia, the principal channel into Bodo, leads N of Store Svartoksen and S of Store Hjartoy and Lille Hjartoy.

A line of shoals extend ENE from Store Svartoksen.

Kirkgrunnen (67°15'N., 14°14'E.), a small patch with a depth of 1.5m, lies about 0.4 mile SW of the light on Store Svartoksen.

Lille Svartoksen, a drying reef, lies on the N side of Svartoksleia, 1 mile NE of Store Svartoksen.

In Saltfjorden, vessels should steer in the white sector of Store Svartoksen Light bearing between 036° and 062°, ahead, to within about 1 mile of the light, when the vessel should steer to pass W and N of the light.

When N of Store Svartoksen, steer to pass between Lille Svartoksen and Langdragan, 0.45 mile ESE, then into the entrance of Bodo.

Care should be exercised to avoid the shoal spit extending 91m SW from the SW extremity of Nyholmen and a shoal spit extending 137m E from the mole head, in the entrance to Bodo.

Bodo (67°17'N., 14°23'E.)

World Port Index No. 22290

7.68 Bodo, a coastal natural harbor, is formed between Nyholmen and the Buroya peninsula on the NW side, and the mainland on the NE and SE side. A mole extends about 0.2 mile NNW from the mainland toward the SW extremity of Nyholmen. Nyholmen and Buroya are connected by a causeway and by the Bodo Bridge.

Bodo is the administrative center for the county of Nordland.

Port of Bodo
http://www.bodohavn.no

Bodo—Berthing Information			
Berth Name	**Length**	**Depth Alongside**	**Remarks**
Lillebrekken			
Lillebrekken Berth	55m	6.0-7.2m	Passengers

Bodo—Berthing Information			
Berth Name	**Length**	**Depth Alongside**	**Remarks**
Ostbrekken			
Ostbrekken Quay	70m	5.6-7.8m	Passengers
Dampskipskaia			
Dampskipskaia Berth	180m	5.0-7.2m	Passengers
D/S Concrete Quay North	7.0m	4.0m	Passengers
D/S Concrete Quay West	7.0m	2.3-8.0m	Passengers
D/S Sheet Piling Quay West	7.0m	2.3-8.0m	Passengers
Teminalkai			
Teminalkai Berth	350m	9.2m	Passengers
Teminalkai North	47m	9.2m	Passengers
Klossen	35m	9.8m	Passengers
Terminal South			
New Hutigruten	180m	—	Passengers and general cargo
Bodo Ferry Terminal			
Ferry	40m	6.2m	Passengers
Railway Terminal			
Railway Quay	100m	6.2-8.0m	Passengers
Railway Quay West	60m	7.3m	Passengers
Bodo Sildoljefabrikk AS Terminal			
Bodo Sildoljefabrikk	165m	8.0-10m	Fish meal and oil
Tanker Berths			
Vestervika			
Shell	60m	9.2m	Petroleum products. Can accommodate vessels with a maximum loa of 180m and a maximum beam of 26.2m
Vestervika	—	10.2m	Can accommodate vessels up to 32,000 dwt

Winds—Weather.—The prevailing wind at Bodo is from the E, except in summer, when winds are mainly from N and E or between SW and W. Calms often occur from July to September. Gales and strong winds blow mostly from SW and W.

The inner harbor is well sheltered from most directions, but it is reported that bad weather from SW or W can cause occasional delays in berthing or unberthing in the absence of tug assistance. The harbor is always ice free.

The outer harbor consists of the water area between the town and the SW part of Lille Hjartoy, SW of the mole; it is exposed to SW and W.

Tides—Currents.—The tidal rise at MHWS is 2.8m; the tidal rise at MLWS is 0.4m.

Depths—Limitations.—Berthing details are shown in the accompanying table titled **Bodo—Berthing Information**.

Aspect.—The framework radio masts, E of the root of the mole, are conspicuous. Bodo Church is a prominent yellow building, with a separate bell tower surmounted by a spire at its W end.

Pilotage.—Pilotage from the sea to Bodo is reported to be compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Londingen Pilot Booking Center at an additional cost.

The pilot boards, as follows:

1. About 2 miles N of Fleinvaer in position 67°13.5'N, 13°46.2'E.
2. About 3 miles N of Landegode Light in position 67°30.0'N, 14°22.5'E.
3. About 4 miles NW of Oterholmen Light in position 67°13.9'N, 14°07.2'E.

The pilot boat and pilot office are equipped with VHF chan-

Courtesy of Kystriksyeien Reissseliv AS

The Bodo Bridge

nel 16.

Anchoring is usually advised by the sea pilot or the harbor pilot.

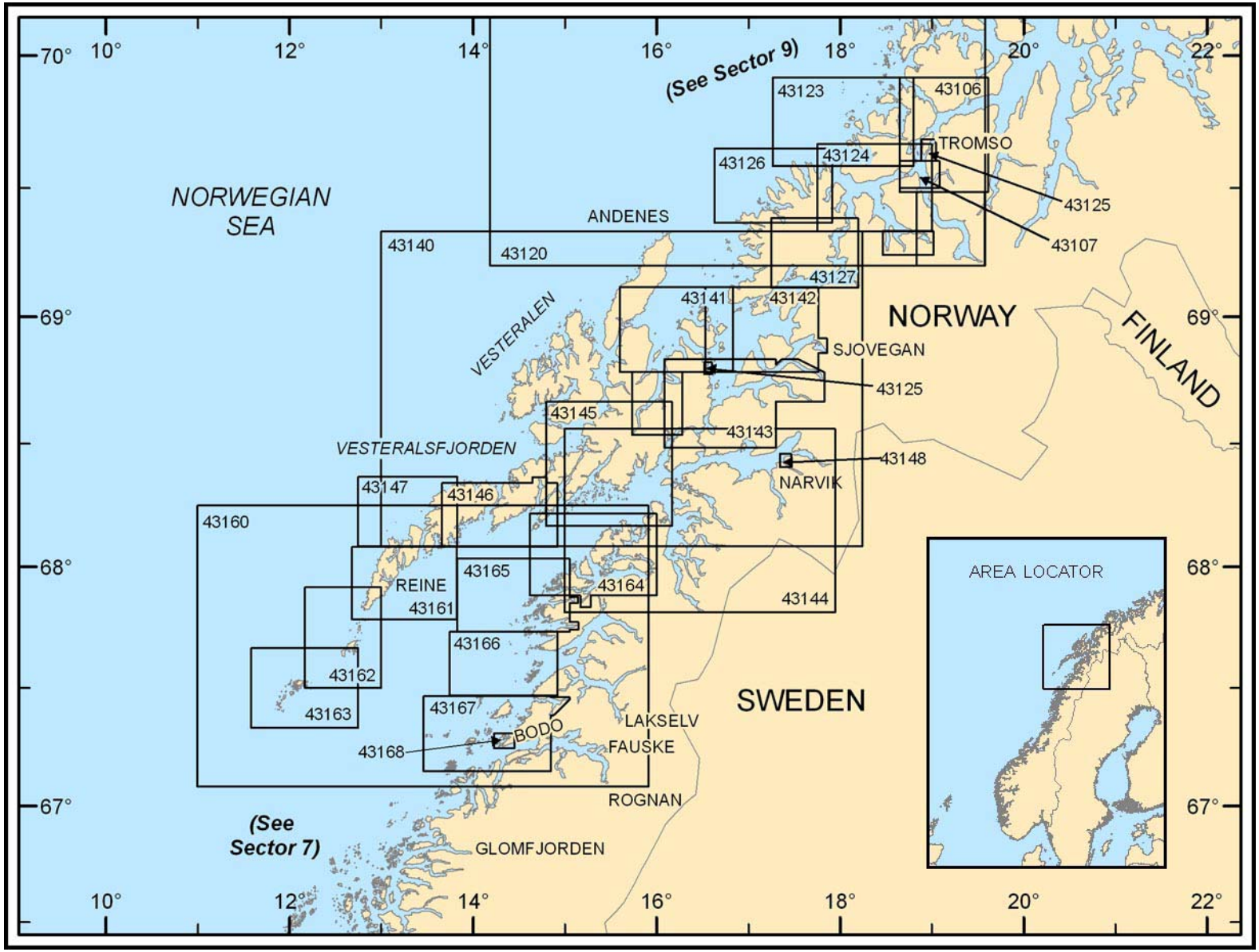
Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12, 14, and 16
2. Telephone: 47-75-551080
3. Facsimile: 47-75-551090
4. E-mail: firmapost@bodohavn.no

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

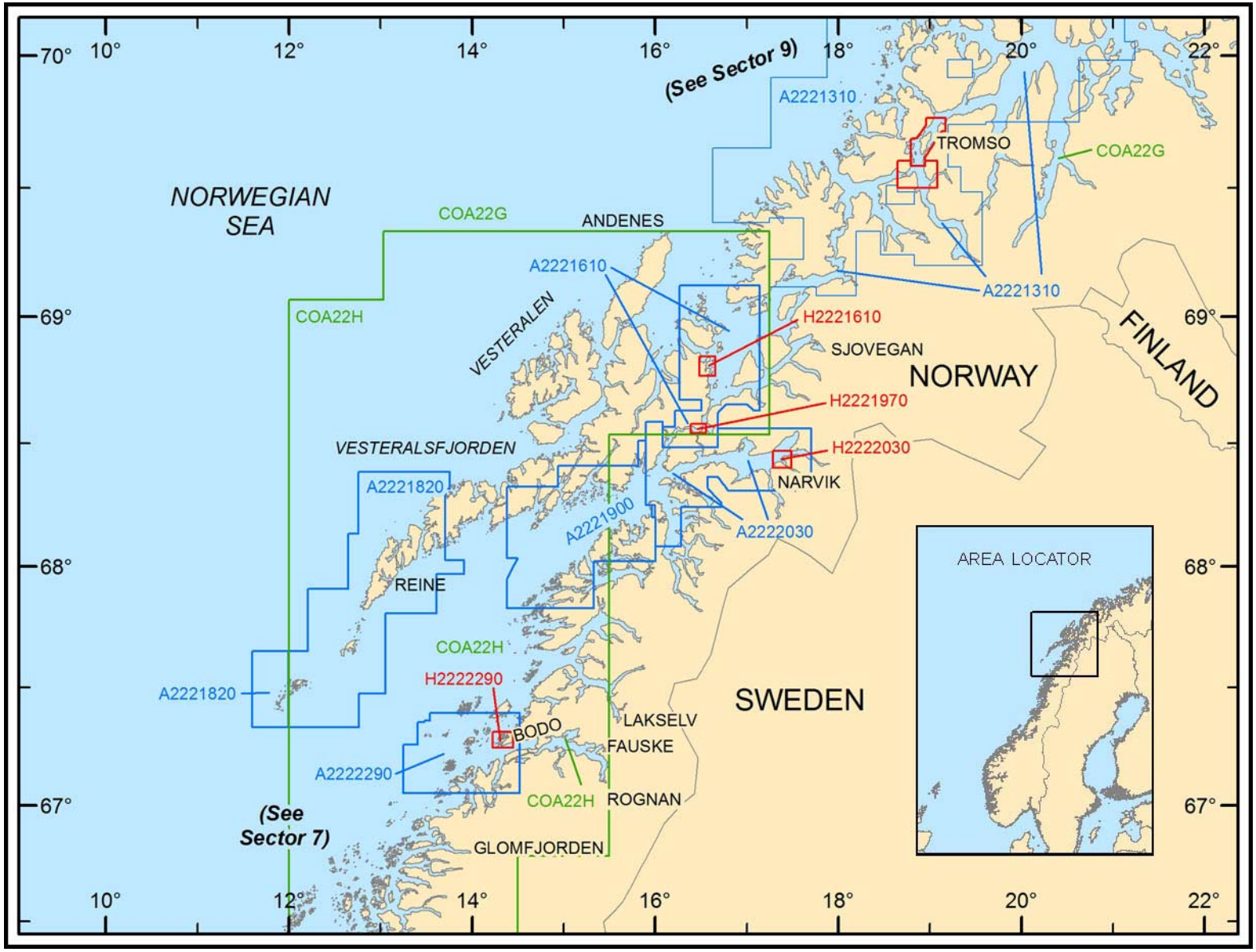
Caution.—Bodo Seaplane Harbor comprises the area E of Store Hjartoy, between a line joining the N extremity of that island and a point on the mainland about 1.0 mile ESE, and a line joining Hjartoydragan, off the SW coast of Store Hjartoy, and a point on the mainland about 1 mile SSE.

When flying is in progress and the area is closed to water traffic, a ball painted in yellow and black checks is hoisted at a signal mast on a tower near Breidvikholmen, close SW of the head of the mole.



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

SECTOR **8** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 22 (Limited Distribution) disc within the README\ ICS folder.

SECTOR 8

NORWAY—SALTFJORDEN TO TROMSO

Plan.—This sector describes the NW coast of Norway starting from the area near Vestfjorden, in the vicinity of Bodo to Tromso including Malangen. A description of the mainland, Lofoten, Vesterlan, and the approaches to Narvik, Harstad and Tromso is included. Indreleia and the inner fjords are also described.

General Remarks

8.1 Tides—Currents.—The tides on the NW coast of Norway are always semi-diurnal, with relatively little inequality between heights of the two tides. They are small to moderate in size with a gradual increase in range toward the N. The mean range is about 1m at Bergen and about 2.1m at Tromso.

Weather conditions, both locally and in the ocean off the coast, may considerably influence the tides.

The currents on the W side of Lofoten sets constantly N regardless of the tide, but this may not be the case close inshore.

Along the coast of Vesteralen, the tidal currents nearly always set N with an appreciable velocity. It is strongest with the approach of bad weather and increases in strength near the land. Occasionally the tidal currents set S for about 1 hour, the change occurring at the time of HW and LW.

Off Senja, the tidal currents usually set N following the direction of the land, and often attain a considerable velocity, especially near the time of HW.

Along Kvalo, the tidal currents usually set NE with the rising tide and SW with the falling tide, but they are likely to follow the contour of the coast and the principal reefs. The Kvaloy tidal currents attain their strength at about half tide, and often run with a velocity of about 3 knots.

Along the coast of Vesteralen, the tidal currents nearly always set N with an appreciable velocity. It is strongest with the approach of bad weather and increases in strength near the land. Occasionally the tidal currents set S for about 1 hour, the change occurring at the times of high or LW.

Certain reports published from 1835 to 1848 indicate the current 10 to 12 miles SW of **Andersboskallen** (68°46'N., 13°33'E.) ran N, NE, and E, with a rate dependent upon the wind, but occasionally reaching 4 knots over the shallow banks. These reports must be considered, for where depths change suddenly, as in the vicinity of Andersboskallen, and about 23 and 32 miles farther NE, there may be a strong flow and violent turbulence. In the areas referred to, the NE or E flow is probably strongest on the rising tide with strong S to W winds. Turbulence is probably most violent during the rising tide with strong N to E winds.

In the whole of Vestfjorden the movements of the tidal currents are substantially influenced by the winds. At times when there is little or no current in mid-channel, there is a regular current along the land on either side, invariably setting in contrary direction on the opposite sides of the fjord.

The tidal currents set NE with the rising tide and SW with the falling tide, along either the mainland or SE coast of Lofoten, but it is uncertain as to when or on which coast the currents will make. Vestfjorden and all major straits are free of ice.

Aspect.—Vestfjorden is a broad and deep body of water that separates the mainland from the islands of Lofoten and Vesteralen. Its principal outlying islands are Hadseloy, Langoya, and Andoya. Vestfjorden is the seaward approach from Saltfjorden and Bodo to Ofotfjorden and Narvik. Both Ofotfjorden and Narvik lie about 100 miles NE of Saltfjorden, at the head of the fjord.

In general, the W and NW coasts of Lofoten are almost inaccessible and should be avoided. This is also true of the Vesteralen group, comprised of four large islands and several small islands, which are dangerous to approach.

The coast of the mainland of Vestfjorden is broken by a number of large fjords. Generally, it rises abruptly to over 900m, and consists of bare rock with a forested lower slopes.

The mountains of Lofoten and Vesteralen are steep and lofty, often covered with snow, and are, most often, easily identified. They may be seen from a distance of 40 to 50 miles in clear weather.

The coast continues to the island of Senja and then to Kvaloy. The entrance to Tromso lies between the two islands. Malangen, the direct passage to Tromso, lies between the two islands as well.

Senja, with its granite peaks, presents a rugged and imposing appearance from seaward. A ridge, from 610 to 914m high, runs along the whole island in a NE and opposite direction. Kvaloy, to the NE, is mountainous and attains an elevation of 1,045m.

Pilotage.—Lodingen Pilot Center organizes and engages pilots for vessels in Nordland and the Troms, from Rorvik in the S to Kirkenes in the N. Pilots should be requested 24 hours in advance. The ETA should be confirmed 2 hours prior to arrival at the pilot station.

See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Ship Reporting System.—The Barents Ship Reporting System operates in the Barents Sea off the coasts of Norway and the Russian Federation beginning at latitude 67°10'N off the coast of Norway and continuing N, NE, and E to longitude 33°20'E off the coast of the Russian Federation. For further information, see **Arctic Ocean—Ship Reporting System** in Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

Caution.—An IMO-adopted TSS is located off the N coast of Norway; it lies about 60 miles W of Rost (67°31'N., 12°07'E.) and leads to about 37 miles NNE of Vardo (70°22'N.,

31°07'E.). See paragraph 9.1 for further information.

Andersboskallen (68°46'N., 13°33'E.), with a least charted depth of 37m, lies about 18 miles W of Langoya off the Vesteralen group. There are two other patches within 3 miles N of the 37m spot, with depths of 40m and 57m.

It would be by no means safe to pass over Andersboskallen during a heavy W swell, as this would cause a high topping sea, even if it did not break; rollers set in toward them from a long distance W.

Saltfjorden to Skrova

8.2 Vestfjorden, the fjord lying between Lofoten, Vesteralen, and the mainland, is entered from seaward between **Muken** (66°45'N., 12°29'E.) and Skomvaer Light, 40 miles NNW.

Vestfjorden is deepest at Tranoy, with a depth of about 640m. At this point, it is also the narrowest, and the depth decreases farther S.

Between Rost and Fleinvaer, the maximum depth is about 300m. The fjord is deepest along the mainland. Here the bottom slopes steeply at a short distance from land so that the relatively shallow parts close to land are narrow.

Vessels approaching Vestfjorden from SW in clear weather will be able to identify Rost, Vaeroy, and Moskenesoy, which form the SW end of Lofoten. Rost, the S island, can be seen from a distance of 30 miles. The latter two islands appear as two steep cliffs. From a distance of 20 miles, one can see the high and pointed small islands of Ellefsnyken, Trenyken, and Hernyken, which are located to the S of Storfjellet. The characteristic formations of these islands make it easy to identify Rost.

When entering Vestfjorden in thick weather, vessels can verify their distance offshore near Lofoten by soundings. There are depths of 100m from about 1 to 4 miles offshore from the S end of Moskenesoy to Skrova, about 47 miles ENE. Soundings give little warning E of Skrova; depths of 200m are found within 1 mile of some of the rocks off the S coast of Hinnoya.

In general, it is recommended that vessels keep close to Lofoten, where there are large flat sea areas with lesser depths, rather than the mainland, which is foul offshore. When E of Skrova, the dangers are all on the N side of the fjord and it is necessary to keep on the mainland side.

8.3 Among the islands lying off the mainland coast are Landegode, 791m high, about 8 miles N of the Saltfjorden entrance, and Engeloya, 648m high, about 45 miles NNE of the same entrance. These islands are conspicuous because of their size and contour.

There are several conspicuous mountains, which rise to a height of 947m, in the vicinity of Ofotfjorden.

The fringing islands and dangers extend about 20 miles W from the mainland in the vicinity of Bodo; north of Bodo the obstructions gradually decrease in distance from the coast.

Helligvaer (67°25'N., 13°55'E.) and Lyngvaer, W of Landegode, comprise the next mass of islets NE of Tennholmen. This group of islets lies with their S end about 10 miles NE of Tenholmen.

Storboen, a drying shoal, lies on the SW side of Helligvaer and Nordboen, a rocky shoal with a least depth of 7.9m, is situated off the N side of Helligvaer, 5 miles NE of Storboen.

Kjengbaen (67°29'N., 14°01'E.), a rock with a depth of 0.3m, lies 2.75 miles NE of Nordboen.

Husoyvaer, situated 18 miles NNE of Kjengbaen, consists of a group of islets and rocks which extends about 11 miles W of the mainland.

Utgrunnen (67°42'N., 14°17'E.), the outer patch of Husoyvaer, has a least depth of 18.2m. Utgrunnsflesa, a reef which breaks, lies 1.25 miles ESE of Utgrunnen.

Kjolibaen (67°45'N., 14°23'E.), with a depth of 1.8m, breaks except in calm weather. It is situated 4.25 miles NNE of Utgrunnen, off the SW side of Maloyvaer. Dorholmskjaeran, another danger, lies on the NW side of Maloyvaer, 2.5 miles NNE of Kjolibaen.

Maloy Skarholmen, an islet marked by a light, lies 1 mile NNE of Kjolibaen.

Maloy Skarholmen (67°46'N., 14°24'E.) is a light shown from a prominent tower, 34m in height, standing on the islet. A racon is located at the light tower.

Engelvaer (67°53'N., 14°34'E.) is a group of islands and rocks which lie close NE of Maloyvaer, about 6 miles offshore. Tverskallen, with a charted depth of 15m, lies 3.5 miles NE of Dorholmskjaeran, at the SW edge of the group.

Several foul patches lie on the NW side of the group, 3 to 4 miles NE of Tverskallen.

Flatoy (67°55'N., 14°46'E.), an island, lies 2 miles NE of the Engelvaer group. A light is situated on the SW part of the island.

To the NE of Flatoyare are the islands and rocks of Valsvaer, which extend about 3 miles W of Engeloya, a large island rising to a height of 648m.

Off the N end of Engeloya is Brunvaer, another dangerous group. From Brunvaer NE to Ofotfjorden, the salient features of the coast are apparently free from off-lying dangers.

8.4 The islands of Lofoten and Hinnoya form a chain extending NE to the mainland near Ofotfjorden.

Rost is the farthest SW group of islands on the NW side of Vestfjorden.

Rost (67°31'N., 12°07'E.), the principal island of the group, is a flat low-lying island surrounded by islets and rocks, none of them visible beyond 7 or 8 miles. Masts equipped with obstruction lights are situated in the N part of Rost.

Rostnesvagen is entered close to the W side of Vaeroy Light (67°39.1'N., 12°43.5'E.). Iron perches mark the E side of the entrance.

Skomvaer Light (67°25'N., 11°52'E.) is shown from a tower 34m in height, standing near the S end of the Rost group. A racon is located at the light tower.

Storfjellet (67°28'N., 11°56'E.), 267m high; Vedoy 209m high; and Stavoy, 148m high, lie, respectively, 3.75 miles SW, 2 miles SSW, and 1 mile SE of Rost. These three islets form excellent landmarks.

Tides—Currents.—The general flow pattern in Vestfjorden flows inward along the W. In winds from the SW, the current is partially turned. Most straits on the W and N sides of Vestfjorden have strong currents. High water and LW are occur about simultaneous in all of Vestfjorden. The differences in tidewater levels are among the greatest along the entire Norwegian coast. In a storm from the SW, the water level may be sig-

Scomvaer Light

Vedoy

nificantly above the anticipated values in the Tide Table.

The passage W and SW of Lofoten, the continental shelf generally has depths of less than 200m with some shoals close to land. The slope in the W is very steep.

The coastal current, running N to NE, dominates the current conditions. Tidal currents reinforce this effect with rising water and weaken it with falling water.

With waves from NE to NW, the interaction between current and waves will create choppy waves. Refraction centers may occur SW of Rost when the waves come from the SW. Close to Lofoten, the waves may also be reflected due to the steep continental slope.

Vaeroy (67°40'N., 12°40'E.), about 10 miles NE of Rost, is separated from that island by Rosthavet. Mosken, a conspicuous two pointed summit lies on the same shoal bank, 3 miles NNE of Vaeroy.

The S, W and N sides of Vaeroy and Mosken are unapproachable and a vessel wishing to enter Vestfjorden from W must do so through Rosthavet, or through Moskenstraumen, 3 miles NNE of Mosken; Rosthavet is preferred. The shoals on either side of these channels are best seen on the chart.

Lofotodden (67°50'N., 12°51'E.), the S extremity of Moskenesoya, forms the N side of Moskenstraumen.

Yttertuven (67°50'N., 12°52'E.), the E extremity of Lofo-

Vaeroy

todden, is marked by a light. From this point, the coast of Moskenesoya extends 8 miles NE to Reine. Rodliskallen, an 11.9m patch, lies 1 mile offshore, 2.75 miles NE of Yttertuven.

A (67°53'N., 12°59'E.), at the mouth of the Avanndet River, 4 miles NE of Yttertuven, Tind, and Bogen, are three fishing villages with a common entrance. They are suitable only for small vessels and local knowledge is required.

Reine (67°56'N., 13°06'E.), one of the principal fishing stations in Lofoten, is situated 3.5 miles NNE of Bogen. Local knowledge is necessary for entering the harbor, which has a channel dredged to 4.9m. The deepest berths are 3.9 to 5.9m. There is a secure anchorage in the harbor, in depths of 20 to 24m.

The port can be contacted, as follows:

1. Telephone: 47-76-053100
2. E-mail: post@reinehavn.no
3. Web site: http://www.reinehavn.no

8.5 From Reine, the coast of Moskenesoya trends NNE for 4.25 miles to **Kunna** (68°00'N., 13°14'E.), a narrow island, 96m high; then the S coast of Flakstadoya and the S end of Vestvagoya trend NE 8.5 miles to Ballstad. The coast in this area is much indented with fjords and there are numerous off-lying dangers.

The entrance to Kirkefjorden, about 1 mile N of Reine, is encumbered with islets and rocks. Strong winds blow out of the fjord.

A channel, spanned by a bridge 1.75 miles within its entrance, separates the E side of Moskenesoya from Flakstadoya. The bridge has a vertical clearance of 15.9m.

Kunna lies in the entrance to Skjelfjorden, which penetrates the S side of Flakstadoya to a distance of about 4 miles N.

Skjelfjorden is navigable by deep-draft vessels as far as **Stjerndalen** (68°02'N., 13°14'E.), 1.5 miles within the entrance; however, a shoal spot, with a depth of 0.9m, lies about 0.3 mile ENE of the NE side of Kunna.

Nusfjorden, entered about 3 miles NE of Skjelfjorden, penetrates Flakstadoya for about 1 mile. The entrance to the fjord is constricted to a width of about 183m between the light and a danger NE.

Nappstrommen (Nappstraumen), the passage between Flakstadoya and Vestvagoya, is entered from Vestfjorden in approximate position 68°02'N, 13°25'E, and leads N to the vicinity of **Nappholmen** (68°08'N., 13°28'E.).

Gapet, a narrow channel about 1 mile long, gives access to the open sea from Nappholmen. Nappstrommen and Gapet can be navigated by large vessels.

The dangers in the S entrance of Nappstrommen may best be seen on the chart. Most of the dangers within the passage lie on the E side of the fairway, leaving a deep and clear channel up the W side.

Gapet (68°09'N., 13°28'E.) is entered close E of Nappholmen. The white sector of the light on Hudholmen bearing between 326° and 336°, ahead, leads through the fairway.

Northbound vessels from Gapet pass E of Hudholmen.

Anchorage may be taken in Haugbukten, in 25 to 30m, clay and sand, in a position about 1 mile ENE of the light at Nappholmen. It is inadvisable to anchor off the N shore of the bay

Reine

Reine

owing to heavy squalls which blow down from Offersohammen, 1 mile N of the center of the bay. Vessels are cautioned of the submarine cables located in the vicinity of Napp Light.

Buksnesfjorden indents Vestvagoya to a distance of about 4 miles. It is entered NE of **Svinoya** (68°03'N., 13°33'E.), which is about 3 miles ENE of the entrance to Nappstrommen. A light is situated on Svinoya.

Ballstad (68°04'N., 13°42'E.) is an important fishing port, protected by moles, situated on the W side of Buksnesfjorden, 1.5 miles N of Svinoya. There are depths of 7m in the approach and 4m in the inner harbor. The deepest berths are 4.3 to 5.1m. The harbor is suitable for small vessels.

8.6 **Brandsholmen** (68°05'N., 13°39'E.) is situated on the E side of the entrance to Buksnesfjorden. The island is 100m high and is the highest in the area. It is impossible to mistake

because of its precipitous W side.

From Brandsholmen, the coast of Vestvagoya trends 3 miles ENE; the SE side of the island extends about 14 miles NE to the island of Gimsoya, on the W side of Austvagoya.

Urberget (68°04'N., 13°43'E.), 335m high, rises in the SE part of Vestvagoya, 1.25 miles ENE of Brandsholmen. It is easily identified by its darker appearance and though its summit is always snow-capped, its precipitous slopes hold little snow. Steinetind, 517m high, and pointed in shape, is situated about 3 miles NNE of Urberget. Dalstind, 461m high, and Horntind, 361m high, lie 6.5 and 8.5 miles NE, respectively, from Steinetind. They are the most conspicuous hills on a dark ridge of hills that extend NNE from Dalstind.

Henningsvaerstraumen (Henningsvaer Strommen) is a broad and deep opening between the SE side of Vestvagoya and the SW end of Austvagoya. This sea area extends 10 miles to the NNE, which in turn leads to the open sea.

The area is difficult to navigate due to the many dangers, which may be seen on the chart. The area is one of the principal fishing grounds in Lofoten.

Stamsund (68°07'N., 13°51'E.) is situated on the SE side of Vestvagoya, close E of Steinetind. It is protected by breakwaters. A stone steamship quay, with timber fenders, has a length of 180m and depths of 5.4 to 6.9m alongside. Vessels up to 16,000 gt have been moored stern-to at an oil storage installation.

The W entrance from Rokkiva has a controlling depth of 9m. Langsundet, the E entrance, with a controlling depth of 5m and a power line with an overhead clearance of 23m at its N end, is used by vessels with a maximum draft of 3.7m,

Stamsund is a large fishing district with an advantageous location with respect to the fishing fields. Good approaches to these fields are easily recognized due to the many characteristic peaks which can be used for alignment purposes.

Local pilots are available for mooring and warping large vessels.

Anchorage is available in Rakvika, SW of the harbor area, in 17 to 29m, good holding ground, but it is uncomfortable in S and SW gales and in squalls from NW.

8.7 Henningsvaer (68°09'N., 14°13'E.) is a large offshore fishing station, situated in an island group of the same name, off the SW end of Austvagoya. The harbor is centered on Hellandsoya.

It was reported that the main island of the group was joined to the small island NNE by a bridge, which in turn is joined to Engoya by a further bridge which extends to the mainland. It is reported that a conspicuous lattice mast stands at the S end of Henningsvaer.

The principal channels in the harbor approach have depths of 17m. A steamship quay has a length of 45m and alongside depths of 8 to 11.3m. There is about 1 mile of quayage which is provided with a large number of small cranes.

Local pilots are available on request to the harbor assistant.

From an approximate position of 68°09'N, 14°08'E, 1.75 miles W of Henningsvaer, a channel, obstructed by islets and rocks, leads about 6 miles NNE between Vestvagoya and Austvagoya to the vicinity of Gimsoya.

Gimsoystraumen (68°16'N., 14°15'E.), between Gimsoya and Austvagoya, connects Henningsvaerstraumen with the open sea. It can be used by moderate size vessels and is easy to navigate.

Gimsoystraumen is spanned by a bridge, with a vertical clearance of 30m and a horizontal clearance of 90m.

From Henningsvaerstraumen, the coast of Austvagoya trends about 11 miles ENE to the entrance of Ostnesfjorden (Austnesfjorden).

Off Henningsvaer, at the W end of this coast, patches of 14.6 to 27m lie up to 5 miles offshore. Moholmen, marked by a light situated, is located 2 miles offshore. The dangers that comprise this group may best be seen on the chart.

During onshore gales, the waters around Moholmen and the islets 1 to 2 miles NW are noted for the strength of flow. In such conditions, a violent race occurs in this area and passage becomes difficult.

8.8 Skrova (68°10'N., 14°41'E.), an isolated island, stands out because of its distinctive color and lower elevation. The largest island of the group rises to a height of 313m; it appears as a haystack against Store Mola and Lille Mola (Litle Molla) behind.

Skrova Light (Skraven Light) is shown from a prominent tower 24m in height. A radiobeacon is situated at the tower.

Skrova Havn (68°10'N., 14°40'E.) (World Port Index No. 21910) is situated in the island group of Skrova. Some of the islands are connected by moles.

The harbor is spacious, with several good quays on both sides of the strait. The quays, which are up to 90m long, have depths of 1.7 to 4.9m alongside. Mooring rings are installed around the harbor.

There are several good anchorages within the harbor area. The best anchorage is located in the roadstead N of St. Ramnoya, where there are depths of 16 to 30m, sand bottom. Caution is required due to the reported presence of fish farms in the harbor.

Pilots may be arranged through the pilot station at Svolvaer when a 24-hour advance notice is given.

Orsvag (68°12'N., 14°25'E.), situated 2.5 miles NNE of the light on Moholmen, is the best and roomiest anchorage in the area for vessels of moderate draft, and is easily approached in all weather. The anchorage is in depths of 7 to 8m, sand and clay. Orsvag Hamn Light is a perch marking a below-water rock.

8.9 Svolvaer (68°14'N., 14°35'E.) (World Port Index No. 21900), the largest and best protected harbor along the Lofoten coast, lies on the SE coast of Austvagoya, 4 miles NE of Orsvag.

Svolvaer, the capital of the Lofoten Islands, is situated on a peninsula and on several adjoining islets. Some of these islets are connected with the peninsula and each other by jetties and bridges.

The port has three harbors. It has been reported a vessel of 8,400 dwt, with a 7m draft, used the main harbor. There are four tanker berths. Vessels up to 16,000 dwt, 158m in length and 9.1m draft can be accommodated.

Submarine cables are laid in many parts of the harbors, as shown on the chart.

Pilotage is available. Pilots should be ordered via SafeSea-Net but may be ordered through the Lodingen Pilot Booking

The Gimsoystraumen Bridge

The Gimsoystraumen Bridge

Center at an additional cost. The pilot boards in position 68°11.0'N, 14°33.0'E (on request) or position 68°13.0'N, 14°53.3'E (Molldora).

Sveleia (Sveleden) (68°11'N., 14°42'E.) is a passage between the islets lying N of Skrova and those of Lille Molla; it connects Holen with Vestfjorden.The channels through Sveleia are well-marked and easily navigated.

Vessels of moderate size which are unable to enter Svolvaer may anchor in Sveleia, as indicated on the chart, in 16 to 30m, sand.

Molldoren leads between **Lille Molla** (68°12'N., 14°46'E.) and Store Molla, about 0.5 mile NNE.

Brettesnes (68°14'N., 14°51'E.), a fishery harbor in a cove at the S end of Store Molla, is approached from Molldora (Moldora) or from Vestfjorden. The harbor is exposed to mountain squalls, and a considerable sea is raised by S gales.

8.10 Holen (Hola) (68°14'N., 14°39'E.) is formed between Austvagoya, on the W, and Lille Molla, on the E. Skjoldvaer, on the SE side of the passage and NW of Lille Molla, is a group of islets and rocks lying up to 1.5 miles off Lille Molla, N of Skrova. This group should be avoided.

Kvalbaken, a danger on the NW side of Holen, is marked by a light and lies about 2 miles ENE of Rodholmane.

Approach to Henningsvaer

Henningsvaer

Austnesfjorden (68°17'N., 14°43'E.) extends about 6 miles N from the inner end of Holen and is free from dangers for about 4 miles. Farther N there are several shoals, which are best seen on the chart. Heavy squalls are experienced in the fjord.

Oyhellesundet, the passage NE of Holen, separates Store

The Raftsundet Bridge from S

Molla from Austvagoya; it is connected at its NE end with Raftsundet.

From Skrova, the NW side of Vestfjorden trends 16 miles ENE to **Rotvaer** (68°22'N., 15°56'E.), a group of islets and rocks lying about 1 mile SE of Hinnoya, and 3 miles W of the entrance to Ofotfjorden.

Several fjords indent this coast; the entire area is fronted by dangers which are best seen on the chart. Vessels enroute from Skrova to Ofotfjorden should steer along the SE side of Vestfjorden in this area.

Flovika (68°15'N., 14°57'E.), a deep body of water clear of dangers in the fairway, is formed between Store Molla, on the W side, and Arstein and Hinnoya, on the E. This passage leads from Vestfjorden to Rafsundet, about 7 miles NNW. The dangers off Arstein may best be seen on the chart.

Raftsundet (68°23'N., 15°05'E.) extends about 11 miles NNE from its junction with Oyhellesundet and Flovika, close N of Store Molla.

Raftsundet is formed between Austvagoya and Hinnoya. It is narrow and comparatively deep and clear. The channel, which is used by coastal steamers and tourist vessels, is not difficult to navigate and is well-marked by aids. The channel will accommodate vessels drawing 7.3m and about 116m in length.

The Raftsundet Bridge, a fixed bridge with a vertical clearance of 54.3m, spans Raftsundet about 0.7 mile SSW of the N entrance to the passage.

Tides—Currents.—Tidal currents in Raftsundet set S between half tides at fall and rise. In Trangstraumen, the narrows between 3.5 and 5 miles S of the N entrance, the current has a velocity of 4 to 5 knots, but with a S gale the N current may attain a velocity of 6 or 7 knots. It should be noted that in Trangstraumen, the S current sets toward the E shore and the N current sets toward the W shore. A light stands about 0.15 mile ESE of the bridge; a submarine cable crosses Raftsundet in the vicinity of the bridge.

There is anchorage for large vessels with local knowledge, in the SE part of Raftsundet, in 20 to 42m, about 1 mile ENE of the N extremity of Store Molla. An overhead cable, with a vertical clearance of 55m, spans Raftsundet near its N entrance.

8.11 Oksfjorden, the next fjord E of Flovika, penetrates about 11 miles N into Hinnoya. Between its entrance and Vestfjorden lies an extensive area of islets and shoals, including the islet group **Risvaer** (68°15'N., 15°09'E.) and **Svellingen** (68°18'N., 15°18'E.). Within that area are channels and anchorages suitable only for those with local knowledge.

Oksfjorden is connected to Vestfjorden by a channel from Flovika, which passes close along the E side of Arstein, and by **Smitskjaerleien** (68°20'N., 15°25'E.), which passes S of the SE part of Hinnoya.

Oksfjorden can be navigated by large vessels for a distance of about 8 miles to the islet of Husjordoy.

Kanstadfjorden is entered between **Offersoy** (68°19'N., 15°37'E.), a small low-lying peninsula 4.5 miles E of Smitskjaerleien, and Rotvaer, 7 miles NE. It indents Hinnoya for a distance of about 10 miles.

Hokfjorden extends 2.5 miles N from the inner end of Kanstadfjorden; Indrefjorden is the continuation of Kanstadfjorden on the NE side. Erikstadfjorden, suitable only for small boats, extends NW from Kanstadfjorden NNE of its junction with Hokfjorden.

Rinnoyvag (68°22'N., 15°46'E.), situated on the W side of

Kanstadfjorden, 4.5 miles NNE of Offersoy, has a berth at the timber quay, 23m long, with depths of 5.5 to 7.7m alongside.

Anchorage has been taken in Kanstadfjorden, with good protection from N and W winds, in 48m, with the light on **Aspeneset** (68°25'N., 15°47'E.) bearing 345°, 1.4 miles distant.

Landegodefjorden and Vestfjorden

8.12 Because of the shallow channel in Grotoysundet, for about 40 miles N of Bodo, Indreleia is of little use to large vessels. This part of Indreleia merges into Vestfjorden through Breisundet; Indreleia proper does not resume until the vicinity of Lodingen, at the entrance to Tjeldsundet, is reached.

Landegodefjorden is formed between **Landegode** (67°25'N., 14°20'E.) and the mainland about 4 miles SE. It is encumbered by islets, reefs, and shoal areas, whose positions are best seen on the chart.

Winds—Weather.—The area between Bodo and Landegode is exposed to violent squalls, especially in winter. East winds, with strong and frequent gusts, are liable to blow off the mainland; NW winds are variable in strength with heavy squalls off the high peaks of Landegode.

Tides—Currents.—The tidal current in Landegodefjorden sets NE with the rising tide and SW with the falling tide.

Aspect.—Landegode Light (67°27'N., 14°23'E.) is shown from a tower, 29m in height, standing on the islet of Eggeloysa, close N of the N end of Landegode.

Tennholmen Light (67°18'N., 13°30'E.) is shown from a low tower on a building, 14m in height, standing on the largest islet of the group. There is a helicopter landing platform at the light.

Vessels proceeding from Saltfjorden to Landegodefjorden should steer to pass NW of Store Svartoksen and SE of **Hausen** (67°17'N., 14°12'E.), an isolated patch with depths of less than 5.5m, situated 1.5 miles NNW of Store Svartoksen.

The white sector of the light on Store Svartoksen, bearing astern, leads NW of Store Hjartoy and W of **Lopsholmen** (67°20'N., 14°24'E.), 2 miles NE of Store Hjartoy.

Vessels proceeding from Bodo to Landegodefjorden may proceed through Hjartoysundet, formed between Store Hjartoy and Lille Hjartoy, or around Hjartoydragan and proceed in the white sector of the light on Store Svartoksen.

After the vessel has cleared Lopsholmen, they may steer in the white sector of **Bjornoy Light** (67°25'N., 14°26'E.).

In heavy weather, it may be preferable to pass 0.4 mile off Bjornoy then between Steinsgrunnen, a 20m patch 0.6 mile N of Bjornoy, and Mistgrunnen, a 19.8m patch, 0.75 mile NE.

From the vicinity of Bjornoy, the route continues NNW toward a position W of **Utgrunnen** (67°42'N., 14°17'E.), then N or NNE into Vestfjorden.

The white sector of the light on Bjornoy, bearing astern, leads W of **Ytre Skallen** (67°28'N., 14°25'E.), a 4.9m patch 3 miles NNW of the light, and E of Oyensve, 10.5 miles NNW, which usually breaks.

From the vicinity of Oyensve, the summit of **Lopsfellet** (67°19'N., 14°29'E.) in range with an isthmus on Landegode, 0.4 mile WNW of Bjornoy Light, bearing 167.5°, passes 0.4 mile W of Utgrunnen, and then into Vestfjorden.

Inner Fjords—Saltfjorden to Ofotfjorden

8.13 The fjords on the SE side of Vestfjorden, known as the coast of Salten, run in all directions and are frequently connected by low-lying marshy or lake filled depressions, so that the entire coast is a maze of intricate channels between islands and peninsulas.

In places, steep ranges of mountains, separated by valleys, lead away from the shores of the fjords, which are broken and have several large, low, boggy peninsulas.

Some of the fjords penetrate so deeply they almost reach the Swedish border.

Indreleia diverges from the main route from Bodo to Vestfjorden off Lopsholmen, keeping to the E side of Landegodefjorden and continuing NE through Karlsoyfjorden. There are many below-water rocks and dangers which exist in Landegodefjorden and must be avoided. Karlsoyfjorden is deep and free from dangers in the fairway.

Mistfjorden lies E of Indreleia, about 6 miles ENE of Bjornoy. The fjord is surrounded by high, massive, and bare mountains.

Kvanholmen (67°27'N., 14°40'E.), marked by a light, is situated on the S side of the entrance to Mistfjorden. From its entrance, the fjord extends about 10 miles E, terminating in Nordfjorden.

Several shoal spots lie up to 0.5 mile W of Kvanholmen and a rock, awash, lies on the N side of Mistfjorden, 0.75 mile E of the island.

Vessels with local knowledge can anchor at the head of Nordfjorden, in a depth of 29m, sand.

Karlsoyfjorden (67°31'N., 14°40'E.) is formed between Karlsoyvaer, on the NW, and the mainland, on the SE. The fairway leads NE to Folla.

Indreleia leads NNE from position 67°29'N, 14°35'E, passing through Karlsoyfjorden towards Helloyskjeret.

The white sector of the light on Bjornoy, bearing astern, leads into Karlsoyfjorden NW of the islets and dangers off the mainland; the white sector of the light on Helloyskjeret then leads toward the N entrance of the fjord. It is advisable to keep to the E side of this sector as the W sector passes close to Karlsoyvaer.

Kjerringoy (67°31'N., 14°46'E.) (World Port Index No. 22270) is located on the SE shore of Karlsoyfjorden. There is a wooden quay, 38m long, with depths of 3.2 to 5.2m, located at the port. A light beacon is shown on Kjerringoy.

Anchorage is available 137m SE of the beacon, in depths of 5 to 10m, sand and clay bottom.

8.14 Folla, a large fjord complex, is entered in the vicinity of Helloyskjeret, and is approached through Karlsoyfjorden or from W by passing N of **Slovaer** (67°36'N., 14°39'E.).

Abreast of **Hjartoya** (67°39'N., 15°05'E.), about 6 miles ENE of Helloyskjeret, Folda divides into two branches, each having several arms; Sorfolla extends about 20 miles SE and Nordfolla extends about 15 miles NE.

The W approach to Folda from Vestfjorden can be made by steering in the white sector of the light on Helloyskjeret, passing S of **Skarholman** (67°39'N., 14°28'E.), 7.5 miles WNW of the light, then S of Breifallet, a 7.9m patch 3 miles ESE of Skarholman. This course will lead close N of Ytre Raholmen

1.75 miles SE of Breifallet. Then steer E into Folla to pass N of Helloyskjeret.

Oyensve (67°35'N., 14°17'E.), which breaks, are the farthest W of the dangers off-lying Karlsoyvaer, about 12 miles W of Helloyskjeret.

Nordfolla (67°45'N., 15°17'E.) leads NE from Folla. Its E continuations are known as Reinvikfjorden and Morsvikfjorden. Store Belgkjosen and Lille Belgkjosen have a common entrance off the N side of the fjord, 10.5 miles NE of Hjartoy. They are icebound in the winter. Vinkfjorden leads from the SE side of Nordfolla 6.5 miles NE of Hjartoy; Stavfjorden extends from its inner end.

The fjord is open toward the SW, with winds from the W and SW. East gales are most frequent in the winter.

In Nordfolla, the tidal currents usually flow outward, but in calm weather, if the tributary rivers are low, the current may set into the branches with the rising tide.

Anchorage may be taken off **Nordfold** (67°46'N., 15°14'E.), in depths of 14 to 18m, clay and sand. Anchorage is also available off Stavnes, 5 miles E of Nordfold, between two charted 6m patches. It is a well-used anchorage, but is exposed to SW winds.

Nordfolla may be entered by keeping the white sector of the light on **Helloyskjeret** (67°37'N., 14°47'E.), astern, which will lead between the dangers off Hjartoy and the NW shore. A mid-channel course may be steered to the head of the fjord.

8.15 **Sorfolla** (67°32'N., 15°16'E.) extends SE from the E end of Folla. Several smaller fjords extend SW, S, and NE from Sorfolla.

Eidekjosen and Navelsfjorden have a common entrance off the W side of the fjord, 4 miles within its entrance. **Nordre Oygardskjeret** (67°32'N., 15°08'E.) lies in the entrance.

Sjunkfjorden extends 5.25 miles SSW from its entrance, 3.5 miles SE of Nordre Oygardskjeret.

There are anchorages in Sjunkfjorden, sand and clay, 3 miles WSW and 4.5 miles SW from the light on the E entrance point

Leirfjorden (67°32'N., 15°37'E.) extends about 11 miles NE from Sorfolla, 6.25 miles E of Sjunkfjorden. It appears to be free of charted dangers in the fairway.

Courtesy of Kystriksyeien Reiseliv AS

Leirfjorden

Storvika (67°31'N., 15°36'E.) affords good anchorage, in clay and sand, on the S side of Leirfjorden, 2 miles within the entrance.

Laksely (67°22'N., 15°36'E.) (World Port Index No. 22295) situated on the W side of Sorfolla, near its head, 8.5 miles S of the entrance to Leirfjorden, has a smelting works. There is a concrete quay at the factory, 96m long, with depths of 9.6 to 11.2m alongside.

Sorfolla is well marked by lights. The white sectors of these lights lead through the various channels clear of charted dangers.

Sagfjorden (67°38'N., 15°16'E.) is entered from Folla through Refsfjorden N of the island of Prestmasoy, and from Sorfolla through Masoysundet, E of the island.

Anchorage may be taken off the NE side of Prestmasoy, in 18 to 23m, sand, 1.5 miles SE of Mulneset, the N entrance point to Sagfjorden. There is also anchorage 2.5 miles E of the point, in 40m, sand.

There is an anchorage 6 miles E of Mulneset, off Sagfjorden, in 22 to 30m, sand and shingle.

8.16 Indreleia leads from the vicinity of Helloyskjeret, 3 miles NW across the outer part of Folla, then about 10 miles N across Brennvika and Andholmsfjorden, to the vicinity of **Sildskjeret** (67°48'N., 14°44'E.), in the SW approach to Grotoysundet.

Vessels may proceed from the vicinity of Helloyskjeret by keeping the white sector of that light, which will lead SW of **Kjopmannen** (67°39'N., 14°43'E.) and into the white sector of **Ola-Persoya Light** (67°40'N., 14°43'E.).

During W gales, breakers extend some distance W from Kjopmannen and should be given a wide berth.

From Kjopmannen, steer in the white sector of Ola-Persoya Light and enter Ytre Vettoysundet passing, E of the light. When entering Ytre Vettoysundet, care is necessary to pass W of the rocks, awash, lying from about 0.1 mile SSE to 0.2 mile ESE of the light. Care must be used to pass E of the danger 0.3 mile N of Ola-Persoya Light.

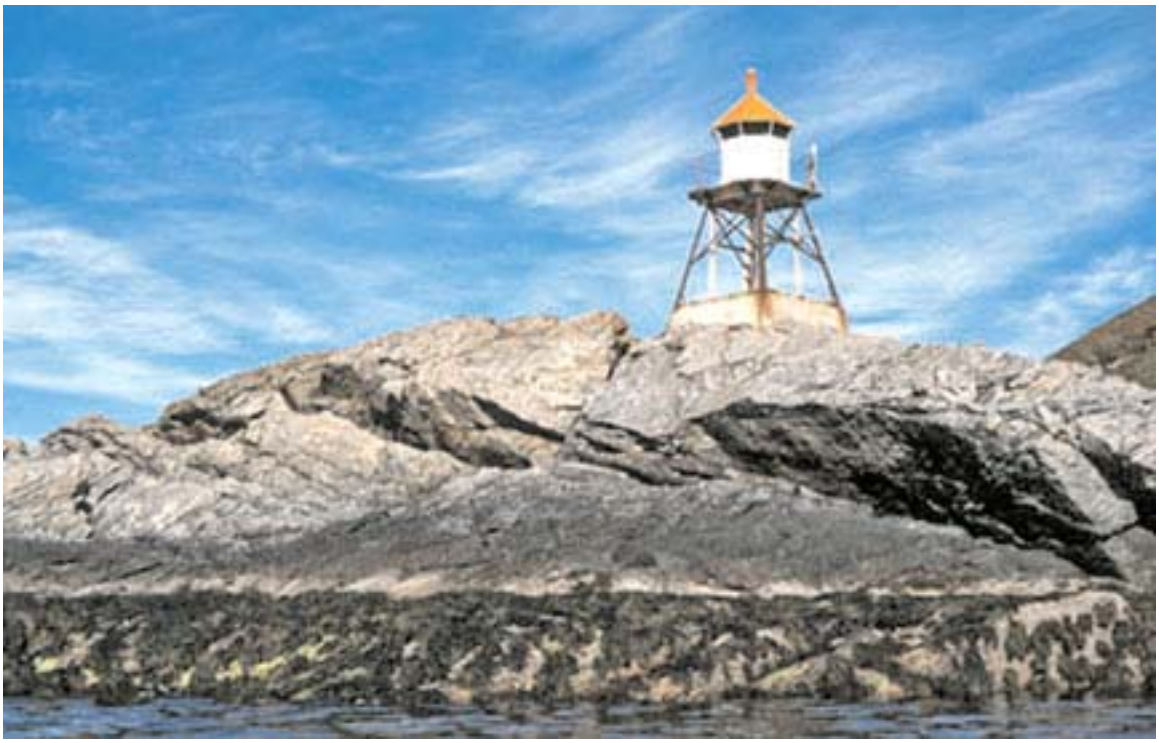
Brennvika indents the coast about 4 miles from a position about 2 miles NNE of Ola-Persoya Light.

Leinesfjorden, next N of Brennvika, is an E continuation of Andholmfjorden. It terminates in two branches, Saursfjorden, on the N, and Botnfjorden, on the S. An entrance channel off Leines is well marked, but is suitable for use only with good local knowledge. The many encumbrances may best be seen on the chart.

From the vicinity of Ola-Persoya Light, the route of Indreleia leads across Brennvika to a position W of **Skjaholmen** (67°43'N., 14°43'E.). The green sector of the light, bearing between 167° and 178°, astern, leads W of this islet.

When W of Skjaholmen, steer toward the rear range light on Steinsholmen, 1.5 miles N of Skjalholmen, passing E of the foul ground 0.5 mile SSW of the range light, then W of the danger which extends 183m SSW from **Steinsholmen** (67°44'N., 14°43'E.).

From Steinsholmen, the range lights in line 186°, astern, indicate the fairway of Indreleia as it crosses the inner part of Andholmfjorden. This track leads between the light marking Leiskjer, 1.75 miles N, and foul ground marked by a perch 183m W of the light, then NNE to pass E of Sildskjeret, 2.5 miles farther N. There are many dangers in this area which are best seen on the chart.



Helloskjeret Light

8.17 Grotoysundet (67°50'N., 14°46'E.) lies between Grotoya and the mainland E. The narrow, shallow channel through it connects the inner part of Andholmfjorden with Breisundet 3.5 miles NNW, and Vestfjorden.

Local knowledge is necessary in Grotoysundet and the use of a local pilot is recommended for the largest vessels that can use the channel. The channel is 30m wide, with a depth of 4.9m.

Tides—Currents.—The tidal currents in Grotoysundet are strong. The tide levels at **Grotoy** (67°50'N., 14°46'E.) on the NE end of Grotoya are 3m at MHWS and 0.5m at MLWS.

Depth gauges are placed at **Hartvikgrunnen Light** (67°49.2'N., 14°44.2'E.), for northbound vessels and at **Skaten Light** (67°50.6'N., 14°47.4'E.), for southbound vessels.

From Skaten Light, three channels lead NW into **Breisundet** (67°54'N., 14°43'E.). The W channel is the safest and deepest, but it is tortuous. Breisundet is about 3 miles distant from Skaten Light. Vestfjorden is entered from this pass.

Skotsfjorden is entered about 1 mile NE of Skaten Light through a rock-encumbered entrance, with a channel about 46m wide between the reefs on either side. This fjord should be entered only by vessels with local knowledge.

Anchorage is available at the head of the fjord, in depths of 9 to 22m, and in the bay close W, in depths of 11 to 17m.

8.18 Flagsundet (67°55'N., 15°00'E.) leads S of Engeloya and is entered from Indreleia or from the W through Breisundet. Skitenfjorden is its E continuation.

A bridge, with a vertical clearance of 25m and a navigable width of 40m, spans the narrows between **Alstadoya** (67°54'N., 15°11'E.) and Bogoya, 183m S.

The E end of Skitenfjorden opens into Sagfjorden.

Tides—Currents.—In Flagsundet, the tidal current flows in the direction of the channel. Strong squalls sometimes blow down from the mountains and are particularly severe about 5 miles within the W entrance and near Bogoya. The current is strongest at Vikskjer. Flagsundet is limited to vessels with local knowledge.

8.19 Skagstadsundet (67°58'N., 15°10'E.) is entered from Vestfjorden between **Foroya** (68°01'N., 15°07'E.) and Orneset, 1.25 miles ESE, and leads 8 miles S and E between Engeloya and Lundoya to the junction with Skitenfjorden, Okssundet, and Sagfjorden.

Dangers are charted in the entrance E of Foroya and near the center of the fairway about 5 miles within the entrance.

Okssundet (68°00'N., 15°18'E.) is entered from Vestfjorden between **Oksnesodden** (68°03'N., 15°14'E.) and Dalshamaren, a point 1.5 miles NE. It leads 7 miles SSE between Lundoya and Hamaroy to the junction with Skagstadsundet and Sagfjorden.

There is usually a N flow of current on the E side of the sound and a S flow on the W side of the sound.

Squalls from the mountains can occur during S winds.

The white sector of the light on Oksnessodden through N indicates clear water in the approach from Vestfjorden.

Okssundet is deep; however, a mid-channel course will lead clear of any coastal dangers.

Tranoy Light

8.20 Sagfjorden (67°58'N., 15°36'E.) is entered between **Bolsoygalten** (67°57'N., 15°24'E.), at the S extremity of Husoyvaer, and Skranstad, 2 miles SE. It extends about 13 miles E and SE along the S side of Husoya and Finnoya. The fjord is deep and free from dangers in the fairway.

Anchorage at **Store Lagmansvika** (67°55'N., 15°53'E.), at the head of Sagfjorden on the E side, may be taken, in 15 to 17m, sand.

From Dalshamaren, the N entrance point of Okssundet, the NW coast of Hamaroy trends 7.5 miles NNE to **Selsoya** (68°09'N., 15°29'E.), then 3.75 miles ENE to **Eggloya** (68°11'N., 15°38'E.), which lies close off the Tranoya peninsula, the N extremity of Hamaroy.

Tranoy (68°11'N., 15°40'E.) (World Port Index No. 22160) consists of a cove on the E side of the peninsula. The timber quay is 74m long, with depths of 2 to 9m, and is situated in the NW corner of the cove.

A foul bay, 0.75 miles SSE of Tranoy, provides a good anchorage, in 18 to 40m, sand, sheltered from W, but is open to N and NE winds.

There is a pilot station located at Tranoy. Mariners are advised when approaching the pilot boarding place to pass well S of the lighted buoy located at position 68°14'N, 15°36'E, which marks a shoal area.

The pilot boarding areas are located in position 68°12.7'N, 15°35.7'E and position 68°18.4'N, 15°55.7'E. Contact should be made on VHF channel 13 for boarding arrangements.

A channel leads W of **Tannoya** (68°09'N., 15°48'E.) into a long inlet between Tranoya and the mainland 3 miles E.

Tannoysundet, W of Tannoya, leads S between Tannoya and Hamaroy. A 10m patch lies in the fairway off the W extremity of Tannoya. Local knowledge is required in the channel.

Presteid (68°05'N., 15°40'E.) lies on the W side of Presteidfjorden 3.5 miles SSW of Tannoysundet. This harbor is the calling place for Hamaroy, the principal village on the island. There is a timber quay, 26m long, with depths of 5.8 to 7.8m alongside. Anchorage may be taken, in 30 to 50m, clay, NW of Presteid.

8.21 Tysfjorden (68°06'N., 16°15'E.) is the name for a group of fjords which extends for about 30 miles SSE from a position 10.5 miles NE of Eggloysa. The fjords are deep and several rivers discharge into them.

The tidal currents usually set out of Tysfjorden, attaining a maximum velocity of about 3 knots.

An extensive reef lies between **Bremneset** (68°17'N., 16°09'E.), the NE entrance point to Tysfjorden, and Bavoya an island 2.75 miles NNW. Storboen lies at the W end of this reef.

Bremnesskjaer (68°17'N., 16°08'E.), a drying shoal, lies on the NE side of the entrance, 0.75 mile S of Bremneset.

Foul ground extends about 0.4 mile offshore off the SW entrance to Tysfjorden. Sandvikskallen, with a charted depth of 4.9m, lies 1.75 miles NW of the light at Korsnes.

The white sector of various lights lead from Vestfjorden toward and into Tysfjorden.

Korsnes (68°15'N., 16°04'E.) (World Port Index No. 22140) lies close within the entrance of Tysfjorden, on the SW side. It is protected from the N but a sea is raised in it by a SE gale which is known locally as a Tysfjorden Wind.

There is an angled timber quay, with two berths 25 and 20m

Tysfjorden

long, with depths of 3.9 to 7.6m and 2.3 to 3.9m, respectively, alongside.

Bogvika (68°14'N., 16°05'E.) opens off the W side of Tysfjorden, 1.75 miles S of Korsnes. There is good anchorage, in depths of 14 to 21m, clay, in Bogvika.

Bessfjorden is entered off the W side of Tysfjorden, 1.5 miles SSE of Bogvika, between **Bessfjordneset** (68°12'N., 16°07'E.) and Klubben, 0.4 mile SSW.

There is anchorage, in 12.8 to 14.6m, clay, 0.9 mile SW of Bessfjordneset, and, in 20 to 22m, 1 mile SSW of the point, for vessels with local knowledge.

Drag (68°03'N., 16°05'E.) (World Port Index No. 22120) is a natural coastal harbor which opens off the W side of Tysfjorden, 8.25 miles S of Bessfjordneset. There is an angled timber quay in Drag, with a berth 23m long, with depths of 4.6 to 4.9m alongside. The timber quays at the feldspar quarry has depths of up to 6.5m alongside.

There is an anchorage W of the light, with mooring rings, in clay and sand. A slight swell sets in with N winds.

8.22 Hellemofjorden is entered from Tysfjorden and extends about 13 miles SSE from its entrance between **Hellandneset** (68°02'N., 16°09'E.), 2.25 miles SE of Drag and Hestneset 1 mile ESE. An overhead cable, with a vertical clearance of 38m, spans the fjord at Hestneset.

A similar cable, with a vertical clearance of 240m, spans the fjord 9 miles within the entrance.

The fjord is deep throughout, but on its E side, about 2 miles within Hestneset, foul ground, with a charted depth of 1.8m, extends 0.4 mile offshore. An islet lies about 0.3 mile off the E shore 6 miles farther S, reducing the fairway to a width of 0.45 mile.

Skrovkjosen (68°15'N., 16°19'E.), a bay on the NE side of Tysfjorden, is deep and free from dangers. Its N entrance point, Solvneset, lies about 4 miles SE of the E entrance point of Tysfjorden. Brennsoyklubben, the S entrance point of the bay, lies 0.9 mile SSE of Solvneset.

Anchorage.—Anchorage with mooring rings, may be taken, in 40m, clay and sand, off **Ulvik** (68°34'N., 16°20'E.) (World Port Index No. 21970) in the SE part of Skrovkjosen.

Anchorage may be taken, in 20m, off Eidbukta, in the N part of Skrovkjosen, 1.5 miles N of Ulvik. Local knowledge is required.

Haukoyfjorden opens off the E side of Tysfjorden, about 3 miles SE of Skrovkjosen. It is entered between **Indre Skarbergneset** (68°13'N., 16°12'E.) and Skjerneset, 4 miles SSE. The fjord is deep and clear of dangers, however, Haukoygrunnen, with a charted depth of 2.5m, lies in the entrance 1.25 miles NNW of Skjerneset.

The inner end of the fjord divides into the N and S arms, namely, Stefjorden and Tommerasfjorden. From the latter arm, Fuglefjorden extends 2.25 miles SSE.

Stefjorden extends E and SE from the NE end of Haukoyfjorden. It is deep and free from dangers in the fairway, and the shores nearly everywhere are steep-to.

At **Haukoya** (68°12'N., 16°24'E.), on the S side of the entrance to Stefjorden, there is a berth at a stone and concrete quay 26m long, with depths of 9.4 to 9.7m alongside.

Anchorage is available off Haukoya as shown on the chart.

8.23 Indre Tysfjorden is entered off **Kjopsvik** (68°06'N., 16°21'E.), 3.5 miles SSE of Skjerneset, and extends about 8 miles E. It is deep and free from dangers to a position about 1 mile from its head. An overhead cable, with a vertical clearance of 35m, spans the fjord 3 miles NE of Kjopsvik.

Hulloya, which rises to a height of 676m, lies on the S side of the entrance to Indre Tysfjorden, 1 mile from Kjopsvik. An overhead cable, with a vertical clearance of 38m, spans the channel from Hulloya to a point on shore close W of Kjopsvik.

Hulloysundet, off the S side of Hulloya, is deep and free from dangers, except for the chain of rocks extending from **Hulloyneset** (68°03'N., 16°11'E.), the SW point of Hulloya, to Hulloynesgrunnen, 1 mile WNW. An overhead cable, with a vertical clearance of 24m, spans the sound.

Grunnfjorden, entered from Hulloysundet, W of **Kjerrklubben** (68°02'N., 16°19'E.), is free from dangers in the fairway. It extends 8 miles SSE.

Kjerrvika (68°01'N., 16°20'E.), a cove situated on the E side of Grunnfjorden, 1.5 miles S of Kjerrklubben, is the site of a concrete quay 16m long, with depths of 5.5 to 8.5m alongside. The fjord is generally free from ice.

Mannfjorden lies E of Grunnfjorden, from which it is separated by a peninsula 2 miles wide. There are no dangers in the fairway of the fjord which penetrates 5.5 miles SE. Three overhead cables, with a vertical clearance of 48m, span the fjord 4 miles within the entrance.

Multind (68°00'N., 16°30'E.) is a conspicuous dome-shaped summit, 853m high, situated on the E side of Mannfjorden 4.5 miles SE of Kjerrklubben.

There is anchorage at the head of Mannfjorden in a cove on the N side, clear of a cable.

Ofotfjorden

8.24 Ofotfjorden Sis, entered between Baroya and **Tjeldodden** (68°23'N., 16°08'E.), 1.75 miles N. Its branches extend about 40 miles E to within 5 miles of the Swedish border.

Narvik, the most important port on the fjord, is situated 30 miles within the entrance. The prevailing winds are NE in the winter and W in the summer.

The current in Ofotfjorden nearly always flows out, and it may be strong during gales, especially along the land.

There is usually an outflow of current from the branch fjords into Ofotfjorden, which can be strong and dangerous, particularly at the mouths of the fjords during the melting of ice in the spring.

A mid-channel course will lead from the vicinity of Baroya to **Hamnesholmen** (68°25'N., 16°35'E.), 11.5 miles ENE. The white sector of the light on Baroya, astern, will lead clear of the dangers.

Efjorden is entered from Ofotfjorden by a narrow channel E of **Baroya** (68°21'N., 16°07'E.) and extends 17 miles SE. The fjord may also be entered from Vestfjorden by boat channels S of Baroya. The entrance channels are encumbered with shoals and are difficult to enter. No attempt to enter should be made without good local knowledge.

8.25 **Ramsundet** (68°29'N., 16°31'E.) is entered through Breivika, off the N side of Ofotfjorden, 8.25 miles ENE of Tjeldodden. This channel leads about 6 miles N to join Indreleia in Tjeldsundet.

From Hamnesholmen, the fairway of Ofotfjorden trends ENE about 6 miles to the vicinity of **Lilandsgrunnen** (68°27'N., 16°50'E.). It then continues E for about 11 miles to Narvik.

Lilandsgrunnen, with a least charted depth of 2m, lies near mid-channel about 1 miles off the N shore.

Skjomgrunnen (68°25'N., 17°13'E.), a rocky shoal with a depth of 5m, lies on the S side of the fairway, 9 miles ESE of Lilandsgrunnen. From a position 0.3 mile SE of Skjomgrunnen, a bank extends SE to the shore, 1 mile distant.

An ammunition dump is charted in the fjord; it is centered about 1 mile SSE of the beacon on Lilandsgrunnen.

8.26 **Kjeldebotn** (68°25'N., 16°41'E.), a cove, opens off the S side of Ofotfjorden 2 miles ESE of the light on Hamnesholmen.

Anchorage, in a depth of 19m, clay and sand, may be taken in the SE part of the cove. There is a timber quay on the E shore with a berth, 28m long, with depths of 6.2 to 7m alongside.

Ballangen (68°22'N., 16°55'E.), an inlet, opens off the S side of Ofotfjorden, 6 miles ESE of Kjeldebotn. The inlet extends 4.5 miles SW. Litle Ballangen lies near its head.

Dangers lie on both sides of the entrance to Ballangen, but it may be entered in the white sectors of the lights, and by using the lights, in range 236°, at Litle Ballangen.

Litle Ballangen (68°20'N., 16°51'E.) (World Port Index No. 22050) has two quays, 29 and 13m long, with depths of 3.5 to 6.2m and from 4.5 to 6m alongside, respectively. Anchorage may be taken off the quays, in about 10 to 22m, clay.

Bogen, an inlet, opens off the N side of Ofotfjorden, 3 miles ENE of Lilandsgrunnen. Skogoya lies on the W side of Bogen; two smaller inlets lie off its SE and S extremities. Liland lies near the W entrance of Bogen, off the S end of Skogoya; Bogen, a village, lies at the head of the inlet.

The white sector of **Liland Light** (68°28'N., 16°55'E.) leads from Ofotfjorden into the entrance to Bogen. The port has a timber quay, 100m long, with 11.6m alongside. There is a total length of 77m of quay at the industrial works, with depths of 4.3 to 6.6m alongside.

Bogen Nato Jetty is located below **Slettebakken Light** (68°31'N., 16°58'E.). The jetty also has a concrete vehicle ramp.

Caution.—A submarine cable crosses Ballangen from a position close E of the quays.

The dangers in Bogen are numerous and may best be seen on the chart.

8.27 **Liland** (68°29'N., 16°53'E.) (World Port Index No. 22010) is situated near the W entrance point of Bogen. The entrance leads N of Lilandsgrunnen and W of the islet lying off the S extremity of Skogoya. Foul ground extends about 0.3 mile ESE from a position on shore S of Liland.

There is a berth at the end of a timber jetty, 30m long, with depths of 4.6 to 6.7m on the E side and depths of 2.6 to 6.7m on the inside.

Skjomen is entered from Ofotfjorden between **Rosaneset** (68°24'N., 17°12'E.) and Einbaerneset, 1.25 miles E, about 7 miles SE of Bogen.

The fjord, about 13 miles long, is deep and surrounded by high steep mountains. The innermost part of the fjord is magnificent, with high peaks covered a good distance upward with a lush deciduous forest.

During some winters, the ice conditions may obstruct traffic severely.

An overhead cable and a bridge span Skjomen 1.5 miles within the entrance. Each has a vertical clearance of 35m. The navigable width under the bridge is 150m.

Sorskjomen (68°12'N., 17°19'E.) is situated at the head of the fjord. There is a quay at Hallarvika, close NW, 20m long, with 5m alongside. Care is necessary to avoid the extensive drying bank at the head of the fjord.

Narvik (68°26'N., 17°25'E.)

World Port Index No. 22030

8.28 Narvik is situated on the E side of Narvikbukten, at the entrance to Beisfjorden, 3.75 miles ENE of Skjomen. The harbor is a natural landlocked basin, almost completely surrounded, and sheltered by high ground.

The port lies about 150 miles from the open sea. Commercial shipping traffic is heavy in winter, when the Gulf of Bothnia is ice-bound. Swedish ore is exported through the port.

Port of Narvik
http://www.portofnarvik.no

Winds—Weather.—The "Beisfjorden Wind," which occasionally blows from SE, can raise a considerable sea; otherwise the wind is usually light. The harbor is always ice-free.

Tides—Currents.—Mean tides rise 3.2m at springs and 2.4m at neaps. During May and June, there is a constant NW set out of Beisfjorden, which is estimated to reach 4 to 5 knots during the ebb current. The direction of the current in the harbor is variable and may cause vessels at anchor to swing in different directions.

Depths—Limitations.—Berthing details are shown in the accompanying table titled Narvik—Berthing Information.

Pilotage.—Pilotage is compulsory for all vessels. Pilotage should be ordered using SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost.

Pilots board in the following positions:

a. 68°12'42"N, 15°35'42"E (1.6 miles N of Tranoy Light).

b. 68°18'27"N, 15°55'42"E (2.8 miles SW of Baroya).

c. 68°22'54"N, 16°01'42"E (2 miles SSE of Lodingen).

Regulations.—Anchored and berthed vessels should maintain a continuous listening watch on VHF channel 14.

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—See the table titled **Narvik—Contact Information**.

Narvik—Contact Information	
Port Control	
VHF	VHF channels 14 and 16
Telephone	47-76-950375
	47-91-550375 (mobile)
Facsimile	47-76-950385
E-mail	hvakt@narvikhavn.no
Port Authority	
Telephone	47-76-950370
Facsimile	47-76950384
E-mail	post@narvikhavn.no

Anchorage.—Narvikbukten affords excellent anchorage in any part of the bay, in depths of 18 to 29m. The pilot will advise on the selection of berths. For further information, see the table titled **Narvik—Anchorages**.

Caution.—Several wrecks lie in Narvikbukten and may best be seen on the chart.

A seaplane operating area lies in Narvikbukten and may best be seen on the chart.

Narvik—Berthing Information			
Berth Name	**Length**	**Depth Alongside**	**Remarks**
LKAB Bulk Terminal			
No. 3	202m	13.0m	Bulk.
No. 4	202m	11.0m	Bulk .
No. 5	205m	26.0m	Iron ore. Can accommodate vessels up to 350,000 dwt.
General Cargo Terminal			
Nordkaia	84m	5.0m	General cargo.
Pier No. 1	143m	6.0-8.0m	Passengers.
Pier No. 2	82m	3.0-5.0m	—
Ro-Ro/Railway Terminal			
Fagermeskaia	237m	14.0m	Ro-ro and container
Northland Terminal			
Bulk Berth	280m	—	Iron ore. Can accommodate vessels up to 18,000 dwt.

Narvik—Berthing Information			
Berth Name	**Length**	**Depth Alongside**	**Remarks**
Fish Terminal			
Fish Berth	89m	4.0-6.0m	—
Other Berths			
Torgkaia	60m	4.0m	—
Tug Pier 1	30m	60m	Ro-ro ramp available.
Tug Pier 2	87m	5.0m	—
Service Launch Pier	30m	—	—
Oil Jetty	35m	7.5-8.1m	Esso.
Private Quays	50m	5.0m	Timber.

Narvik—Anchorages			
Anchorage	**Position**	**Depths**	**Remarks**
Vidrek	68°24'24.0"N, 17°09'54.0'E	50-70m	Vessels must obtain permission from the Narvik Port Authority to use this anchorage.
			Anchoring is not permitted when the average wind speed is 20 m/sec or greater or when such winds have been forecast within the next 24 hours.
			When the average wind speed exceeds 20 m/sec vessels at anchor must have a tug available or leave their anchorage position.
Framnes North	68°26'31.2"N, 17°21'30.0'E	—	Vessels must obtain permission from the Narvik Port Authority to use this anchorage.
			Anchoring is not permitted when the average wind speed is 19 m/sec or greater or when such winds have been forecast within the next 24 hours.
			When the average wind speed exceeds 19 m/sec vessels at anchor must have a tug available or leave their anchorage position.
Framnes South	68°26'03.6"N, 17°21'36.0'E	—	Vessels must obtain permission from the Narvik Port Authority to use this anchorage.
			Anchoring is not permitted when the average wind speed is 18 m/sec or greater or when such winds have been forecast within the next 24 hours.
			When the average wind speed exceeds 18 m/sec vessels at anchor must have a tug available or leave their anchorage position.

Narvik—Anchorages			
Anchorage	**Position**	**Depths**	**Remarks**
Ytre Straumen	68°25'31.2"N, 17°23'48.6'E	22-25m	Pilots will advise on the berth selection.
			Anchoring is not permitted when the average wind speed is 18 m/sec or greater or when such winds have been forecast within the next 24 hours.
			When the average wind speed exceeds 18 m/sec vessels at anchor must have a tug available or leave their anchorage position.
Kleiva	68°25'16.2"N, 17°24'57.0'E	22-25m	Pilots will advise on the berth selection.
			Anchoring is not permitted when the average wind speed is 18 m/sec or greater or when such winds have been forecast within the next 24 hours.
			When the average wind speed exceeds 18 m/sec, vessels at anchor must have a tug available or leave their anchorage position.
Herjangen One	68°29'30.0"N, 17°25'51.0"E	20-60m	Consult with the pilot prior to anchoring.
Herjangen Two	68°28'55.2"N, 17°25'41.4"E	20-60m	Consult with the pilot prior to anchoring.
Herjangen Three	68°28'12.0"N, 17°25'06.0"E	20-60m	Consult with the pilot prior to anchoring.

Narvik

8.29 Beisfjorden (68°24'N., 17°30'E.) is entered off Fagernes. It is spanned by a movable bridge, with a vertical clearance of 6m and a navigable width of 11m. The bridge can only be opened for passage at HW slack and LW slack. Passage under the closed bridge at other times must always be made with the vessel stemming the current. Passage speed must be no greater than steerageway.

Signals for the bridge are, as follows:

1. Green light—bridge open.
2. Red light—bridge closed.

A water pipeline has been laid across the approach to Beisfjorden. Warning signs are posted on both sides of the passage. Ships must anchor to stay clear of the line between the two warning signs.

Herjangsfjorden (68°30'N., 17°27'E.) is the NE continuation of Ofotfjorden N of Narvik. The fjord is deep and clear of

Narvik Harbor

Narvik—Iron Ore Terminal

dangers except on the SE shore, which is fringed by a reef that extends 0.5 mile offshore in places. Skolten, a rocky patch with a depth of 14.9m, lies in mid-channel.

Hamnvik (68°32'N., 17°34'E.), situated near the head of Herjangsfjorden, on its E side, has a quay 60m long, with depths from 7.4 to 10.6m alongside.

Anchorage is available for small boats close S of the quay, clay bottom, with mooring rings.

Rombaken (68°28'N., 17°36'E.) extends 5 miles E from its entrance S of Oydjordneset. Rombaksbotn, the inner part of the fjord, extends 4.5 miles farther in an ESE direction.

Straumen (68°26'N., 17°42'E.), the narrows between Rombaken and Rombaksbotn, is spanned by a bridge with a vertical clearance of 40m. The passage is restricted to a width of 183m by a reef which extends from the N side.

Rotvaer to Harstad

8.30 From Vestfjorden, the S approach to Harstad lead, in a general N direction, through Tjeldsundet and Vagsfjorden,

Tjeldsundet

about 33 miles distant. Sandtorgstraumen, 16 miles NE of Rotvaer, has a least charted depth of 7.9m in the fairway.

The winds in Tjeldsundet, to a large degree, follow the direction of the sound, but are often unsteady and unreliable. Winds which set S in the sound, will, in the W part of Sandtorgstraumen, slack and back around. South winds are usually the most troublesome.

In Vagsfjorden, there can be E storms in the fjord on the mainland, whereas there are W winds in the entrances from the sea.

Lodingen (68°25'N., 16°00'E.) (World Port Index No. 21950), 3 miles NNE of the light on Rotvaer, lies on the W side of the S entrance to Tjeldsundet. This is a sheltered harbor with alongside depths of up to 9.4m.

Lodingen Port Authority

http://www.lodingen.kommune.no

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost.

Vessels should provide updates on their ETA 5 hours and 2 hours prior to arrival at the pilot station.

Pilots board in the following positions:

a. 68°12'42"N, 15°35'42"E (1.6 miles N of Tranoy Light).

b. 68°18'27"N, 15°55'42"E (2.8 miles SW of Baroya).

c. 68°22'54"N, 16°01'42"E (2 miles SSE of Lodingen).

Lodingen Pilot Booking Center arranges all pilotage in Nordland and Troms og Finnmar, from Norivk in the S to Kirkenes in the N. The Booking Center can be contacted, as follows:

1. VHF: VHF channels 13 and 16
2. Telephone: 47-76-986810
3. Facsimile: 47-76-986820
4. E-mail: pilot.lodingen@kystverket.no

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The port can be contacted, as follows:

1. Telephone: 47-76-986618
2. Facsimile: 47-76-986641
3. E-mail: lodingen.havnevesen@lodingen.kommune.no

Anchorage.—Anchorage may be taken in the harbor, in depths of 11.9 to 14.6m, good holding ground.

Caution.—Care must be taken to anchor clear of the fairway leading to the quay. A sea may set into the anchorage when the wind is E of N.

8.31 Tjeldsundet (68°31'N., 16°10'E.), between Hinnoya on the W and Tjeldoya and the mainland on the E, is the continuation of Indreleia from Vestfjorden to the N ports. It is narrow in several places and the channel is rendered intricate by below-water rocks and shoals. The currents are strong and the numerous whirls and eddies necessitate care.

Kongsviktind (68°35'N., 16°16'E.), a mountain, 988m high, 10 miles NNE of Lodingen, provides a good mark in the S entrance to the sound.

The dangers in Tjeldsundet may best be seen on the chart. A bridge, with a vertical clearance of 41m and a horizontal clearance of 90m, spans the fairway near **Langkvitneset** (68°38'N., 16°35'E.), 7.75 miles NE of Kongsviktind.

It is reported that in the narrows N of Tjeldoya, the channel

The Tjeldsundet Bridge

will only accommodate one large vessel at a time between the buoys on either side.

Tjeldsundet is well marked by lights and other navigational aids. The white sectors of the various lights will lead through the fairway, but caution must be exercised to alter course to pass the lights at a safe distance. It must be noted that some of the white sectors will lead into shoal water.

Anchorage may be taken, in 14.6 to 22m, in the W side of Tjeldsundet, about 1 mile NW of **Nordstandskjaer** (68°30'N., 16°09'E.). Local knowledge is necessary.

Kongsvika, 1.5 miles SSW of Kongsviktind, affords anchorage, in 18.3m, to vessels with local knowledge.

Vessels waiting for the tide before proceeding through Sandtorgstraumen, may anchor, as indicated on the chart, in 18.3m or in 14.6m, 0.4 or about 0.6 mile NE, respectively, from **Hol** (68°33'N., 16°24'E.).

The N entrance to Ramsundet lies S of **Kalvoya** (68°33'N., 16°27'E.), which lies S of the W entrance to Sandtorgstraumen.

Vagsfjorden, the continuation N of Indreleia from the N end of Tjeldsundet, is a large, almost landlocked basin. The W shore of the fjord is formed by the NE side of Hinnoya and the E side of Grytoya. The N shore of the fjord is formed by Senja; the SE shore is formed by the islands of Rolla and Andorja, lying off the mainland.

Caution.—A firing area has been established in Vagfjorden, extending from the SW entrance to a line between Klubben and Engenes.

A submarine cable runs NE across the entrance to Harstad and may best be seen on the chart.

8.32 Harstad lies on the E coast of Hinnoya, which is fringed with islets and shoals to a distance of 2.5 miles. These dangers must be passed to the E.

The tidal currents in Vagsfjorden usually set N with the falling tide and S with the rising tide. They may attain a velocity of 1 knot at springs.

Langgrunnen (68°42'N., 16°38'E.), with a charted depth of 2.1m, lies on the W side of Indreleia, 2 miles N of the light on Grashdmen. A reef, with a charted depth of 2.2m, lies 0.25 mile E of Langgrunnen.

Store Rogla (68°44'N., 16°39'E.), 95m high, lies on the W side of the fairway, 3 miles N of Grasholmen. Lille Rogla lies 0.5 mile farther NNE.

Storholmen (68°43'N., 16°46'E.), marked by a light, lies on the E side of Indreleia, about 1 mile off the SW extremity of Rolla and 2.25 miles E of Store Rogla. Foul ground extends 0.5 mile E of Storholmen and just over 0.5 mile SW from Rolla.

In the S approach to Harstad, which lies 3.75 miles NW of Lille Rogla, are **Arnoya** (68°46'N., 16°37'E.), 1.75 miles NW of Lille Rogla, Laukholmen, and Tjuvholmen.

Smaholmgrunn, a rocky shoal with a depth of 5.8m, and Lysbotn, with a depth of 0.3m, lie 0.6 mile and 1.0 mile NNW, respectively, from Lille Rogla.

The many dangers which front Harstadhamn from Tjuvholmen N to **Roykenesboen** (68°51'N., 16°39'E.), 2.25 miles NNE, may best be seen on the chart.

Vessels approaching Harstad from the S, after passing Lille Rogla, should shape a course toward **Stangnesodden** (68°48'N., 16°37'E.), steering in the white sector of the light on that point to within 0.3 mile of the light. A depth of 15m is charted in this area. The track then leads E of the light structure, where course can be steered W into Harstadhamn.

Vessels approaching Harstad from the E should steer on the church at Trondenes bearing 265°, passing S of Magoya Light.

This track leads over a least charted depth of 10m. When the vessel is about 0.3 mile WSW from the light, steer a course into the harbor to the assigned berth.

Vessels from the N approaching Harstad, after having cleared the dangers at the SE end of Toppsundet, should steer in the white sector of Magoya Light to a distance of about 0.3 mile from the light; course of 212° will then lead into the harbor.

Harstad (68°48'N., 16°33'E.)

World Port Index No. 21610

8.33 Harstad is a coastal natural harbor situated on the NE coast of Hinnoya. It is the second-largest town in N Norway. It offers anchorage and piers for large vessels. The port is also a base for oil exploration support.

Harstad Port Authority
http://www.harstadhavn.no

Winds—Weather.—The harbor is well-sheltered and is generally unaffected by winds, except those from the NE, which give rise to considerable swell in Gangsasbotn. It is ice free. The prevailing wind is S. There is no darkness from May 3 to August 11 and the sun does not rise from December 2 to January 11.

Tides—Currents.—The tidal range in Harstad is from 2.2m MHWS to 0.3m MLWS.

Depths—Limitations.—Large vessels may enter the harbor, which has depths up to 151m. Berthing details are shown in the accompanying table titled **Harstad—Berthing Information**.

Aspect.— Trondenes Church, on the NW side of the harbor, 1.75 miles NNW of Stangnesodden, and the school 0.3 mile SSW of the church, are conspicuous. The church, with a tall gray spire, 0.2 mile WSW of the Harbor Office, is a useful

mark for entering the harbor.

Pilotage.—Pilots should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost.

The pilot boards in the following positions:

a. 68°22.9'N, 16°01.7'E. (for Lodingen).
b. 69°19.5'N, 16°13.5'E. (for Andenes).

Regulations.—If the vessel is entering via Andenes, the vessel's ETA should be sent 12 hours in advance. If entering via Lodinge, the vessel's ETA should be sent 2 hours in advance; VHF channel 16 is used at Lodingen and Andenes.

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The harbormaster can be contacted, as follows:

1. Telephone: 47-77-001212
   47-90-126201 (mobile)
2. E-mail: havnevakta@harstad.kommune.no

The Port Authority can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-77-001210
   47-77-001212
3. E-mail: harstadhavn@harstad.kommune.no

Anchorage.—There is anchorage in Gangsasbotn, an inlet which extends about 1 mile S from Harstad. The depths in the anchorage are from 5 to 40m, sand and mud. There is an anchorage in Samabukta, in 30m, mud and shells.

Lofoten—Northwest and North Sides

8.34 From Lofotodden (67°50'N., 12°50'E.), the W coast of Moskenesoya trends about 18 miles NNE to Fuglehuk, a conspicuous hill, 562m high.

Bergsneset (68°07'N., 13°04'E.), the NW extremity of Moskenesoya, lies about 0.5 mile NNW of Fuglehuk.

This stretch of coast is fringed with an almost unbroken line of precipitous cliffs. It is fronted by a sand bank, with rocks and shoals extending up to 4 miles offshore. Beyond this bank, the depths increase rapidly.

From Bergsneset to Eggum, about 18 miles NE, the coast is formed by the islands of Flakstadoya and Vestvagoya. The coast of Moskenesoya, Flakstadoya, and Vestvagoya are heavily indented by bays, fjords, and straits. This stretch is fronted by a sand bank to a distance of 4 miles, with detached rocks and shoals. The NW coast of Vestvagoya, from **Skolneset** (68°15'N., 13°31'E.) to Eggum, 5.5 miles NE, presents a line of precipitous cliffs. The sea breaks along the entire coast during gales from between W and N.

Skiven (67°58'N., 12°56'E.), a mountain 850m high, is situated 0.5 mile inland, 9 miles NNE of Lofotodden. It is one of the principal landmarks on the coast. Other prominent landmarks are Napptind, on Flakstadoya, 8 miles ENE of Fuglehuk; Horntind lying 2.25 miles NW of Napptind; and Himmeltind, lying 5.25 miles NE of Horntind. Himmeltind is easily identified from the W, appearing as two peaks; from N three peaks are seen, with the one in the middle being the lowest and sharpest.

Vaggen, close inland, 2 miles SW of Himmeltind, is precipitous on its W side. From a position W of Eggum, the 430m peak close S will be distinctly seen.

8.35 **Langeskallen** (67°57'N., 12°43'E.), an isolated depth of 18.9m, lies 4 miles offshore, 7 miles NNW of Lofotodden. Haraldskallen, with a charted depth of 27m, lies 3.5 miles NNW of Bergsneset. These two dangers are the farthest seaward along this coast. The coast should be avoided.

Tides—Currents.—The tidal currents in the vicinity of Bergsneset usually set NE on the flood and SW on the ebb.

From Lofotodden to Bergsneset, there are no reported safe harbors.

Hornneset (68°10'N., 13°20'E.), the NW extremity of Flakstadoya, lies 6.5 miles NE of Bergsneset. Skarvholman, marked by a light, lies about 5 miles WNW of the point. It is surrounded by foul ground to a distance of 0.25 mile.

An isolated rock is charted 0.5 mile N of the light. The many shoal patches in this area are best seen on the chart.

The harbor of Ramberg lies between the NE side of Moskenesoya and the W side of Flakstadoya. It is the principal village in Flakstadoya. A dredged channel, with a depth of 4m, leads to the harbor area, which has a depth of 3.4m. The public quay is 42m long and has depths of 2.5 to 3.5m alongside.

During onshore gales and heavy seas, breakers form N and NW of **Busholmen** (68°07'N., 13°14'E.). Hornneset lies 4.25 miles NNE of Jusholmen.

Anchorage.—Anchorage may be taken off the harbor of **Ramberg** (68°05'N., 13°14'E.), in 10m, hard mud.

8.36 **Eggum** (68°19'N., 13°41'E.), the N extremity of Vestvagoya, lies 11.75 miles NNE of Hornneset.

Harstad—Berthing Information

Berth Name	Length	Depth Alongside	Remarks
Stangnes—three berths	30m, 60m, and 120m	11.5-13.0m	Containers and general cargo.
Gangsaas—two berths	30m and 38m	11.2-14.2m	Tankers.
Larsneset—City Center	215m	7.1-14.7m	Passengers and general cargo.
Public and Private Quays	1,880m	4.7-10.5m	General and bulk cargo.
Coal Quays	100m	7.7m	Coal.

Andenes Light

The N entrance to Nappstraumen lies between Hornneset and Skolmneset, 6.25 miles NNE. Steinfjorden indents the coast between these two points.

Haesholman (68°14'N., 13°26'E.), a group of islets marked by a light, lies in Steinfjorden, 4.25 miles NNE of Hornneset. A bank with a least charted depth of 0.9m lies between the point and the islets.

Faldet (68°12'N., 13°15'E.), an isolated patch with a charted depth of 0.9m, lies 3 miles NW of Hornneset, in the W approach to Nappstraumen. There are other shoal patches charted in this area, which may best be seen on the chart.

Gapet (68°09'N., 13°28'E.), which leads S into Nappstraumen, is approached through the area of shoals and islets in Steinfjorden.

From seaward, the white sectors of the lights on **Hundholmen** (68°10'N., 13°27'E.) and Haesholman, lead to Gapet.

In bad weather, with heavy seas, it is inadvisable for those without local knowledge to attempt to enter Gapet.

From Eggum, the coast trends in a general ENE direction to the NE end of Austvagoya, about 35 miles distant. The entire coastal area is much indented by small bays and coves.

A considerable amount of foul ground lies off the N coasts of Vestvagoya, Gimsoya, and Austvagoya. This stretch of coast is one of the most dangerous parts of Lofoten.

From Eggum to **Hoven** (68°21'N., 14°06'E.), the NW extremity of Gimsoya, 8 miles ENE, there is a continuous line of breakers during gales from between W and N.

Gimsoystraumen (68°20'N., 14°19'E.) is formed between Gimsoya and the W side of Austvagoya. It gives access to Vestfjorden.

Hadselfjorden, separating the NE end of Lofoten from the S end of Vesteralen, is important for vessels seeking anchorage. It is practically the only place of refuge between Lofotodden and Andenes, the N extremity of Vesteralen. The W part of the fjord is deep, with no dangers in the fairway.

8.37 Hadselfjorden is approached between the coastal reef N of Gimsoya and the numerous dangers extending W from **Hadseloya** (68°33'N., 14°49'E.). A rocky shoal, with a depth of 6.7m, lies near mid-channel, 6 miles NNE of Hoven. The fairway passes S of this shoal.

Havboen (68°30'N., 14°28'E.), with a least depth of 0.6m, lies on the N side of the fairway, 5 miles SW of the W extremity of Hadseloya.

Vessels proceeding through Hadselfjorden should keep in mid-channel. When SE of Hadseloya, a vessel should steer NE, passing E of **Jaeva** (68°32'N., 15°04'E.), a small islet, then into the S entrance to Sortlandsundet.

Raftsundet, formed between Austvagoya and Hinnoya, is entered from the SE part of Hadselfjorden, via **Ingelsfjorden** (68°29'N., 15°14'E.).

Brottoya, a low island, lies in the entrance to Ingelsfjorden. It may be passed on the S side or on its NE side by steering in the white sectors of the appropriate lights.

Anchorage.—Secure anchorage may be taken off the E side of **Holdoya** (68°27'N., 14°54'E.), an islet 2.25 miles S of the SE extremity of Hadseloya. The anchorage is in 18.3m, mud, and may be approached from the N by passing between the reefs off Holdoya and off the islets to the E. There is a least charted depth of 11m over a width of 0.15 mile. The anchorage may also be approached from the NE. A submarine cable lies close E of the anchorage.

8.38 **Sortlandsundet** (68°42'N., 15°26'E.) lies between Langoya and Hinnoya. It is about 19 miles long from its junction with Hadselfjorden and the S end of Gavlfjorden, which leads N into the open sea. The channel is deep and clear of dangers in mid-channel. A bridge, with a vertical clearance of 30m, spans the channel in the narrows at Sortland.

Local knowledge is required in all the harbors and anchorages off Sortlandsundet.

There is an isolated unmarked depth of 7.6m, 5 miles NE of Jaeva and a rock, awash, lies 1 mile farther NE.

Vessels entering the fairway have only to keep in mid-channel when passing up the sound and should pass E of a 7.9m patch lying near mid-channel about 3 miles SSW of Sortland.

8.39 **Sortland** (68°42'N., 15°25'E.) (World Port Index No.

Sortland

21670) is the administrative center for the Sortland District. It is situated in Langoya. The berth at the packet boat quay is 150m long, with depths of 6.3 to 10m alongside. The larger of two bunkering quays is 48m long, with a depth of 5m alongside. Steamers call regularly at the port.

Pilotage.—Pilots should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost. For further information, see paragraph 8.1.

Pilots board in the following positions:

a. 68°12.7'N, 15°35.8'E (Tranoy).
b. 68°12.5'N, 14°53.5'E (Moldora).
c. 68°35.0'N, 14°40.0'E (Dragnesodden).

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The port can be contacted, as follows:

1.	VHF:	VHF channels 12 and 16
2.	Telephone:	47-76-108260
3.	Facsimile:	47-76-108261
4.	E-mail:	havnekontoret@sortland-kommune.no

The fairway of Sortlandsundet continues N from Sortland, and narrows to about 0.4 mile between the shore banks about 1 mile N of the bridge.

A light marks a reef on the E side of the fairway, 2 miles N of the bridge; a shoal, with a depth of 1.8m, lies on the W side of the fairway, just over 1 mile NW of the light. From this shoal, the fairway N to the junction with Gavlfjorden is free of charted dangers.

Gavlfjorden (68°56'N., 15°22'E.), between Langoya and Andoya, connects with the open sea off Anda, which lies 14.5 miles NNW of its S entrance. The fjord is exposed N, and in bad weather the sea breaks over the whole area of shoals N of **Gisloya** (68°57'N., 15°16'E.).

The fairway of Gavlfjorden, which is clear of dangers in mid-channel, is about 1 mile wide between the shore banks 3 miles SE of Gisloya, and 1.25 miles wide in a position 3 miles NNE of the same islet. The fairway is well marked.

Vesteralen

8.40 Vesteralen, the island group NE of Lofoten, comprises Hadseloya, Langoya, Andoya, Hinnoya, and several smaller islands.

The waters off the W coast of Langoya from **Litloya** (68°35'N., 14°19'E.), at the entrance to Vesteralsfjorden, to Frugga, 15.5 miles NNE, are foul and difficult, to distances up to 4.5 miles from the shore. A shoal, with a charted depth of 1.8m lying 3 miles NW of the light on Litloya, is the farthest W of these dangers.

The coast of Langoya NNE of Frugga is indented by numerous fjords. The entrance to the various fjords are obstructed by islets, rocks, and shoals, and it is dangerous to pass over them even in moderately fine weather. Mariners are advised to avoid this coast.

Andoya (69°05'N., 15°45'E.) is the farthest N of the Vesteralen group. From a position on shore E of Anda to Andenes, a distance of 20 miles, the almost inaccessible coast of the island is fronted by a bank of white sand on which there are numerous rocks. The various mountain formations are separated by vast flat marsh areas; for this reason the mountain peaks will look like islands when seen from the sea.

The N part of Andoya is low and flat. From E and W, Andoya Light will become visible before the rest of the landscape.

Gaukvaeroy (68°37'N., 14°21'E.), an island off the S end of Langoya, close N of Litloya, has sharp hills which are good landmarks in clear weather. The hills on Langenes, at the N tip of Langoya, stand out distinctly against Andoya.

The hills on the island nearest the coast are generally high and conical; it is difficult to distinguish them from those E until quite near the coast.

The mountains of Andoya are easily identified as they rise abruptly from low, marshy lands of considerable extent and from a distance appear as detached rocky islets. They are visible up to 50 miles in clear weather.

8.41 **Vesteralsfjorden** (68°35'N., 14°32'E.), between Hadseloya and the W point of Langoya, is continued NE by Eidsfjorden and E by Langoysundet.

Eidsfjorden (68°40'N., 14°53'E.) indents Langoya to a distance of 14 miles, and is mostly deep and clear in the fairway. A depth of 3.4m lies at the W end of a shoal about 1 mile from the head of the fjord. The innermost 2 miles of the fjord freezes in winter and all the side fjords are frozen up.

Langoysundet (68°35'N., 14°55'E.), between Hadseloya and Langoya, connects the inner end of Vesteralsfjorden with the SW end of Sortlandsundet.

Langoya is connected to Hadseloya through **Boroya** (68°34'N., 14°57'E.) by bridges. The vertical clearance across the E end of Langoysundet is 30m over a navigable width of 80m.

There is anchorage in Langoysundet for vessels of moderate

size, in 44m, sand, SE of Dragneset, the N extremity of Hadseloya. A 6m rocky patch lies 0.2 mile E of Dragneset.

Boroysundet, off the W and S sides of Boroya, give access to Stokkmarknes.

8.42 Stokkmarknes (68°34'N., 14°55'E.) (World Port Index No. 21690) is a natural coastal harbor situated on Hadseloya abreast the W end of Boroya. The channels leading into the harbor are well marked.

Stokkmarknes Port Authority
http://www.hadselhavn.no

Depths—Limitations.—The controlling depth is 5m in the W entrance and 5.5m in the E entrance. The deepest berth has a depth of 7.8m.

Boroysundet, E of Stokkmarknes, is spanned by a bridge with a vertical clearance of 15m.

Pilotage.—Pilots should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost. For further information, see paragraph 8.1.

Pilots board in the following positions:

a. 68°12.7'N, 15°35.8'E (Tranoy).
b. 68°12.5'N, 14°53.5'E (Moldora).
c. 68°35.0'N, 14°40.0'E (Dragnesodden).

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channel 12
2. Telephone: 47-76-164650
   47-41218506 (mobile)
3. Facsimile: 47-76-164651

8.43 Anda (69°04'N., 15°11'E.) lies 2.5 miles N of the N end of Langoya. The islet is marked by a light equipped with a racon. Flesan, a rocky patch with a least charted depth of 1.8m, lies 2 miles N of Anda and Brakan, an isolated patch with a least charted depth of 2.7m, lies 2.25 miles NNE of the islet.

Vessels approaching Gavlfjorden from the N should steer to pass E of Brakan.

Foul ground extends 2.5 miles N from the N end of Andoya, about 26 miles NNE of Anda.

Bjerka (69°24'N., 16°08'E.), an isolated patch with a depth of 8.5m, lies 4.25 miles NNE of Andoya. It is the farthest N of the dangers lying off the island. Nordhavboan, an isolated shoal patch with a depth of 5.8m, lies about 1 mile ESE of Bjerka. There are other patches with similar depths charted in the area.

8.44 Andenes (69°20'N., 16°08'E.) (World Port Index No. 21660), a town situated at the N extremity of Andoya, is the district administrative center. The harbor, which is on the NE side of the town and protected by four large mole installations, is filled with shoals and skerries.

Andenes Port Authority
http://www.andoy.kommune.no

Depths—Limitations.—There is a berth alongside the military quay, 62m long, with depths as deep as 6m alongside. There are a number of berths inside the harbor, the longest being 85m with a depths alongside as deep as 5m.

Aspect.—Andenes Light is shown from a prominent tower, 40m in height.

It is reported that a church spire and a microwave tower, both conspicuous, stand about 1 and 2 miles, respectively, SE of Andenes Light.

Pilotage.—Pilots should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost. For further information, see paragraph 8.1.

Pilots board in position 69°19.5'N, 16°13.5'E.

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The harbormaster can be contacted on VHF channels 12 and 16 and by telephone, as follows:

a. 47-76-141113
b. 47-76-867933 (mobile)

The Port Authority can be contacted by telephone (47-76-115000) and facsimile (47-76115030).

Anchorage.—Moderate-size vessels may anchor about 0.15 mile ESE of the E head of the NE detached mole or in the entrance to the inner harbor. A prohibited anchorage area lies adjacent to the coast close SE of the harbor and may best be seen on the chart.

Bleik (69°16'N., 15°58'E.) is a small fishing harbor, protected by moles, lying about 5 miles SW of Andenes. A range marks the entrance. It is reported that a conspicuous radio tower stands about 2 miles ESE of Bleik.

Andenes

8.45 Andfjorden (69°00'N., 16°03'E.), a large inlet entered between the E side of Andoya and the W side of Senja, 15.5 miles E, leads in a S direction for about 22 miles to the NW end of the island Grytoya; its continuations farther S are known as Kvaefjorden and Gullesfjorden.

At Grytoya, Toppsundet, formed between Grytoya and Hinnoya, leads SE into Vagsfjorden and Indreleia.

Tides—Currents.—Tidal currents in Andfjorden are not very strong and are usually governed by the wind, but occasionally the N current sets toward the E side of the fjord and the S sets toward the W side.

In Toppsundet, the tidal currents usually set E with the rising

tide and W with the falling tide, but with E and S winds they often set constantly W, and with W and N winds they set constantly E.

Caution.—Firing and bombing practice areas are established in the N entrance to Andfjorden. Firing areas are also established in Andfjorden between Leikneset and Meloyvaer, extending seaward from Steinvaer, and between Saurabogen and Meloyvaer, extending S to the N entrances of Risoy Sund and Topsundet.

8.46 On the E side of the fjord are several groups of low islands surrounded by rocks and shoals. **Holmenvaer** (69°18'N., 16°45'E.), 14 miles ESE of Andenes, is the farthest N of these groups. The Steinavaer group lies 8 miles SSW of Holmenvaer and the Meloyvaer group lies 6 miles farther SSW.

Myrboen (69°12'N., 16°30'E.), an isolated rocky shoal with a least charted depth of 6.7m, lies at the W end of Steinavaer.

Froholman (69°04'N., 16°19'E.), a group of rocks and islets, lies 4 miles NNE of Grytoya. A rock at the S end of the group dries.

Grotavaer, a group of islets and rocks with a depth of 4.9m at its outer edge, lies close off the NW side of Grytoya.

Skarvhausbaen (68°57'N., 16°10'E.), a shoal patch with a depth of 4.9m, lies about 1.25 miles SSW of the 4.9m depth at Grotavaer.

The W side of Andfjorden is relatively free of dangers outside the shore bank.

Myrflesan (69°06'N., 16°04'E.), marked by a light, lies 2.25 miles E of Andoya, 14 miles SSW of Andenes. It dries in places. A 4m isolated depth lies 0.4 mile E of the light.

Kinnholmen, an island marked by a light, lies 1.5 miles E of Andoya, about 10 miles SSW of Myrflesan.

Risoysundet, formed between Andoya and Hinnoya, connects Gavlfjorden with Andfjorden. The NE end of the channel, which is much narrowed by shallow banks, is entered 4 miles NNW of Kinnholmen. A bridge, with a vertical clearance, of 32m spans Risoysundet.

8.47 **Kvaefjorden** (68°50'N., 16°00'E.), the S extension of Andfjorden, is relatively free of dangers in the fairway.

Mefjordingen (68°55'N., 16°05'E.), an isolated 12.8m shoal, lies in mid-channel 2.25 miles ESE of the light on Kinnholmen. Jabaen, with a charted depth of 8.8m, lies 2 miles ESE of Mefjordingen.

Kasfjorden opens off the E side of Kvaefjorden. Bygdesundet opens E 5 miles farther SW. Godfjorden extends SSW from Kvaefjorden; Gullesfjorden is the S continuation of the main fjord. The inlets are free from dangers in mid-channel.

Ice will form at the heads of the branch fjords in the winter. Mariners are cautioned that ice movement may be strong when melting occurs in the spring.

Toppsundet (68°53'N., 16°23'E.), formed between Grytoya and Hinnoya, is the farthest S of the channels which lead between Andfjorden and Vagsfjorden. It is easy to navigate but heavy squalls may be expected.

Hestebaen (68°56'N., 16°16'E.), 0.35 mile N of Ytre Elgsnes, the SW entrance point at the W end of Toppsundet, is awash. Store Sandskjaer lies on the shore bank 0.45 mile offshore, 1.75 miles SSE of Hestebaen.

Vaskinnkviga (68°53'N., 16°26'E.), an above-water rock, lies 0.25 mile off Grytoya, about 3 miles ESE of Store Sandskjaer. The other dangers in Toppsundet are marked and are best seen on the chart.

Kjeoya (68°52'N., 16°34'E.), an islet marked by a light, lies in the SE entrance to Toppsundet. Shoals, with a depth of 7m at their outer end, extend 0.5 mile SW from the islet.

Krakeneset, a peninsula, lies 1 mile S of Kjeoya. A shoal, which partly dries, extends 0.2 mile N from the peninsula.

The island of Magoya, with a light at its SW end, lies close E of Krakeneset. Roykenesbaen, a drying shoal, lies 0.75 mile NNE of Magoya.

Vessels may transit Toppsundet by steering in the white sector of the various lights that mark the fairway.

Harstad to Malangen

8.48 **Astafjorden** (68°44'N., 17°00'E.), with its continuations of Salangen and Loksefjorden, extends in a general NE direction for a distance of about 25 miles. The fjord is entered from the SE side of Vagsfjorden and is formed on the NW side by the islands of Rolla and Andorja and by the mainland on the SE. It is deep and free from dangers in the fairway.

Several fjords branch from the SE side of Astafjorden. On the NW side are Bygden and Mjosundet, which are channels leading to Vagsfjorden. Mjosundet is narrow and there is usually a N setting, strong, tidal current, but it can be navigated by large vessels.

A spit, with a charted depth of 1.8m, extends 0.6 mile SW from the N side of the entrance to Astafjorden, and a reef, with charted depths of 3m, extends 0.3 mile off the S side of the entrance.

Anchorage.—There is good anchorage, in about 29m, clay, off the village of **Tovik** (68°41'N., 16°53'E.), 2 miles within the S entrance point of Astafjorden.

8.49 **Grovfjorden** (68°42'N., 17°05'E.) lies about 5 miles ENE of Tovik. This arm of Astafjorden is encumbered by rocks about 2 miles within the entrance. A bridge, with a vertical clearance of 4.9m, spans the fairway at the narrows about 3 miles within the entrance.

Gratangen (68°45'N., 17°18'E.), a winding arm which extends about 11 miles ESE from Astafjorden, is entered about 4 miles ENE of Grovfjorden. Its shores are steep and inaccessible, except at its inner end, and it is free from dangers in the fairway. A bridge, with a vertical clearance of 17m, spans the narrows about 8 miles within the entrance. Gratangsbotn is formed E of the bridge.

Bygden (68°50'N., 17°08'E.), formed between Rolla and Andorja, extends NNW from Astafjorden to Vagsfjorden, a distance of about 7 miles. The S entrance, 2.5 miles NNW of Gratangen, is encumbered with islets and rocks, which can best be seen on the chart.

There are several anchorages charted in Bygden, but they are for small vessels with local knowledge.

8.50 **Lavangen** (68°47'N., 17°37'E.) opens off the E side of Astafjorden, about 9 miles ENE of Bygden. The fjord extends about 9 miles SE and is free of dangers in the fairway.

The shores of the outer part of this inlet are precipitous, but are less bold toward the inner end, where alluvial banks of con-

siderable extent have been deposited by a river, which flows into the head of the inlet.

In Lavangen, drift ice is sometimes encountered towards the head of the inlet.

Salangen (68°53'N., 17°34'E.), the continuation of Astafjorden is about 8 miles in length. Loksefjorden is the NE end of Salangen.

Sagfjorden, on the SE side of Salangen near its head, extends 4 miles in a SE direction. It is entered E of **Foroya** (68°54'N., 17°41'E.).

For the most part these fjords are clear and deep. The shoals, which may be dangerous to shipping, are marked. An isolated rock, with a depth of 5m, lies 0.6 mile SW of Foroya.

8.51 Salangsverket (68°55'N., 17°44'E.) (World Port Index No. 21495) is a natural coastal harbor situated on the E side of the N entrance point to Sagfjorden, 0.75 mile ENE of Foroya. There is a concrete quay, 72m long, with depths of 7.7 to 9.2m alongside. Vessels can anchor, in a depth of 10m, stones, between the quay and an islet 0.25 mile E.

In hard winters, ice can lie in Sagfjorden from Salangsverket to Sjovegan, where the quays are blocked.

Sjovegan (68°53'N., 17°50'E.) (World Port Index No. 21510) is the administrative center for the Salangen district. It is a coastal harbor protected by breakwaters, situated on the NE shore of Sagfjorden, 2.75 miles SE of Salangsverket. There are several quays up to 48m in length, with depths of up to 8m.

Mjosundet (68°54'N., 17°27'E.), formed between Andorja on the SW side and the mainland on the NE side, is entered from Astafjorden in a position about 3 miles N of the entrance to Lavangen.

Mjosundholmen (68°53'N., 17°28'E.), an islet marked by a light, lies in the SE entrance to the sound. The islet may be passed on either side. A shoal, with a depth of less than 1.8m, lies 0.3 mile ENE of the islet.

In Mjosundet, there is nearly always a strong W and N flow, but after N winds of long duration it is weaker, and may occasionally run S and E. A bridge, with a vertical clearance of 34.7m, crosses Mjopsundet.

From a position E of **Harstad** (68°48'N., 16°33'E.), Vagsfjorden leads about 18 miles NE to the S entrance to Tranoyfjorden.

Vessels in transit of this part of Vagsfjorden should steer to pass about 1 mile W of **Engenes** (68°56'N., 17°07'E.), the NW point of Andorja, then steer for the N edge of **Bergsheia** (69°03'N., 17°24'E.) situated on the island of Dyroya, about 9 miles NE of Engenes.

Tranoyfjorden (69°04'N., 17°19'E.) is entered between Hageneset, the S extremity of Dyroya, and Stonglandet, a peninsula extending SE from Senja.

Indreleia, continued from the NE end of Vagsfjorden, has two alternative routes leading into Solbergfjorden, known as Tranoyfjorden and Dyroysunde. Tranoyfjorden is the principal channel. Dyroysundet, formed between Dyroya and the mainland, can be used by large vessels.

The Dyroy Bridge, with a vertical clearance of 17.6m, crosses Dyroysundet.

8.52 Tranoyfjorden, deep and free from dangers in the fairway, leads NNE to Solbergfjorden.

From Solbergfjorden, the fairway leads ENE to the junction with Finnfjorden, then NW to Finnsnes, a distance of about 24 miles.

Bispeflua (69°01'N., 17°14'E.), which dries and is marked by a light, lies at the S end of Tranoyfjorden on the W side of the fairway, 0.75 mile off Stonglandet. Foul ground with several islets, including Leikangsoy, extends N about 2 miles from a position 0.3 mile NE of Bispeflua. A reef fringes Hoyholmen, an islet 2 miles N of Leikangsoy.

Solbergfjorden (69°08'N., 17°38'E.), formed between the SE side of Senja and on the E by the mainland, is the continuation of Indreleia from Tranoyfjorden. The fjord is broad and free from dangers in the fairway.

The tidal currents in Solbergfjorden set N with the rising tide and S with the falling tide.

During W winds, heavy squalls, which may blow from any direction, are experienced near **Klauva Light** (69°11'N., 17°58'E.). These squalls decrease as Finnsnes is approached and it becomes nearly calm in Gisundet. If it is blowing hard from S or SE, irregular winds may be expected, and violent squalls may strike down from Kistefjell, a peak 5 miles NE of Finnsnes.

From Solbergfjorden, the fairway of Indreleia leads NE between Klauva Light and **Grunnreisaskjaer** (69°11'N., 18°02'E.), a rocky 4.9m shoal, about 2 miles E. From this shoal the track turns NW toward Finnsnes, the S entrance to Finnsnesrenna.

The approach to Finnsnesrenna, which is entered W of Finnsnes, leads between Storvikgrunn, on the W side, and Millomgrunn on the E side of the fairway. They have least depths of 7.9m and 12.8m, respectively.

The E part of the channel connecting Solbergfjorden and Finnsnesrenna is Finnfjorden, and the W part is Laksfjorden.

Hemmingfjorden (69°12'N., 18°04'E.), about 1 mile NNE of Grunnreisaskjaer, has a timber quay 31m long, with depths of 4.5 to 7.5m alongside. The quay is in poor repair.

At Storvik, in Finnfjordbotn, the NE part of Finnfjorden, there is a poorly fendered quay 25m long with 6.5 to 7.5m alongside. At Storneset, close SSW of Storvik, there is a quay associated with the smelting works, 42m long with 13m alongside.

Finnsnes (69°14'N., 17°58'E.) (World Port Index No. 21490) is the administrative center for the Lenvik district. It is a natural coastal harbor situated at the SE entrance to Finnsnesrenna. There is a packet boat quay, 87m long, with depths of 5 to 7m alongside.

8.53 Finnsnesrenna (69°14'N., 17°58'E.), formed in the narrows between Senja and the mainland, is entered abreast of Finnsnes and leads N into Gisundet. Gisundet extends in a general N direction for about 16 miles to its junction with Malangen, off the NE extremity of Senja.

The main channel through Finnsnesrenna and Gisundet has been reported (2014) to be dredged to a depth of 10m. A secondary channel has been reported (2014) to have a minimum dredged depth of 8m over a navigable width of 120m.

The W channel is entered W of **Finnsnesskjaer** (69°14'N., 17°58'E.), a shoal which dries, situated about 0.4 mile NNW from the light on Finnsnes.

A bridge, with a vertical clearance of 41m, spans Finnsnes-

renna, about 1 mile N of Finnsnes. The white sector of the lights on the bridge leads through the channel.

Regulations.—Traffic is controlled from a signal station situated about 0.5 mile N of Finnsnes.

Southbound traffic has right of passage over northbound traffic. Vessels with a draft of less than 6.1m use the E channel.

Signals.—The following signals, shown at the signal station, indicate that passage is closed to northbound traffic:

1. By day—Flag N of the International Code of Signals over a black ball.
2. By night—A white light over a red light.

Gisundet (69°18'N., 17°58'E.) is well marked; the dangers and navigational aids may best be seen on the chart.

Tides—Currents.—The tidal currents set through Gisundet with considerable strength, attaining their greatest velocity in the vicinity of Gibostad, about 8 miles N of the bridge.

With the rising tide the tidal current sets N from the S entrance, losing strength toward a point 5 miles N of Finnsnes, where it meets the S flood current from Malangen.

8.54 **Gibostad** (69°21'N., 18°05'E.) (World Port Index No. 21380) is situated on the W side of Gisundet. It is a natural coastal natural with a packet boat quay, 59m long, with depths of 5.5 to 7.5m alongside.

An area prohibited to diving, fishing, and anchoring is charted N of Gibostad.

Gisundet extends about 8 miles N from Gibostad to Malangen, the approach to Tromso.

Sandholmen (69°25'N., 18°06'E.), an islet surrounded by shoal water, lies on the W side of the fairway, 3.75 miles N of Gibostad. The shoal water is marked on its E edge, about 0.3 mile off the islet. Other foul ground lies on the W side of the fairway NNW of Sandholmen.

The white sector of the light on **Slettneset** (69°23'N., 18°06'E.), 1.5 miles NNE of Gibostad, leads E of the dangers off the W side of Gisundet and into the white sector of the light on **Lille Rodbergsodden** (69°27'N., 18°08'E.), 4.75 miles NNE. A bight, about 1 mile NE of Lille Rodbergsodden, is foul.

Prohibited Military Areas are located in the vicinity of Rodbergsodden and Skorliodden, and at the NW entrance point to Gisundet.

Aglapsbaen, a group of rocks partly awash, lies 0.5 mile offshore 1.5 miles NE of the light.

Indreleia leads into Malangen through the broad entrance of Gisundet, N of Lille Rodbergsodden.

Andenes to Tromso

8.55 From abreast of Andenes, the W side of Senja trends about 29 miles NE to the seaward entrance to Malangen, the passage leading to Tromso. Kvaloy is on the N side of Malangen and W of Tromso.

Both islands have abrupt declivities toward the sea, and are fronted by banks, with islets and below-water rocks extending up to 11 miles off the NW side of Kvaloy.

Two large banks, Sveinsgrunn and Malangsgrunden, with depths of less than 183m, extend, respectively, to a distance of 25 miles W of Senja, and 35 miles W of the N part of Kvaloy.

Between the two banks, a fissure, with depths over 280m, extends into Malangen and to a short distance from the outer dangers extending W from Kvaloy. The approach to Malangen is made with considerable danger in thick weather, even with careful attention to soundings.

A vessel, having made the W coast of Senja between Andenes and Kvaloy, with the island of Andoya bearing 180°, can obtain a fix by means of the mountains on Senja. Vessels running the W side of Senja should not close to within a distance of 6 miles.

Strangers will have difficulty in identifying this part of the coast from the offing. When seen from a distance, the larger islands appear to diminish those in the background, and on closer view, to hide them altogether. At a distance, the islands themselves lose their height and peculiarity of outline and appear to form a continuous mass, which is capped by so many sharp peaks that considerable local knowledge is required to identify with certainty any one in particular.

The most conspicuous points are **Aldenes** (69°20'N., 16°0'E.), the N extremity of Andoya, and the N point of Kvaloy, about 30 miles NE of the NW extremity of Senja. As a rule the openings of the numerous fjords and channels will be the most useful guides.

Aspect.—Kjerringneset (69°19'N., 16°55'E.), a point on Senja 16.5 miles E of Andenes, is a good landmark when approaching the coast from W of Andenes. Maneset, Teistneset, and Traelen, 3.75 miles N, 5.75 miles NNE and 8 miles NNE, respectively, from Kjerringneset, are good marks.

At the N extremity of Senja is **Kjolva** (69°36'N., 17°30'E.), 416m high, which is especially prominent and can hardly be mistaken from a position NW of Andenes.

Snefjell, a rounded snowy summit 653m high, about 13 miles S of Kjolva, and Kvennan, 967m high with pointed peaks, about 15 miles SW of Snefjell, are also good marks from NW of Andenes.

When nearing the coast NW of Kjolva, the opening of Oyfjorden, on the E side of Kjolva, will be visible. About 8 miles SE and 7.5 miles ESE of Kjolva are Skinnkollen and Astria, 731m and 742m high, respectively, which are the most important marks for the entrance to Malangen.

In the vicinity of Kvaloy at Malangen, the island of **Haja** (69°44'N., 18°05'E.), 486m high, lies about 12 miles NNE of Astria. It can be distinguished from the neighboring islands and hills, by its precipitous fall to seaward.

About 3 miles E of the summit of Haja is the summit of Sessoya, 657m high. About 8 miles NE of Sessoya are the pointed peaks of Vengsoya, up to 765m high.

From a position W of **Auvaer** (69°52'N., 18°00'E.), a group of islets on the foul bank extending from the N end of Kvaloy, the Alp-like mountains of that island will be seen behind the islands in the foreground. The mountains bordering Ersfjorden, together with Tromtind, 3 miles NE of Sessoya, and Blamannen, 5.5 miles SE of Tromtind, are the most conspicuous.

Pilotage.—There is a pilot station at Andenes; 12 hours advance ETA is required. If entering by Lodingen, 2 hours notice is required. The pilot boats guard VHF channel 16.

8.56 Malangen is entered between **Hekkingen** (69°36'N., 17°50'E.) and Edoya, 1.5 miles NE. A light is situated on each entrance point. This channel is the best approach from the SW to Tromso.

Hekkingen Light is shown from a low tower on a wooden house, 10m in height. A racon is located at the light tower.

Malangen extends about 13 miles in a SE direction to its junction with Straumsfjorden. An arm of Malangen continues SE for about 12 miles to Nordfjorden, which lies at its head.

Indreleia enters Malangen from Gisundet about 10 miles from its W entrance.

Winds—Weather.—During N winds over Malangen, it will often be calm, or there may be a light breeze off **Greipstad** (69°31'N., 18°13'E.) about 3 miles NNE of the entrance to Gisundet. With a N wind out of Straumsbukta, 9 miles E of Greipstad, and S through Malangen, it is often calm in Rystraumen.

During E winds out of Malangen, it is often calm in Stonnesbotn, on the SW side of the passage, 4 miles SE of Hekkingen. It is also often calm under these conditions from Asnes, 5 miles ESE of Greipstad, to a position about 2 miles farther ENE.

During SE winds in Malangen, strong squalls are experienced from S of Straumsbukta to a position about 3 miles SW; these squalls are especially frequent at the SW position.

During SW winds in Malangen, irregular winds will be experienced from the NW entrance point of Gisundet, seaward. During W winds, it is often calm in the neighborhood of the NW entrance to Gisundet.

Tides—Currents.—During the spring season the, tidal currents set very strongly out of Malangen, independently of the tidal currents close inshore on both sides of the fjord, where they turn at the times of HW and LW.

During the summer and autumn months, the ebb currents have the stronger set, whereas during the winter months the set is more strongly into the fjord. The tidal currents set strongly through the channel SE of Hekkingen, taking a W direction with the falling tide.

Numerous whirlpools occur in Rystraumen when the tidal currents are running at their maximum strength; when passing through them great attention must be paid to the steering.

The tidal currents in Rystraumen set SW with the falling tide and NE with the rising tide, the turn occurring at the times of HW and LW. They set strongly through the passage, attaining a maximum velocity of 6 to 7 knots.

According to the latest observations in Tromsoysundet, the tidal currents set S from about 1 hour 45 minutes before HW until about 1 hour 45 minutes before LW, when they turn and set N until about 1 hour before HW. At springs the velocity is up to 6 knots at the narrowest part, being strongest midway between the turns of the currents. The average velocity is from 4 to 5 knots in the narrowest part and from 2 to 3 knots N and S of this part. During N gales the tidal currents set S almost continuously, the slack lasting only for about 0.2 hour, when they continue to set S with S winds there may be slack water for 0.25 hour, otherwise the currents turn with no period of slack water.

Owing to the formation of the bottom, the tidal currents do not run truly in the direction of Tromsoysundet. The N current, for example, often sets in toward the mainland in the vicinity of Krokelva, the mouth of which is about 3 miles NE of Storsteinnes Light; therefore when visibility is bad especially careful navigation is necessary.

When proceeding S against the N current a vessel will always have the current on the starboard bow, and is therefore liable to go ashore on Tomasjordnes, about 1.25 miles NE of Storsteinnes Light.

Caution.—Firing areas are established in Malangen from Hekkingen to the junctions with Gisundet and Straums Fjord.

Dangers in the entrance to Malangen may best be seen on the chart.

8.57 Kvaltyvan (69°39'N., 17°45'E.), a group of below-water rocks with a least depth of 5.8m, lies on the SW side of the approach to Malangen, in a position 3.25 miles NW of Hekkingen.

On the NE side of the fairway, shoals, with a depth of 4.9m at its outer end, extend 0.8 mile NNW from Edoya.

Within the entrance there are no dangers in the fairway, except for a narrow coastal reef off Kvaloy.

Caution.—An ammunition dumping ground lies in Malangen, with its N end situated about 2 miles SE of Hekkingen.

From Greipstad, the S extremity of Kvaloy, the continuation of Indreleia from the E end of Malangen is known as Straumsfjorden, with the narrows between Kvaloy and the island Ryoya, known as **Rystraumen** (69°33'N., 18°43'E.), where the channel has a least width of 0.2 mile between the shore banks. It has been reported (2008) that tidal currents of up to 7 knots occur at maximum flood and ebb. It is recommended that vessels transit this area at slack water or at a speed of 15 knots at other times.

Skallen, a shoal patch with a least depth of 7.9m, lies in the W entrance to Rystraumen, 0.15 mile NW of Ryoya. A rock NE of the light N of Ryoya is especially dangerous, as the SW tidal current sets toward it.

The coastal reef extends about 0.3 mile SSE from **Tisnes** (69°36'N., 18°50'E.), 3 miles NNE of Ryoya; a drying reef lies E of Tisnes.

A shoal, with a least charted depth of 3.4m, lies 1.25 miles NE of Tisnes.

The coastal reef which fringes the mainland on the SE side of Tromsoysundet dries in places. A rock, awash, lies on the reef 0.5 mile S of the bridge which spans the channel.

8.58 Tennskjerholmen (69°29'N., 18°19'E.) lies close off the W side of Malangen, 3.5 miles SSE of Greipstad; from this position Malangen continues SSE.

Foroya lies on the E side of the channel, 2.5 miles E of Tennskjerholmen. A shoal, with a charted depth of 1.8m, extends 0.4 mile from the mainland, from a position about 2 miles S of Foroya.

Tromsoya (69°40'N., 18°57'E.), 5.75 miles NNE of Ryoy, is fringed by a coastal reef, which extends up to 0.2 mile from the SE and SW sides.

Spilderoya (69°25'N., 18°29'E.) lies on the E side of the fairway, 2.5 miles S of Foroya, and is surrounded by a flat which extends 0.35 mile NNW from the N end and 0.7 mile SSE from the S end. There is a 1.8m depth charted on the N flat, and 4.9m charted at the extremity of the S flat.

It has been reported there is good anchorage, in 27m, 2 miles SE of Spilderoya. It is protected from SE weather.

Malselvfjorden, entered 3.75 miles SSE of Spilderoya, extends about 8 miles S from its entrance. The S half of the fjord is shoal.

Nordfjorden, the SE continuation of Malangen, is entered E

Tromso

of **Malsnes** (69°21'N., 18°34'E.), which lies 4 miles SSE of Spilderoya. Aursfjorden, which branches S from Nordfjorden, is entered about 3 miles SSE of Malsnes. A reef extends about 0.5 mile N from the E entrance point of the fjord.

A cable, with a vertical clearance of 26m, spans Nordfjorden 6.75 miles within its entrance.

8.59 Ballsfjorden (69°32'N., 18°55'E.) is entered between Balsnesodden, 1.75 miles ENE of Ryoya, and Bergholmen, an islet 2.25 miles E. The fjord indents the mainland about 25 miles, in a SE direction.

Ramfjorden branches E about 3 miles within the entrance to Ballsfjorden. A Military Prohibited Area has been established in Ramfjorden; the area is delimited to the S by a line drawn between Kobben Light and the S point of land at Ramfjordnes (Olavsvern) and extends NE to the parallel of latitude at Hundbergklubben and the islands lying due E of it. A pier, with a length of 95m, is reported (2008) to be located at Ramfjordnes (Olavsvern). An overhead cable, with a vertical clearance of 45m, spans the fjord close within its entrance.

The shore reef fringing the W side of Ballsfjorden extends to a distance of 0.5 mile in places; an 8.8m patch lies near mid-channel, about 8 miles within the entrance.

During the ice season, Ballsfjorden is usually obstructed for about 8 miles from its head; occasionally the ice may extend N to within a few miles of the entrance.

A measured mile is situated on the E shore of Balsfjorden, with the N limit at Bergholmen. The N outer mark stands on a skerry near Ytre Berg; the S outer mark stands near Holmesletta. The course to be made good is 162°/342° at a distance of about 0.5 mile from the outer marks.

Vessels approaching Malangen from W should stand sufficiently far N to clear **Kvaltyvan** (69°39'N., 17°45'E.) before altering course for the entrance to the fjord.

When the dangers NW of Edoya are abeam, alter course into Malangen, keeping in mid-channel, and then into Indreleia.

The SW coast of Kvaloy should not be approached closer than 0.3 mile, as many large boulders lie at some distance from the shore.

It has been reported that it is dangerous for small craft to approach Malangen from the NW during a NW gale, as strong opposing currents may be encountered NNE of Hekkingen.

Tromso (69°39'N., 18°57'E.)

World Port Index No. 21310

8.60 The city of Tromso is located on the islands of Tromsoya and Kvaloya, and on the neighboring mainland. It is about 30 miles from the open sea. Tromso's municipality, which is, in area, Norway's largest, extends to additional islands and over a large area of the mainland. The highest mountain in the municipality is Jiekkevarre, which is 1,833m high. Tromsdalstind, which is visible from the town center, rises to 1,238m.

Tromso experiences 2 months of midnight sun from May 21 until July 23. The sun does not rise in Tromso from November 25 until January 21.

Tromso's harbor has two installations. The old port stands close to the center of the city; the new port stands about 1.75 miles N. The harbor area extends from, and includes Rystraumen in the S, to a line from Kvalsundet to the mainland in the N.

Prostnesset, the old harbor, on Tromsoya, is near the W end of the bridge. It has three sections. Sondre Havn, located about 0.5 mile SSW of the Tromso Bridge, is protected by the S breakwater. Indre Havn, which is close to and SSW of the bridge, is protected by the N breakwater. Polsehamna, the third section of the old harbor, is N of the bridge.

Breivika, the new port, also on Tromsoya, N of the city cen-

ter, has container and ro-ro facilities.

Port of Tromso

http://www.tromso.havn.no/en

Winds—Weather.—Weather conditions seldom seriously interfere with port working conditions. The harbor and approaches are ice-free.

Tides—Currents.—Strong and somewhat complex tidal currents are liable to be experienced in the whole area around Tromsoya, reaching a velocity of 4 to 5 knots in the narrowest part of Tromsoysundet abreast the N mole.

A marked, irregular countercurrent is experienced close to the shore alongside the moles. In the vicinity of the bridge, the current starts flowing in a S direction 1 hour 30 minutes prior to HW and reverses direction 1 hour 30 minutes prior to LW.

The mean tidal range is 1.8m and the spring range is 2.4m.

Depths—Limitations.—There are numerous berths in the port. There are 1,600m of general cargo/bulk berths with depths alongside between 4 and 11m. There are 400m of container berths with depths alongside between 7 and 11m. Eight tanker berths have depths alongside between 6 and 12.8m. There are 200m of ro-ro berths with depths alongside of 7.5m and 900m of passenger berths that can accommodate a vessel with a maximum draft of 11.5m

Berthing details are shown in the accompanying table titled **Tromso—Berthing Information**.

The Tromso Bridge, spanning Tromsoysundet, has a horizontal navigational width of 60m and a vertical clearance of 36m. The centerline of the channel is indicated by lights and a racon. A least depth of 7m was reported (1992) under the bridge.

Pilotage.—Harbor pilotage is compulsory for all vessels over 300 gt. Regular route vessels with a fixed pilot on board are not obliged to take a harbor pilot. Entry and exit pilots can be obtained at Tromso Pilot Station.

Pilot requests are required 12 hours before arrival and vessels may be berthed 24 hours.

Pilotage.—Pilots should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost. For further information, see paragraph 8.1.

Pilots board in the following positions:

a. 0.8 mile ENE of Hekkingen Light in position 69°38.5'N, 17°51.9'E.

b. On request only, in position 69°31.7'N, 18° 01.9'E.

c. 2 miles E of Fakkekjeila Light in position 70°06.0'N, 20°12.9E.

d. On request only, 2 miles NE of Grotnes Light in position 69°52.4'N, 19°47.6E.

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Regulations.—Vessels navigating within the port area are forbidden to proceed at a greater speed than required for their safe maneuvering. Vessels of more than 500 tons must not exceed 5 knots between the S mole and Storsteinnes; however, when passing under the bridge it may be necessary to use speeds of 10 to 12 knots at times other than slack water.

Vessels arriving at Tromso and not having an allotted berth must anchor in Polsehavn, about 0.2 mile NE of the W end of the bridge.

Tromso—Berthing Information

Berth	Length	Depth Alongside	Remarks
Sondre Havn			
No. 1	90m	4.3m	—
No. 1—Jetekaia	97m	4.6m	—
No. 2	78m	4.2m	—
No. 3	64m	3.6m	—
Prostneset			
No. 4	82m	4.4m	—
No. 5	71m	4.2m	—
No. 6	63m	4.2m	—
No. 7	93m	6.1m	—
No. 8 South	101m	5.9m	General cargo.
No. 8 North	200m	5.9-7.3m	General cargo.
No. 9 Brekken	16m	5.1m	—
Indre Havn			
No. 9	62m	4.8m	—
No. 10	30m	3.2m	—
No. 11	90m	3.0m	—

Tromso—Berthing Information			
Berth	**Length**	**Depth Alongside**	**Remarks**
No. 12	64m	3.8m	—
Nansens Pl. 14	16m	4.0m	—
Breivika			
No. 20 South	92m	7.5m	Ro-ro.
No. 20 North	102m	7.5m	Ro-ro.
Ramp	16m	5.0m	Ro-ro.
No. 21	102m	10.4m	General cargo.
No. 22	102m	10.4m	General cargo.
No. 23	102m	11.0m	General cargo.
No. 24	106m	11.5m	Passengers.
No. 25	150m	11.5m	General cargo.
Private Piers			
Berg Eiendomsutvikling AS	120m	6.2m	—
Barents Shipping	30m	7.1m	—
Mack's Bryggeri	90m	4.6m	—
Austad Kai	56m	2.7m	—
Bangsund	43m	4.3m	—
Pellerin AS	19m	4.3m	—
Polarmuseet	29m	4.3m	—
Holm	69m	4.3m	—
Tromso Skipsverft (hovedkai)	100m	6.1m	—
Tromso Skipsverft (utstikker)	70m	3.6m	Two berths, each 35m in length.
Tromso Skipsverft (maskinverksted)	56m	4.6m	—
Nordolje Bunker Oil	110m	6.5m	Maximum vessel loa of 120m and maximum draft of 6.5m.
Nordolje Bunker Oil	67m	2.4-6.7m	—
Asmund Nordgaard	57m	4.3m	—
Nordive	27m	4.7m	—
Fiskernes Agnforsyning	118m	4.0-6.8m	—
Mellagret Odd Berg	103m	4.5-6.8m	—
Tromso Bunkerdepot	245m	3.7-7.0m	Maximum vessel loa of 150m and maximum draft of 7.0m.
HR Sea Product AS	70m	6.0m	—
Neumann Bygg	96m	3.2m	—
Brodrene Dahl AS	75m	3.3-5.9m	—
Habg Kraemer AS (tidling Nordolje)	135m	3.0-4.6m	—
Hagb Kraemer AS, fryseriet	129m	3.0-7.0m	—
Hagb Kraemer AS, liggebai	200m	3.0-7.0m	—
Esso Bunkering	91m	9.0-12.5m	Maximum vessel loa of 190m and maximum draft of 10.5m.

Tromso—Berthing Information			
Berth	**Length**	**Depth Alongside**	**Remarks**
Bjorn Eiendom	40m	5.5m	—
Trofi	210m	3.1-7.0m	—
Nordoya Fiskeindustri	125m	5.6m	—
Karl Karlsen	85m	4.6m	—
Skattora Bat og Motor	21m	1.9m	—
Tromso Havarisenter	25m	3.0m	—
Lemminkainen Norge AS (Skattora)	32m	2.5m	—
Erling Hansen (Skattora)	37m	3.0m	—
Oras Sondre kai (Orndalen)	43m	6.1m	—
Oras Nordre kai (Orndalen)	18m	6.3m	—
Troms Fryseterminal AS (Solstrand)	100m	7.7-10.2m	—
Solstrand AS	190m	5.9m	—
Widding (Tromsdalen)	65m	4.8m	—
Felleskjopet (Tromsdalen)	37m	4.6m	—
Riebers kai (Tromsdalen)	116m	1.1-5.4m	—
Austad trelastlager (Tomasfjord)	52m	5.8m	—
A/S Pellerin Tromasfjord)	102m	4.1-5.2m	—
Skjelnan Statoil/Shell	117m	5.9-13.9m	Maximum vessel loa of 200m and maximum draft of 11.5m.

The Tromso Bridge

Contact Information.—The Tromso Harbor Authority maintains a 24-hour watch and may be contacted on VHF channels 8, 12, and 16.

Contact Information.—Port Control can be contacted, as follows:

1. VHF: VHF channels 12, 13, 14, and 16

2. Telephone: 47-77-661852
3. Facsimile: 47-77-670262
4. E-mail: havnevakta@tromso.havn.no

The Port Authority can be contacted, as follows:

1. VHF: VHF channel 12
2. Telephone: 47-77-661850
3. Facsimile: 47-77-661856
4. E-mail: adm@tromso.havn.no

The Port Captain can be contacted by telephone (47-77-661856).

Anchorage.—Polsehavn affords anchorage in 11 to 12.8m. Large vessels can anchor on the W side of the fairway, in a depth of 31m, from 0.5 to 1.5 miles N of the bridge.

Anchorage is prohibited in the vicinity of the submarine cables which cross Tromsoysundet close S of the S mole.

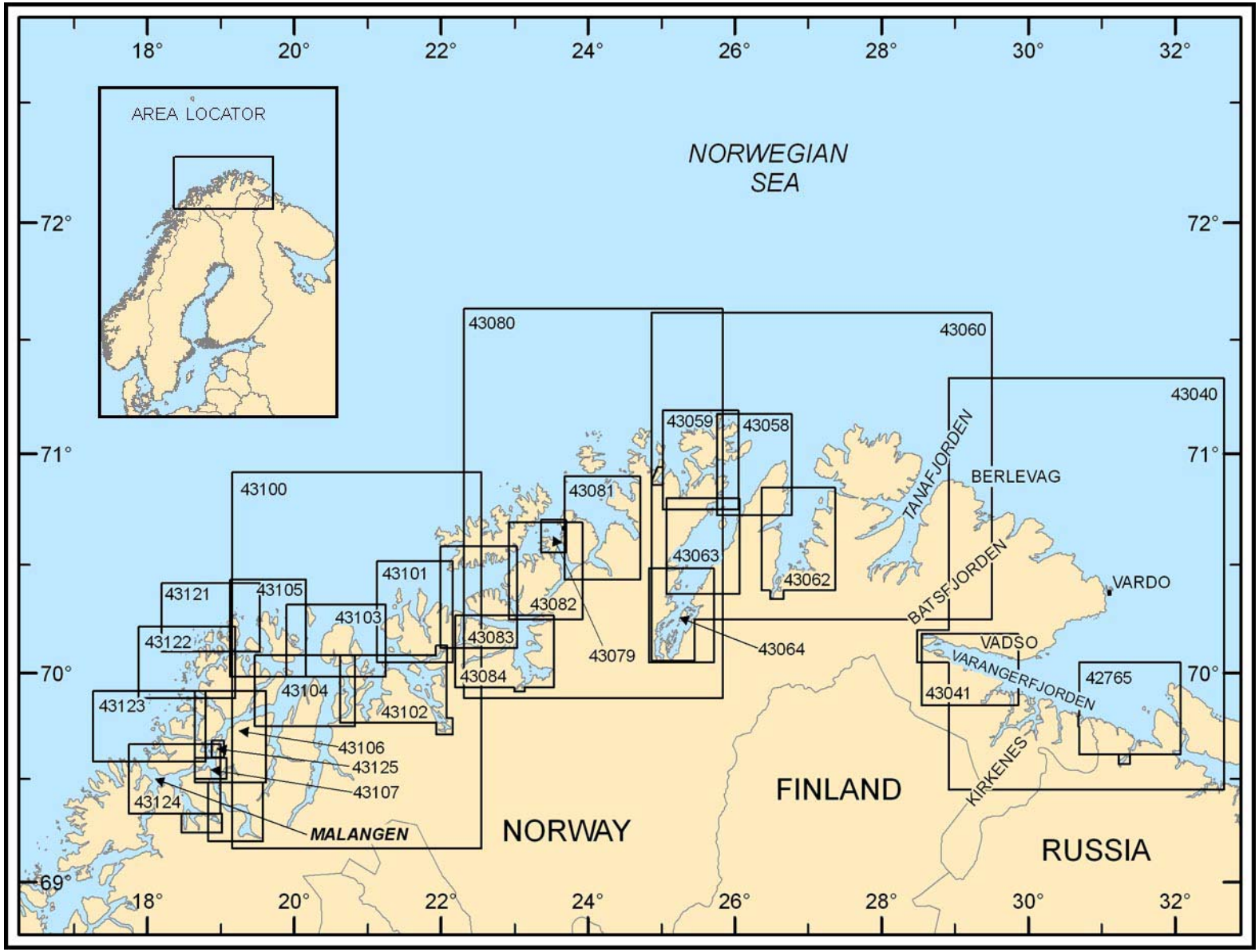
8.61 Sandnessundet (69°41'N., 18°54'E.), between the E side of Kvaloy and Tromsoya, is the principal channel leading past Tromsoya. Vessels exceeding 7,000 tons displacement are required to use it.

The narrowest part, between **Langneset** (69°41'N., 18°54'E.) and Sandneset, 1.5 miles NNE, has been dredged to a depth of 16.5m, with a navigable width of 100m.

The Sandressundet Bridge spans the channel 0.75 mile N of Langneset. It has a vertical clearance of 41m over a navigable width of 140m. The centerline is marked by lights and a racon.

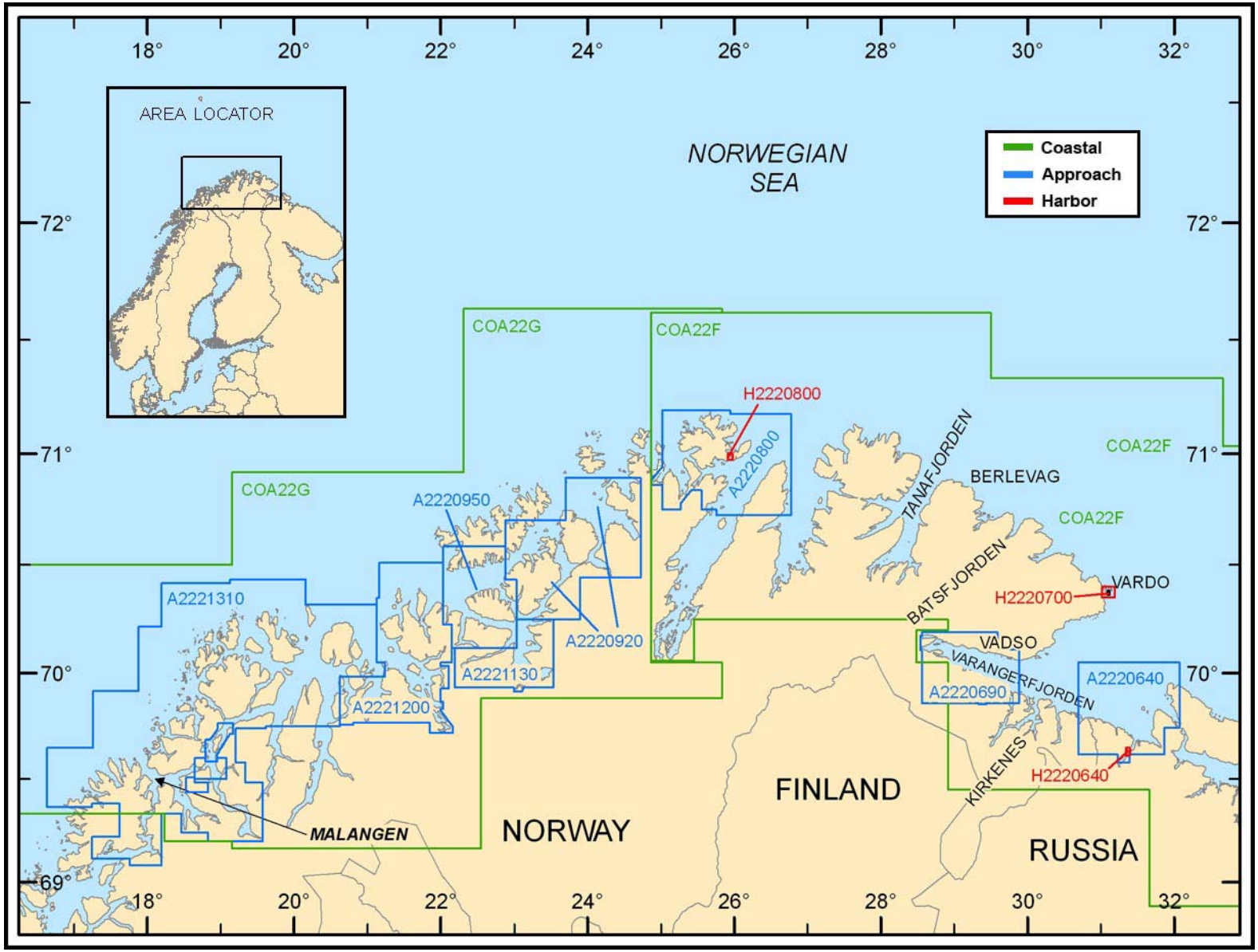
Store Grindoy (69°38'N., 18°51'E.) lies on the W side of the S entrance to Sandnessundet. A bank, with patches of 3m, extends about 1 mile N and S from the island. A bank, with a depth of 1.8m at its extremity, extends 1 mile SSW from Langneset.

The dangers, which may best be seen on the chart, are marked by navigational aids. The white sectors of the various lights lead through the dredged channel and to Indreleia.



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

SECTOR **9** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 22 (Limited Distribution) disc within the README\ ICS folder.

SECTOR 9

NORWAY—MALANGEN TO VARANGERFJORDEN

Plan.—This section describes the N coast of Norway from Malangen to Varangerfjorden. It describes the outer route, and inner route or Indreleia, and the inner fjords between Tromso and Porsangerfjorden. The fjords and ports in the vicinity of Varangerfjorden are also described.

General Remarks

9.1 Winds—Weather.—Weather reports for this area are frequently broadcast. The area is often affected by travelling N Atlantic depressions and associated fronts. It is, therefore, a stormy area, especially during the winter months.

The climate in the landlocked places of the inner reaches of the fjords and Indrelia is extreme and differs from the relatively equable climate on the outlying islands. Therefore, during most of the year, rapid decreases or increases in air temperature when entering or leaving the fjords and Indreleia may be experienced.

At Tromso, the wind is frequently from the S to SW from October through April, and from the N to NE from June through August. The mean force is between 2 and 3 in midwinter and below force 2 from July through September.

At Elvebakken, near Alta, there is little seasonal variation in wind force, and it is, most often, a force 2. From October through March in this area, the wind is mostly from the S to SE; during June, July, and August, it is mostly from the W to NW. Gales (force 8) are infrequent. The highest frequency during winter is one per month. Gale winds are practically unknown during the summer months.

At Vardo, from October through March, the wind is mostly from the S to W; from May through August, it is usually from the S to SE. The wind is strongest in January and February, when the average force is between 4 and 5 and is lightest in August, when the average is about a force 3. Gales (force 8) are frequent in January and February. They occur during these months on an average of about 6 days per month, and occur during the months of May through August on an average of less than one day per month.

Fog at sea is not particularly frequent; however, visibility may be severely reduced during periods of heavy snowfall. The lack of daylight in winter adds to the problem of poor visibility.

Pilotage.—Lodingen Pilot Center organizes and engages pilots for vessels in Nordland and the Troms, from Rorvik in the S to Kirkenes in the N. Pilots should be requested 24 hours in advance. The ETA should be confirmed 2 hours prior to arrival at the pilot station.

See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Several IMO-adopted Traffic Separation Schemes, best seen on the chart, are located off the N coast of Norway. These schemes have been established to maintain a safe sea route for all vessels, especially for the transport of oil from the Barents Sea region.

The route applies to oil, gas, and chemical tankers of all sizes, including all cargo vessels of 5,000 gross ton and above on international voyages.

Ships on international voyages off the coast to and from Rost (67°31'N., 12°07'E.) to Vardo (70°22'N., 31°07'E.) should strictly follow the new routing systems; however, ships making ports-of-call in Norway for supplies or services are recommended to follow the intermediary routes to ports as portrayed on the chart or as advised by the pilot or the VTS of the ports concerned.

Eastbound traffic should use the traffic lane on the S side of each TSS; westbound traffic should use the traffic lane on the N side of each TSS

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Ship Reporting System.—The Barents Ship Reporting System operates in the Barents Sea off the coasts of Norway and the Russian Federation beginning at latitude 67°10'N off the coast of Norway and continuing N, NE, and E to longitude 33°20'E off the coast of the Russian Federation. For further information, see **Arctic Ocean—Ship Reporting System** in Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

Dangerous Wave Areas.—Dangerous waves may be encountered in the following areas:

1. Dangerous Wave Area No. 1.—A very exposed area covering the NE coast of Finnmark extending from position 70°45.0'N, 30°00.0'E, off Batsfjorden, past Makkaur Light and Vardo, to position 70°00.0'N, 30°30.0'E in the entrance to Varangerfjorden. There is no protection from winds from any N direction, resulting in heavy seas running close inshore with full energy. Currents are very variable in the approaches to Varangerfjorden and the increase in wind strength often found around the Vardo headland adds to the chaotic character of the sea conditions in this area.
2. Dangerous Wave Area No. 2.—In the vicinity of the entrance to Tanafjorden, the sea bottom topography around position 71°00.0'N, 28°50.0'E can give rise to very dangerous sea conditions. A deep trench extends from Tanafjorden to seaward, with shallow waters on either side, causing unusually rough seas and tumbling breakers in this area. The confused sea conditions may extend as far as 6 to 10 miles out to sea from the entrance to the fjord.
3. Dangerous Wave Area No. 3.—A very exposed coastal area extends from Nordkinn (71°08.0'N, 27°39.4'E) to Slettnes (71°05.4'N, 28°13.1'E), with relatively shallow water with depths ranging from 27 to 70m. These conditions allow tumbling breakers to form and the sea is especially rough when the wind and waves are from the NW and in opposition to the current.

4. Dangerous Wave Area No. 4.—This area around position 71°00.0'N, 24°25.0'E extends from Garpholmen (71°00.3'N, 24°43.1'E) through Breisundet, then W of Havøygavlen Light (71°01.2'N, 24°33.4'E) to Rolvsøyhamn Light (70°56.8'N, 24°12.8'E). Depths are up to 150m but with several shoals of 30 to 75m. In Breisundet, N to NW winds cause rough seas. When these seas meet a W current, tumbling breakers can be caused. Currents, mainly tidal, may reach 1.5 to 2,0 knots. Near Rolvsøyhamn seas are especially rough with N to NE winds. In both cases, there is no protection from wind or seas, which reach the coast with full energy. About 2 to 3 miles NW of Gavlodden (71°01.2'N, 24°33.4'E) are shoals with depths of about 30 to 50m, one of which is known as Gavlgrunnen (71°02.1'N, 24°27.6'E). Deflection of waves around the shoals and local strong winds around headlands can cause particularly rough seas in this area extending inshore towards Gavlodden. The tidal range is large and sea conditions are at their roughest during the ebb tide.

5. Dangerous Wave Area No. 5.—This area lies NW and W of Soroya (70°38.0'N, 22°53.0'E) over an extensive shallow area with several smaller shoals and a steep slope into deeper water. The current can be quite strong on the slopes across the entire area. Several refraction centers are created on the leeward side of the shallow areas with waves running from NE to SW. The interaction between the waves and the current can lead to breaking waves in the area.

6. Dangerous Wave Area No. 6.—This area N and NW of Senja (69°20.0'N, 17°30.0'E) and Kvaloya (69°41.0'N, 18°37.0'E) consists of large shallow banks. Between the banks the depths are greater than 400m while outside the banks the slope is very steep. The current is dominated by the NE coastal current and the ordinary tidal current, which moves NE with the flood tide. Several refraction centers are created in the area with waves from NE to SW. The interaction between the waves from NE to NW and the NE current can lead to breaking waves.

Outer Route—Malangen to Hammerfest

9.2 Between Malangen, the approach to Tromso, and Hammerfest, about 100 miles NE, the outside track along the islands leads to Soroysund. Soroysund is deep and unencumbered, and is the best approach to Hammerfest from seaward. Because off-lying dangers extend well off the coast, and because during the summer months there is the likelihood of fog and strong NW winds, it is recommended that vessels from the S, bound for Hammerfest, or vessels that intend rounding Nordkapp should navigate well offshore, and give the coast N of Malangen a wide berth. Vessels should make landfall in the vicinity of the island of Soroya (70°35'N., 22°40'E.), located about 85 miles WSW of Nordkapp (71°10'N., 25°47'E.).

A chain of outlying islets and rocks, forming one of the most distinctive features on the Norwegian coast, terminates about 5 miles N of the N extremity of the N island of Kvaloy.

To the E, unmarked dangers extend as far as 20 miles N of Vannoy, Fugloy, and Arnoy.

Nordvestbanken, the area and position of which can best be seen on chart, lies about 39 miles NW of the NW side of Ringvassoy. Between the SW side of this bank and **Malangsgrunnen** (69°58'N., 17°30'E.), the bank E of Ringvassoy, there is a deep fissure, which has depths of over 183m at a distance of about 0.5 to 2 miles from the outer dangers W of Ribbenesoy and Grotoy. This section of the coast, as in the case farther S, is extremely dangerous to approach in foggy weather, even when giving careful attention to the soundings.

There are numerous navigational aids, both on the islands and on the coast in this region, to assist the navigator mark his position. Openings to fjords and channels proves to be a useful means of identification. However, mariners new to this part of the Norwegian coast may have difficulty identifying landmarks and visually locating separations between land masses from offshore. When seen from a distance, a group of islands may appear as one continuous land mass that is capped by many sharp peaks.

9.3 **Ringvassoy** (69°55'N., 19°10'E.), the largest of the islands fronting the mainland, lies with its W end about 25 miles NE of Malangen. To the N of Ringvassoy are the islands of Ribbenesoy, Grotoy, and Kvaloy. To the E of Kvaloy are Vannoy, Fugloy, and Arnoy. Southeast of Arnoy is Kvaenangen, which indents the coast to the SE. The large peninsula on the NE side of Kvaenangen is a mass of mountains, with Svartfjelljokelen attaining a height of 1,218m.

This mountain exposes flat snow-covered surfaces from which glaciers extend down on almost every side to nearly the level of the sea. The peninsula itself is indented by fjords on all sides.

Sandoya (70°02'N., 18°32'E.) lies about 2 miles W of Ribbenesoy. The N end of the island makes a steep descent toward the sea. A beacon stands on its summit.

Sorfugloya lies about 3 miles NNW of Sandoya and on an E bearing appears as an almost perfect pyramid.

Ribbenesoy lies close NW of Ringvassoy and is separated from it by Skagoys channel. The S part of Ribbenesoy is undulating, and a white sandy beach about 2 miles from the N end of the island is conspicuous. Mulen, the N extremity of the island, stands out from the background because of its high, black, and precipitous sides.

Andammen, an island, lies close N of Ribbenesoy. A light is shown from the NW extremity of Andammen.

9.4 **Grotoya** (70°10'N., 18°52'E.) lies about 1 mile N of Andammen. The island has hills almost equal in elevation and a somewhat precipitous descent on its N side. A light is shown from its NE extremity. The island of Maasvaer lies 1 mile E of Grotoy. A light is shown close off the SE coast of Maasvaer. Kvaloy is about 9 miles in length with a least width of 3 miles, and lies about 2 miles N of Ringvassoy.

A conspicuous mountain stands on the N and S ends of the islands. Helgoy, a smaller island which has a flat-topped mountainous ridge, lies about 3 miles SE of Kvaloy. A light is shown close off the SW coast of Helgoy.

Vannoy, a large island which is flat-topped and precipitous towards the sea, lies 3 miles E of Helgoy. Tvinaren, 759m high, is a conspicuous peak on the N side of the island. The S part of the island is mountainous, with heights of more than 914m. A number of islets lie off the E and NE sides of the island.

A marine farm is located in position 70°14'N, 19°56'E.

Torsvag Light (70°15'N., 19°30'E.) is shown from a low

tower attached to a building, 10m in height, standing on Koja Islet off the NW side of Vannoy. A Decca radio mast, 140m in height, stands about 201m N of the light.

Fugloya (70°16'N., 20°15'E.) lies about 4 miles NE of Vannoy. When Fugloysveet, the channel W of Fugloy, is open, Fugloya will appear quite detached and is then a very conspicuous landmark, identifiable by its pointed summit which is precipitous on its S and W sides. Fugloya Kalven, which shows a light, lies close off the NW extremity of Fugloy.

Caution.—A firing area is established N of Vannoy in the seaward approaches to Fugloysveet.

Arnoy lies with its N end 9 miles E of the summit of Fugloy. The island is very steep on its N and W sides, and the cliffs of the N part of its W side are dark red. A large and conspicuous radio tower is situated on a summit in the SW part of Arnoy. Navigational aids are shown on all sides of the island and can best be seen on the chart. Laukoy, an island, lies close off the E coast of Arnoy. A number of islands and islets lie to the SE and S of Arnoy. Loppa lies about 15 miles NE of Arnoy and on the S side of the immediate approach to Soroysund. The island appears dark and low with a gradual slope on its N side.

9.5 Silda (70°20'N., 21°45'E.) lies 5 miles E of Loppa and shows a light from its N extremity. A light is also shown from the S end of Silda. Maroy, an islet, lies close off the S extremity of Silda.

Tides—Currents.—From abreast the S end of Ribbenesoy, the tidal currents set NE and into the various fjords with the rising tides and SW and out of the fjords with the falling tides. The NE current may attain a velocity of 4 knots. West of Sor Fugloya, the SW current is only occasionally discernible.

At Kvaloy, the tidal currents set E with the rising tide and W with the falling tide. The tidal current may attain a velocity of 1 knot E of Kvaloy and about 4 knots at Flatvoer, the group of low islets extending about 2 miles N of Kvaloy.

Lopphavet (70°30'N., 21°00'E.), an area N of Fugloya, Arnoy and W of Soroya. The depths vary between 0 and 400m. N of Fugloya to about 18 miles offshore; there are three shoal areas. East and W of the shoals, the depth is more than 300m.

Northwest and W of Soroya, there is a major shoal area, with several lesser shoals. The slope outside of these is very steep.

The current may be strong at the slopes in the entire area.

With the waves coming from NE to SW, several refraction centers occur on the leeward side of the shoal area. Interaction between waves and current may cause breakers in the area.

Soroysund is entered between the SW end of Soroya and the NW end of Stjernoy. The entrance has a width of about 8 miles. The fairway is deep and free of dangers. Lights are shown on both sides of Soroysund and can best be seen on the chart. The narrowest part of Soroysund is marked by an islet which shows a light and is known as Vatnholmen, and lies close off the SE coast of Soroya.

After passing SE of Vatnholmen, vessels should steer for Haja, 13 miles NE, giving the NW end of Seiland a fair berth. After passing between Haja and the N end of Seiland, course may be steered for Hammerfest harbor. The S extremity of Hjelmen, bearing about 262° astern, and just open S of Haja, is an excellent mark for making Hammerfest, which is not very easily distinguished.

9.6 Hammerfest (70°40'N., 23°40'E.) (World Port Index No. 20920), the world's N town, is located on the W coast of the island of Kvaloy. The harbor is situated close NW of the town.

Hammerfest Port Authority Home Page
http://www.hammerfesthavn.no

Depth—Limitations.—This ice-free harbor is about 0.5 mile in extent and is surrounded by mountains except in the SW to W section. Winds may send heavy sea into this section.

Charted depths in the harbor are from 18.3 to 37m a short distance offshore.

Berthing details are shown in the accompanying table titled **Hammersmith—Berthing Information**.

Hammersmith—Berthing Information

Berth Name	Length	Depth alongside	Maximum vessel size	Remarks
Sentrumshavna				
Quay No. 1	170m	10.0m	40,000 dwt	Containers.
Quay No. 2	75m	8.0m	20,000 dwt	Containers.
Quay No. 3	50m	4.0-8.0m	—	Fast ferries.
Quay No. 4	75m	0.0-3.1m	—	Fast ferries.
Quay No. 5 E	35m	4.0m	—	Fast ferries and fishing vessels.
Quay No. 5 W	38m	4.0m	—	Fast ferries and fishing vessels.
Quay No. 8	65m	7.0m	10,000 dwt	Containers.
Quay No. 6	50m	4.0-5.0m	—	—
Fuglenes				
Quay No.8	70m	5.0-10.0 m	60,000 dwt	Bunkering.

Hammersmith—Berthing Information				
Berth Name	**Length**	**Depth alongside**	**Maximum vessel size**	**Remarks**
Quay No. 9	145m	11.0m	60,000 dwt	Containers and passengers. Maximum vessel length of 200m. Maximum vessel of draft 12.0m.
Quay No. 10	130m	11.3-12.2m	—	Containers.
Quay No. 11	130m	3.7-11.2m	—	—
Quay No. 12	140m	5.0m	—	Fishing.
Quay No. 13	80m	5.0m	—	—
Quay No. 21	60m	5.7m	10,000 dwt	Containers.
Quay No. 22 N	75m	5.9m	60,000 dwt	—
Quay No. 22 S	30m	5.9m	—	—
Quay No. 23	60m	6.0m	—	General cargo.
Polarbase				
Quay No. 71	290m	8.0-10.0m	—	General cargo.
Quay No. 75	90m	12.0m	50,000 dwt	Rig maintenance.
Quay No. 91	65m	4.5m	—	Private.
Freezer Terminal	260m	8.0-10.0m	—	—
Tanker Berth				
Statoil—Shell	60m	12.0m	—	Tankers. Maximum vessel length of 200m.
Esso	145m	12.0m	—	Tankers. Maximum vessel length of 200m.
Polarbase AS	300m	10.0m	—	Tankers. Maximum vessel length of 200m.

Larger vessels with deeper drafts may enter the harbor and use the anchorage.

Aspect—Landmarks.—A light is shown from the head of a breakwater which extends SE from the end of Fuglenes. A light is shown on the mole on the SE side of the harbor entrance.

Pilotage.—Pilotage is compulsory. Pilots should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost.

The pilot boards off Akkarfjordnaeringen in position 70°47.0'N, 23°32.2'E. Due to weather conditions, vessels are allowed to continue to pick up the pilot in position 70°40.5'N, 23°30.0'E; this is the most-used position.

The harbor pilot boards at the harbor entrance.

Vessel Traffic Service.—The Hammerfest VTS Area is a sub-system of the NOR VTS Area. Participation is mandatory for all Category 1 and Category 2 vessels carrying liquid hazardous and/or polluting bulk cargo).

Category 1 and Category 2 vessels must submit a Notice of ETA and obtain permission from NOR VTS, as follows:

1. At least 6 hours prior to entering the VTS area (24 hours for vessels which require extraordinary safety measures or planning).
2. When/if the vessel wishes to change its route in relation to what has been decided or agreed to with the VTS Center. This also applies to stops en route.
3. Before a vessel departs from a quay or anchorage.

The Notice of ETA should contain the following information:

1. Vessel's name and call sign.
2. Vessel's position at time of sending the Notice of ETA.
3. Planned route and port of destination.
4. The ETA at the VTS Area and the ETA at the port, mooring, or anchorage in the VTS Area.
5. The ETD from a port, mooring, or anchorage for vessels already within the VTS Area.
6. Name, address, and telephone number of the vessel's shipbroker or agent in Norway, if applicable.

The Notice of ETA should be submitted in writing, but will also be accepted by VHF.

Category 1 and Category 2 vessels must report to NOR VTS, via VHF, as follows:

1. At least 1 hour before entering the VTS Area.
2. As soon as possible if a vessel makes a change to its Sailing Plan or what has been previously agreed with the VTS center.
3. Immediately after mooring or anchoring the vessel.
4. As soon as possible if the vessel suffers an accident.
5. At least 1 hour before leaving a berth or anchorage.

For details on NOR VTS, see the section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The Port Authority can be contacted, as follows:

1. Telephone: 47-78-407400
2. Facsimile: 47-78-407401
3. E-mail: post@hammerfest.havn.no

Hammerfest

Hammerfest

The harbormaster can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-78-407402
3. Facsimile: 47-78-407403
4. E-mail: harbour@hammerfest.havn.no

Anchorage.—Large vessels may ride securely, in depths of 27.4 to 45.7m, off the SE side of Fuglenes, which is the best anchorage in the harbor. Five mooring buoys for securing the stern lines of vessels at anchor, are located in well-sheltered positions on both sides of the harbor. Anchoring is appointed

Hammerfest

Hammerfest Bay entrance

by a state pilot or a harbor pilot.

The smaller inner harbor can accommodate a number of moderate-sized vessels. Although it is exposed to W winds, the harbor is secure. Depths of 9.1 to 31m are found in this anchorage. Vessels making a long stay should anchor off the SE side of Fuglenes where it is more protected and clear of harbor traffic.

9.7 Melkoya LNG Terminal (70°41'N., 23°35'E.) is located on Melkoya, about 1.75 miles NW of Hammerfest. Berthing facilities are on the SE side of the island.

Depths—Limitations.—Product Jetty is 125m long, with a least depth alongside of 16.2m. Vessel limitations are, as follows:

1. LNG vessels—a maximum length of 300m, with a maximum capacity of 160,000m3.
2. LPG vessels—a maximum length of 300m, with a maximum capacity of 38,000m3.
3. Condensate vessels—up to 50,000 dwt, with a maximum length of 180m.

Berthing Restrictions and Tug Requirements			
Vessel size (up to)	**Maximum wind speed**	**Maximum wave height**	**Number of tugs**
15,000m^3	35 knots	1.0m	1
30,000m^3	31 knots	1.0m	2
60,000m^3	29 knots	1.5m	3
160,000m^3	24 knots	No restrictions	3

Construction Jetty, at the S end of the island, is used for the handling of dry cargo. It has a safe berthing depth of 10m. Vessels over 120m long will not be allowed to remain alongside

the pier while LNG is being loaded at Product Jetty.

All vessels are required to have a minimum under-keel clearance of 1.5m.

Pilotage.—Pilotage is compulsory. Pilotage should be ordered using SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost.

Pilots board, as follows:

1. Vessels greater than 20,000 gross tons—about 20 miles W of Fruholmen Light in position 71°05.0'N, 23°27.0'E (by helicopter) or in position 70°38.0'N, 21°13.3'E (Lopphavet, by helicopter).
2. Other vessels—about 1.5 miles NE of the entrance to Akkarfjorden in position 70°47.0'N, 23°32.0'E. (by pilot vessel).

Regulations.—Vessels are required to notify the terminal of their ETA, via their agent, as listed in the table titled **Melkoya—ETA Reporting Requirements**.

The ETA messages should contain the following information:

1. Vessel name.
2. Call sign.
3. Nationality.
4. Beam, gross tonnage, and loa.
5. Draft.
6. Type of cargo.
7. Destination.
8. Purpose of call.
9. ETA at pilot boarding position or ETD from harbor.
10. Whether one or two pilots required.
11. IMO number (if any).
12. Crew and passengers (including master's name and nationality, crew size, etc.).
13. Cargo and bunker fuel (UN number, quality of hazardous and polluting cargo, type, quantity of bunker fuel, etc.).
14. Details of passage (last port-of-call, next port-of-call, etc.).
15. Details related to pilotage requests and Pilotage Exemption Certificate.
16. Agent or operator (Norwegian contact).
17. Shipping company (name and address).

All vessels shall request clearance from the terminal upon arrival using VHF channel 11, via the Port Operator Duty Telephone (47-47-659957) or via the agent.

Only two large LNG/Condensate vessels can anchor simultaneously in the anchorage area. If there is a vessel already at the terminal, only one vessel is permitted in the anchorage area. All vessels en route to the terminal in excess of these vessels are required to remain at least 12 miles from the terminal.

Vessels are not allowed to approach the terminal if the visibility is less than 1 mile.

Vessels will not be permitted to sail if the winds speeds are in excess of 29 knots.

Contact Information.—The terminal can be contacted, as follows:

1. Call sign: Hammerfest LNG
2. VHF: VHF channel 11
3. Telephone: 47-78-404209
   47-78-404100 (switchboard)
4. E-mail: lngship@statoil.com
5. Web site: http://www.statoil.com

Directions.—From a position about 1.25 miles NE of Haja Light (70°39.3'N., 23°27.8"E.), the track leads 2 miles ENE to the vicinity of the berths.

Caution.—A safety zone, into which only authorized vessels may enter, surrounds the terminal and is bounded by lines joining the following positions:

a. 70°41'55.8"N, 23°37'22.8"E. (shore)
b. 70°41'52.2"N, 23°35'49.8"E.
c. 70°40'53.4"N, 23°34'21.0"E.
d. 70°40'37.2"N, 23°35'23.4"E.
e. 70°40'51.0"N, 23°38'11.4"E. (shore)

Melkoya—ETA Reporting Requirements

LNG Vessels	Condensate Vessels (oil tankers)	LPG Vessels
1. Not less than 8 days in advance or upon departure from the last discharge port if less than 8 days distant.	—	—
2. Ninety-six (96) hours prior to arrival. If the ETA changes by more than 9 hours, the terminal must be advised immediately.	1. Not less than 96 hours prior to arrival.	1. Not less than 96 hours prior to arrival.
3. Forty-eight (48) hours prior to arrival. If the ETA changes by more than 6 hours, the terminal must be advised immediately.	2. Forty-eight (48) hours prior to arrival. If the ETA changes by more than 6 hours, the terminal must be advised immediately.	2. Forty-eight (48) hours prior to arrival. If the ETA changes by more than 6 hours, the terminal must be advised immediately.
4. Twenty-four (24) hours prior to arrival. If the ETA changes by more than 3 hours, the terminal must be advised immediately.	3. Twenty-four (24) hours prior to arrival. If the ETA changes by more than 3 hours, the terminal must be advised immediately.	3. Twenty-four (24) hours prior to arrival. If the ETA changes by more than 3 hours, the terminal must be advised immediately.
5. Five (5) hours prior to arrival.	4. Five (5) hours prior to arrival.	4. Five (5) hours prior to arrival.

Altafjorden

Indreleia—Tromso to Hammerfest

9.8 From Tromso, the fairway of Indreleia continues NE to the W approach to Soroysund, and then leads E and NE through Soroysund to Hammerfest. Immediately N of Tromso, the channel is sheltered by the large islands of Kvaloy and Ringvassoy. Tromsoysund, between the island of Tromsoy and the mainland, is shoal on both sides of the channel. However, the fairway is free of dangers, and can be navigated by large vessels at HW. Indreleia leads E from Tromsoysund through Grotsund to Ullsfjorden. Grotsund is also free of dangers in mid-channel.

This route is well-covered by navigational aids, which can be best seen on the chart. Tidal currents are weak in Grotsund, although during bad weather a considerable sea may be raised.

From the E end of Grotsund, the track of Indreleia leads through the N part of Ullsfjorden. The channel is broad and deep and extends in a general SSW direction from abreast the SE end of Karlsoy. After rounding Lyngstuva, the N extremity of the rugged promontory separating Ullsfjorden from Lyngsfjorden to the E, Indreleia passes through Kagsund, between the SE end of Arnoy and the N end of Kagen, where smooth water will be experienced.

The main track of Indreleia leads from Kagsund NNE across Kvaenangenfjorden and then rounds Brynilen, an islet close to the coast, about 14 miles NE of the N extremity of Kagen island. From Brynilen, the track passes SE of Loppakalven, the small island close SW of the S end of Loppa Island, then leads SE of Loppa into the W approach to Soroysund.

Indreleia—Stiernsund to Hammerfest

9.9 An inner channel leads from the SW end of Soroysund through Stjernsund, Vargsund, Kvalsund, and Sammelsund, uniting with the main track of Indreleia N of Kvaloy. This channel is smoother, though longer than the main channel in Soroysund, and is often used in bad weather.

Vessels bound for Hammerfest can pass W of Kvaloy through Straumen, the narrows between Kvaloy and the NE end of Seiland.

Stjernsund (70°14'N., 22°44'E.) is very deep and there are no known dangers more than 0.2 mile offshore on both sides. The wind in Stjernsund is very unpredictable. Usually it blows either in or out of the sound. At times, violent gale winds blow through Stjernsund. Vessels proceeding through the sound may expect a deflection of the magnetic compass.

Kvalsund (70°30'N., 23°59'E.) and Sammelsund are deep and free of dangers. Kvalsund is narrow but it may be used by large vessels. Several submarine cables are laid across both sounds.

Ytre Simavik and Indre Simavik lie in the central part of Stjernsund and on its N shore. Vessels can anchor in both places, in about 25m, clay bottom.

Oksfjorden (70°12'N., 22°18'E.) lies on the S side of the W end of Stjernsund. It trends S for about 8 miles, then ESE for 5 miles. The fjord is deep and free of dangers in the fairway.

The shores are sparsely populated, except for the port of Oksfjorden on its NE shore. The fjord is a place of refuge to vessels during bad weather, as the fjord can be calm when a gale wind is blowing outside.

Anchorage is afforded near the village of Vassdalsbotn, about 0.3 mile S of the port of Oksfjorden. The anchorage has a depth of about 20m, good holding ground.

Oksfjord (70°14'N., 22°21'E.) (World Port Index No. 21120) lies 1 mile S of the E entrance point to the fjord. There are several quays in the port, with depths of up to 9.8m alongside. There is also a boat harbor in the port. Coastal vessels call here regularly.

A light is shown from a breakwater at the harbor entrance. There are a number of anchorages S of the port.

9.10 Ullsfjorden (69°50'N., 19°52'E.) is a deep fjord; with its continuation, Sorfjorden, it extends for a distance of about 40 miles in a SSW direction from abeam the S end of Karlsoy. The fjord is open to the sea, and N and NW winds send in a very heavy sea during autumn and winter. The inner part of Sorfjorden, for a distance of about 6 miles from its head, is frequently icebound during the winter months.

An overhead cable, with a vertical clearance of 25m, crosses the entrance to Sorfjorden. The only shoal in the fairway of Ullsfjorden is Nisegrunn, which lies 9.25 miles S of Grotsund Light. Several dangers encumber Sorfjorden and can best be seen on chart.

Lyngsfjorden (69°40'N., 20°25'E.) lies E of Ullsfjorden, the two being separated by a high and rugged promontory.

Lyngsfjorden is steep on both sides and is very deep. The fjord extends about 50 miles in a SW direction; its end is known as Storfjorden. There are two anchorages on the W side of Storfjorden near its end. The fjord is well marked by navigational aids on both sides. The island of Uloy lies on the E side of the fjord near its entrance. Kafjorden is located on the E side of the fjord and extends 10 miles in a SE direction. Anchorage can be taken on the S side of Kafjorden, 3.5 miles within the entrance.

9.11 Altafjorden (70°05'N., 23°06'E.), is a large deep fjord which indents the mainland for about 20 miles and lies S of the islands of Stjernoy and Seiland. The shores of the fjord are irregular. There are several large bays and small inlets. Langfjorden, on the W side of the fjord, is the only branch of any extent. Altafjorden is accessible to large vessels.

The weather in the fjord is usually calm. Kafjorden and Rafsbotn lie at the head of the fjord. Aroy, a rocky island, lies on the E side of Altafjorden.

Alta (69°58'N., 23°15'E.) (World Port Index No. 21130) is a district, which consists of three close settlements of Bossekop, Bukta, and Elvebakken. The depth in the harbor is 45m and there is a turning basin 250m wide. Anchorage is determined on arrival but is generally in 30m of water in sand. The harbor is sheltered against N and E winds. Strong W and SW winds make it unsafe.

Alta Port Authority

http://www.altahavn.no

Depths—Limitations.—Berthing details are shown in the accompanying table titled **Alta—Berthing Information**.

An overhead cable, with a clearance of 7m, crosses the entrance to Elvebakken.

Alta—Berthing Information

Berth Name	Length	Depths	Remarks
Teminalkaia	169m	10.5m	Containers.
Marinekaia	63m	12.0m	Cement, petroleum products, and bulk cargo. Maximum vessel size of 32,000 dwt.
Bukta Flytekai	100m	—	Passenger ferries.
Bull Kaia	23m	5.0m	Fishing vessels.

Pilotage.—Pilots are ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost. For further information, see paragraph 9.1.

The pilot boards 2 miles E of Fakkekjeila Light in position 70°06.0'N, 20°12.9'E.

Regulations.—All vessels with a height greater than 12m planning to enter the cautionary area near Alta Airport must report to the control tower on VHF channel 12 when passing the following reporting points:

1. 70°02'04.8"N, 23°14'52.8"E.
2. 69°59'50.4"N, 23°19'36.6"E.

Vessel Traffic Service.—For details on the Vessel Traffic Service, see section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The Port Authority can be contacted, as follows:

1. VHF: VHF channels 12 and 16
2. Telephone: 47-78-446910 (0800-1530)
   47-90-634518 (mobile)
3. Facsimile: 47-78-436990
4. E-mail: post@altahavn.no

The Port Captain can be contacted by telephone (47-90-634518).

Anchorage.—Bukta is the best anchorage in Alta. Vessels lie at anchor in all weather, good holding ground. Elvebakken affords anchorage for smaller vessels. These are only fair anchorages and they are not recommended.

9.12 Talvik (70°03'N., 22°58'E.) lies on the W side of Altafjorden, in a sheltered bay. It affords anchorage to small vessels with local knowledge, in a depth of about 18m, about 0.2 mile W of the N entrance point of the bay. Mooring rings are available, and vessels can secure to dolphins on the N side of the cove.

There are two quays, with depths of 4.9 to 5.8m alongside. Coastal vessels mainly call at the port.

Rafsbotn lies on the E side of Altafjorden, near its head. From its head for a distance of about 2 miles W, the bay is frequently icebound during the winter months. This large bay affords anchorage for small vessels with local knowledge, off the NW side of Rafsholmen, in depths of 18.3 to 42m. Coastal vessels call here regularly.

Langfjorden is situated on the NW coast of Altafjorden, near the W entrance point. The fjord extends about 16 miles in a WSW direction and is free of dangers in the fairway. Ytre Koven, an inlet on the NW side of the fjord, affords anchorage to small vessels with local knowledge.

Storsandnes, a village on the E side of the fjord, has a quay, with a depth of 7.3m alongside. There is anchorage close N of the quay; mooring rings are available.

Coastal vessels call here. Vessels with local knowledge may anchor in Langfjordbotn, the head of Langfjorden, in depths of 12.8 to 20.1m. Langfjorden is well marked by navigational aids on both its shores.

Vargsund (70°22'N., 23°30'E.) lies NE of the E entrance point to Altafjorden. The sound is deep in the fairway and free of dangers. From its entrance the sound runs NE for about 14 miles and then turns N for 9 miles where the sound narrows to about 0.5 mile at its N entrance, 4 miles SSW of Hammerfest.

The sound affords anchorage on both sides to vessels with local knowledge. The sound is well marked by navigational aids.

Outer Route—Soroya to Nordkapp

9.13 From the conspicuous headland surmounted by Fuglen at the NW end of Soroya, the coast of this island trends in an ENE direction and is not clearly distinguishable until a vessel is N of the island. The N coast of Soroya is high and presents a broken appearance of bold and steep headlands separated by inlets which deeply indent the coast. Close off the NW extremity of the island, the coast is indented by Breivikfjorden and Markjeila, a smaller inlet.

Breivik (70°35'N., 22°08'E.) (World Port Index No. 20940) lies on the NW side of Breivikfjorden, on the NW coast of the island of Soroya. Vessels of moderate size can anchor off the port NW of Breivik Light, in depths of 7 to 12m, loose sand. Vessels may obtain fairly good anchorage off the N shore of the fjord, about 3 miles E of Breivik Light, in depths of 27.4 to 31m, sand. The port has a quay on the N side of a mole, with a depth of 2.4m alongside.

Sorvaer (70°38'N., 21°59'E.) (World Port Index No. 20930) is a large fishing port on the N side of the entrance to Markjeila. The approach from the SSW on the range lights to Sorvear is encumbered with islets and shoals, some of which are marked, and the position of which can best be seen on the chart. Breakwaters built between islets extend SW, where a light stands on the W breakwater head.

The port has a number of quays with depths of up to 4m. The port is used mainly by coastal vessels. Small vessels may anchor off the port, in depths of 6 to 20m.

Rolvsoya (70°58'N., 24°00'E.) lies about 14 miles NE of Soroya. The island is indented on all sides. Kallneringen, at the NW end of the island, attains a height of 334m. Revsholmen and Skipsholmen, two islets, lie near the middle of the broad channel between Soroya and Rolvsoya. The islets are very prominent.

Ingoya (71°04'N., 24°04'E.) lies N of Rolvsoya. It is indented on all sides and quite mountainous. The harbor is reached by passing between Avloysninga and a rock, awash, about 0.1 mile N and marked by an iron perch, off the W end of Langholmen.

Fruholmen Light (71°06'N., 24°00'E.) is shown from a tower, 18m in height, standing off the NW coast of the island. A racon is located at the light tower. There is an anchorage for small vessels with local knowledge off the N side of Ingoya.

9.14 Hjelmsoya (71°04'N., 24°43'E.) is located about 9 miles E of Ingoya. The island is mountainous and conspicuous from a considerable distance. The N coast of Hjelmsoya is very steep. About 3 miles NE of the summit is a rocky pinnacle which rises perpendicularly from the sea and is easily identified from the NE. Akkarfjorden lies on the NW side of the island and extends about 2 miles SE. A reef extends up to 183m from the shore of this fjord. A light is shown on the NE side of the fjord.

Good anchorage can be obtained, in a depth of 10.1m, off Sandvik, a village on the W side of the fjord, about 1 mile SSW of the light.

Masoya (71°01'N., 25°00'E.) is located about 4 miles SE of Hjelmsoya. The island is indented on all sides. Kalven, an islet which shows a light, lies about 0.5 mile NNW of the NW extremity of Masoya. Ostervag, on the SE side of the island, affords anchorage to small vessels near its head, in a depth of 3.7m, good holding ground. Coastal vessels call here.

Mageroya (71°03'N., 25°40'E.) is located about 4 miles E of the NE extremity of Masoya. The island is large and indented on all sides. The coastline is fringed by a reef close offshore. The NW coast of the island is penetrated for about 6 miles by Tufjorden, which is desolate and affords no anchorage. Nordkapp is the highest and most prominent headland on the N coast of Mageroya.

The cape is a bold headland which rises in sheer walls of dark rock to a flat barren plateau. Knivskjerodden, which shows a light, lies 2.25 miles NNW of Nordkapp and forms the N extremity of Mageroya. The point is low and much less conspicuous then Nordkapp.

Kamoyfjorden (71°04'N., 26°04'E.) lies on the NE side of Mageroy. The fjord is indented near its head by three small fjords. Vessels of moderate size can anchor in sand, with mooring rings available, between Kamoyvaer and the SW side of Store Kamoy, in depths of 9.0 to 23.8m, about 0.2 mile ESE of Kamoyfjorden Light. A power cable lying about 0.1 mile offshore parallels the coast in the vicinity of the anchorage.

9.15 Honningsvag (70°59'N., 26°00'E.) (World Port Index No. 20800) is a large fishing station located on the SE side of Mageroya.

Depths—Limitations.—The largest quay, on the N side of the entrance, has three berthing sides with depths of up to 10.1m alongside. There are also a number of smaller quays, with depths of up to 7m alongside. The bunkering wharf is 63m long and has a depth of 13m alongside.

Aspect.—A gray church and a large building close by the church are very prominent landmarks from seaward.

The approach and entrance to the harbor are well-marked by navigational aids. A number of rocks and foul ground are marked by iron perches and spar buoys. The harbor is excellent, though small.

Pilotage.—Pilotage is compulsory for vessels of 30,000 gt and over and is optional for vessels under 30,000 gt. Pilots board in the following positions:

Courtesy of Bill Fry

Nordkapp (on Mageroya)

Courtesy of Paul Kerrien

Approach to Honningsvag

Courtesy of Paul Kerrien

Approach to Honningsvag

Honningsvag Bay

a. 78°58'00.0'N, 26°17'00.0"N (vessels of 30,000 gt and over).

b. 78°57'30.0'N, 25°57'56.4'N.

Pilots should be ordered through SafeSeaNet but can be ordered through the Lodingen Pilot Booking Center at an additional coast.

Vessel Traffic Service.—For details, see the section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The port can be contacted on VHF channels 12, 14, and 16.

Anchorage.—Vessels should anchor W of a straight line be-

tween Klubskjeret Light and the spar buoy on Holmegrunnen, and N of a straight line extending E from Rosmaalneset, a point about 0.5 mile NW of Klubskjeret Light, in depths of 29.3 to 49.4m.

9.16 Sarnesfjorden (70°58'N., 25°45'E.) lies on the S side of Mageroya, about 4 miles W of Honningsvag. Altesula, an island, lies in the entrance to the fjord. The island is fringed by a reef, which extends about 183m N from its NW end.

A light is shown from the SE extremity of Altesula. Litle Altesula, an islet, lies about 0.5 mile N from the N extremity of Altesula. Kobbholet, an inlet on the W side of Sarnesfjorden, is well sheltered and affords anchorage to vessels with local knowledge, in depths of 25.6 to 42.1m, good holding ground, about 0.2 mile W of the S entrance point of the inlet. A bridge, with a vertical clearance of 10m, crosses the entrance of the inlet.

Anchorage is available between Altesula and Litle Altesula, in depths of 12.8 to 29.3m.

Helnes Light (71°04'N., 26°14'E.) is shown from a low tower at the E end of Mageroy. A racon and a radiobeacon are located at the light tower.

Caution.—The inshore TSS off Nordkapp is not IMO approved.

Indreleia—Hammerfest to Varangerfjorden

9.17 From the NE end of Soroysund to Mageroya, about 36 miles ENE, Indreleia is mostly unsheltered. The route is exposed off the N ends of Kvaloy and Havoy, which lies about 22 miles NE of the N end of Kvaloy; the currents and heavy sea may render it difficult for small vessels to weather these conditions. Indreleia terminates at the N end of Porsangerfjorden, where vessels can proceed to the open sea or Honningsvag.

From Hammerfest, a northbound vessel in Indreleia should shape course to pass about 0.5 mile S and W of the small island of Melkoya, on which a light is shown, and then proceed N in mid-channel through Soroysund, which is free of dangers in the fairway.

From the NE end of Soroysund, Indreleia passes across an open arm of the sea for about 12 miles and then continues NE through the exposed Rolvsoysund, between the SE side of Rolvsoya and the small islands off the mainland. A light is shown from the SE side of Rolvsoya.

From abeam of Havoygavlen Light, located on the NW extremity of Havoy, Indreleia leads SE through Breisund. The sound is about 2 miles wide. The depth in the channel is between 30 and 150m. There are several shoals in the area with depths from 30 to 70m.

In Breidsund, there are special wave directions from N to NW which create rough sea; with W currents broken surf has been observed in the channel. The current is due primarily to the tidal current and is estimated to reach between 1 and 2 knots. By Rolvsoyh, the sea becomes especially rough when the wind blows from the N to NE. In both cases the wind and the waves drive straight in from the open sea.

Northwest of Halvoygavlen there are three shoals with depths between about 30 and 50m. It is noted that from there and in toward Gavlodden, the sea is particularly rough, which appears to be associated with the shoals and the "corner effect" of the headland.

There is a big difference between the flood and the ebb in the area and it is noticed that the sea is roughest on the ebb.

After passing through Breisund, Indreleia leads into Masoysund. Submarine cables are laid across Rolvsoysund, Breisund, and Masoysund.

9.18 Masoysund (70°59'N., 25°01'E.) lies between the mainland and the S side of Masoya. The sound is about 1 mile wide and is free from dangers in the fairway.

The tidal currents in mid-channel set E from half rising tide to half falling tide, the turn of the current usually occurs at the times of HW and LW, setting E with the rising tide and W with the falling tide. The currents may attain a velocity of from 3 to 4 knots. A light is shown on the S extremity of Masoya.

Mageroysund, the continuation of Indreleia from Masoysund, leads SE and then E. The channel, though narrow, is free from dangers, and it can be navigated by larger vessels.

A submarine cable crosses the sound about 2 miles from the entrance. The tidal currents set with strength through Mageroysund; at HW they may attain a velocity of 5 to 6 knots. A light is shown on the S side of the NW entrance to Mageroysund. A light is also shown on the E entrance point of the sound.

9.19 Porsangen (70°30'N., 25°30'E.), a long fjord, is entered between Helnes Light and Svaerholtklubben, about 10 miles ESE, and extends about 65 miles in a SSW direction. The outer part of the fjord is fringed with precipitous and barren tableland but toward the inner end the heights are more irregular, with some trees and pasture land.

Though not as deep as many fjords, it is fairly clear of dangers except near its head, where there are scattered shoals and numerous islands. The fjord is usually frozen over in winter as far N as Borselvenes, a point about 16 miles from its head. Porsangen is well-marked by navigational aids, which can best be seen on the chart.

Store Tamsoy, an island, is located about 25 miles from the entrance of the fjord, and is encumbered by a rocky shoal which extends up to 1.5 miles S of the island. Two spar buoys mark the shoal on the E. A beacon is shown on the SE side of the island.

Strandbukt, a bay, lies on the W side of the outer part of Porsangen and is entered between **Homnneset** (70°45'N., 25°42'E.) and Nakken. The bay affords good anchorage to vessels with local knowledge, in a depth of about 23m, good holding ground, about 2 miles WSW of Repvag Light.

Vessels with local knowledge may obtain anchorage off the SW side of Litle Tamsoy, in depths of 11 to 12.8m, about 3 miles E of Repvag Light.

There are a number of anchorages on both sides of Porsangen and also at the head of this fjord. All of these anchorages require local knowledge and are best seen on the chart. The anchorages are used mainly by coastal vessels.

Laksefjorden lies E of Porsangen and is entered between Svaerholtklubben and Finnkjerka, 8.5 miles to the E. The fjord indents the coast for about 40 miles and for the most part is from 7 to 12 miles wide. The shores of the fjord are indented by a succession of small bays and inlets.

In Laksefjorden, the tidal current sets N with the falling tide

Berlevag anchorage

and S with the rising tide. The maximum velocity is attained at the entrance to the fjord.

9.20 Kjollefjorden (70°57'N., 27°20'E.) (World Port Index No. 20740), on the E side of the entrance to Laksefjorden, is entered through a width of about 3 miles and extends about 4 miles SE. The head of the fjord forms a sheltered bay, where there is a settlement. Coastal vessels call here regularly.

The port has a number of quays, with depths of up to 4.9m alongside. Vessels with local knowledge can obtain anchorage, in depths of 20 to 23.8m, in the middle of the harbor, about 0.2 mile E of Kjollefjorden Light. The anchorage is not safe during strong E winds, when violent squalls occur.

Oksefjorden is entered N of Kjollefjorden and indents the coast for a distance of about 7 miles. The fjord is deep and clear of dangers, except for scattered shoals, which are best seen on the chart.

Small vessels can find good anchorage, in 7.3 to 14.6m, off the village of Oksevag at the head of the fjord. The fjord is well marked by navigational aids. Coastal vessels call here regularly.

Friarfjorden (70°28'N., 26°57'E.), located at the SE end of Laksefjorden, affords good anchorage for vessels with local knowledge, in depths of 22 to 33m, good holding ground, on the W side of the fjord.

A number of anchorages are located on both sides of Laksefjorden, most of which require local knowledge, and can best be seen on the chart. The anchorages are used regularly by coastal vessels.

9.21 Mehamnfjorden (71°04'N., 27°52'E.) is located on the mainland and lies between Laksefjorden and Tanafjorden. Mehamn, on the E side of the head of Mehamnfjorden, is one of the best harbors in this area, and is accessible in almost all conditions. Vessels can anchor, in depths up to 13.7m, loose clay, about 0.4 mile SSE of Mehamn Light. There are mooring rings around the harbor. The E shore of Mehamn is lined with quays, of which the three N quays have depths of 5.5 to 7.9m alongside.

Slettnes Light (71°05'N., 28°14'E.) is shown from a prominent tower, 39m in height, standing on a headland about 8 miles NE of Mehamn. A racon is located at the light.

A shoal bank extends seaward up to about 2 miles from the light and breaks in places during heavy weather. Gamvik, a fishing harbor suitable only for small vessels, lies close SE of the light tower.

Regulations.—Gamvic Harbor District enforces a maximum speed limit of 5 knots for all vessels. This speed limit applies to all vessels except those engaged in operations for the Norwegian armed forces or craft engaged in emergency police, custom, fire fighting, ambulance, or search and rescue missions along the coast of Nordkynhalvoya.

Harbor limits are positioned from close N at Nordkyn, then ESE to close N of Slettnes, then SE past Omgang to the middle of Tanafjordon, and continue SW to close N at Digermulen.

9.22 Tanafjorden (70°45'N., 28°25'E.), which is entered between Omgang and Tanahorn, about 9 miles SE, extends SSW for about 34 miles on the W side of Varangerhalvoya. The shores of this fjord are mountainous declivities, indented, and made up of small inlets, especially on the W side.

The principal branches of Tanafjorden are Hopsfjorden, Langfjorden, and Vestertana, which extend in a W and S direction from the main fjord.

In the area outside the entrance to Tanafjorden, the depths decrease sharply on both sides of a deep channel, which is an extension of the fjord. During fair weather conditions, the current goes inward with the flood tide and out along the E side of the fjord with the ebb. Wind and the outflow of water from Tanaelven (Tana River) can also have a big influence on cur-

rent conditions.

Due to the situation mentioned above, it is difficult to predict wave conditions. However, with waves from the NW and an ebb current along the E side of the fjord, there is a possibility of breaking waves. These are seen as areas of broken surf and it is estimated that vessels must be 6 to 10 miles outside the fjord mouth to avoid them.

Hopsfjorden lies on the W side of Tanafjorden. The fjord is deep and free of dangers in the fairway. Large vessels can anchor near the head of the fjord. Langfjorden lies S of Hopsfjorden and also affords anchorage for large vessels near its head. Small vessels lie best in the bay at Boksjok, where there is good holding ground, in a depth of about 20m.

A submarine cable crosses the fjord about 2 miles from the entrance.

Gulgofjorden (70°41'N., 28°36'E.) lies on the E side of Tanafjorden, about 5 miles ESE of the E entrance point of Langfjorden. This small fjord indents the coast for a distance of about 2 miles. Anchorage can be taken off the N shore of the fjord, in depths of 10 to 18.3m, sand and mud.

The head of Tanafjorden consist of a number of small fjords and inlets, which are marked by lights. There is anchorage in these fjords, which can best be seen on the chart.

Between Tanahorn and Vardo, about 53 miles SE, the coast presents the appearance of a nearly horizontal ridge about 122 to 152m high. Between these two points there are no landmarks; neither does the aspect of any particular tract serve as a guide. The general appearance of the countryside is barren; hardly a trace of soil or vegetation is visible on the tablelands, and fresh green grass is only found in the clefts of the hills facing the sea. In summer, patches of snow may often be seen on the hills. Vessels are advised to give this part of the coast a wide berth in bad weather.

Kjolnes Light

Kjolnes Light

9.23 Berlevag (70°52'N., 29°06'E.) (World Port Index No. 20710) lies about 6 miles E of Tanahorn and is one of the largest fishing stations on this part of the coast. The entrance to the harbor is protected by a mole. The port consists of an outer harbor and an inner harbor.

There is anchorage in the outer harbor, in depths of 9.1 to 12.2m; the inner harbor anchorage has depths up to 4.6m. A number of quays in the harbor have depths up to 4.9m alongside.

Kjolnes Light (70°51'N., 29°14'E.) is shown from a tower, 22m in height, standing 2.5 miles E of Berlevag. A racon is located at the light tower.

Kongsfjorden (70°45'N., 29°24'E.) is situated about 9 miles SE of Berlevag. The fjord is divided into two arms by a peninsula. The fjord affords anchorage for small vessels, in depths of 12 to 16.5m, good holding ground.

A number of dangers lie in the fjord and can best be seen on the chart. The harbor is protected by a mole; however, swells comes in during NE winds. Vessels are cautioned to be well secured.

9.24 Batsfjorden (70°41'N., 29°51'E.) (World Port Index No. 20695) lies about 7 miles E of Kongsfjorden. The fjord extends about 7 miles SW and is deep and free from dangers.

Depths—Limitations.—The harbor in the cove has been dredged to a depth of 4.9m; the quays in the harbor have depths of 4.9 to 7.3m alongside. Maritbukt, the head of Batsfjorden, is the most spacious anchorage, with depths of 11.9 to 14.0m, good holding ground, about 1 mile SW of Batsfjorden Light.

There are 13 berths at Maritbukt, with lengths of 32 to 273m and depths of 3 to 10m alongside. Two new berths are under

construction. A number of lights, which are best seen on the chart, are located in the fjord.

Pilotage.—Pilotage is optional and should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost.

The pilot boards in the following positions:

a. 70°38'30.0"N, 29°47'00.0"E (about 2 miles within the harbor entrance).

b. 70°39'26.4'"N, 29°48'51.6"E.

The pilot vessel can be contacted on VHF channels 12 and 16. For further information, see paragraph 9.1.

Regulations.—Vessels should send their ETA, along with their pilot request, 24 hours in advance, and confirmed 3 hours in advance, along with the following information:

1. Vessel name.
2. Call sign.
3. Nationality.
4. Length.
5. Draft.
6. Gross tonnage.

Vessel Traffic Service.—For details, see the section titled Vessel Traffic Service in paragraph 1.1.

Contact Information.—The Port Authority can be contacted, as follows:

1.	VHF:	VHF channel 12
2.	Telephone:	47-78-985510
		47-95-983860 (mobile)
3.	Facsimile:	47-78-983860
4.	E-mail:	havnevakt@batsfjord.havn.no

The harbormaster can be contacted by telephone, as follows:

a. 47-78-985512

b. 47-78-892790 (mobile)

Anchorage.—A cove at the head of the fjord affords anchorage to small vessels with local knowledge, in depths of 18.3 to 23.8m, good holding ground, about 183m W of the N entrance point of the cove.

9.25 Makkaur Light (70°42'N., 30°05'E.) is shown from a low tower on a building standing about 4 miles E of the entrance to Batsfjorden. A racon is located at the light tower.

Syltefjorden lies 12 miles SE of Batsfjorden. It extends about 8 miles SW and is free from dangers in the fairway. The head of the fjord is frozen over in winter. Syltefjordvaer, on the NW side of the fjord, affords anchorage close inshore to small vessels, in depths of from 4.6 to 6.1m, about 3 miles NE of Sylefjorden Light.

Small vessels can also anchor near the head of Syltefjorden, in depths of 14.6 to 20m. Nordfjorden, lies 3 miles SW of Syltefjordvaer, on the W side of the fjord and is protected by two moles. A light stands on the W mole head. Small vessels can anchor W of a spar buoy, located at the head of Nordfjorden, in 19m.

Caution.—Dangerous wrecks, best seen on the chart, lie up to 9 miles NE of Syltefjordklubben, the NW entrance point of Syltefjord. Another dangerous wreck lies about 6.5 miles ESE of Hardbaken, the SE entrance point of Syltefjord.

Persfjorden (70°26'N., 30°48'E.) is located about 10 miles SE of Syltefjorden. The fjord is free from dangers in the fairway, and depths decrease gradually toward its head. Anchorage can be obtained in the fjord in fine weather, but vessels cannot remain there during winds from NW, through N, to E.

Caution.—In the stretch between Batsfjorden, from Makkaur Light to Vardo and Varangerfjorden, lies an area very exposed to bad weather. With the wind mainly from the N, waves drive in from seaward. In Varangerfjorden, the currents are erratic and with the "corner effect" at Vardo, the sea becomes more chaotic.

Vardo

9.26 Vardo (70°22'N., 31°07'E.) (World Port Index No. 20700) is composed of a group of islands lying close off the E extremity of Varangerhalvoy, about 7 miles SE of Persfjorden. Vardoya, the W and largest island, consists of two parts joined by a narrow isthmus.

Reinoya and Horwoya lie close to the E of Vardoya. Bussesundet, to the W of the islands, separates them from the mainland and can be navigated by large vessels.

Vardo

http://www.vardoport.no

Depths—Limitations.—Vardo has one general cargo wharf 180m long with a depth alongside of 7.5m. The Industrial Quay in Svartnes harbor is 194m long and has a depth alongside of 9m.

Aspect.—Vardo church, conspicuous from the N, is white with a gray roof and white spire. A radar dome stands about 183m E of the church. Two radio masts stand on the island of Vardoya, about 0.25 mile W of the church.

Protection is afforded to the harbor by a breakwater on each side of the entrance. A light is shown from the seaward end of each breakwater.

Vardo Light is shown from a tower, 20m in height, standing on Hornoya.

Pilotage.—Pilotage is compulsory for vessels of 100 tons and more. Pilots should be ordered via SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost. The pilot boards by arrangement. Vessels at sea requiring a pilot should give at least 24 hours notice, notifying confirmation or alteration at least 2 hours before the original time stipulated.

Contact Information.—The port can be contacted, as follows:

1.	VHF:	VHF channels 12, 14, and 16
2.	Telephone:	47-78-987276
		47-78-987275
3.	Facsimile:	47-78-954310
4.	E-mail:	vardhavn@online.no

Anchorage.—Nordvagen, the principal and best harbor at Vardo, lies on the N side of the town. The anchorage is good but constricted being available only to small vessels with local knowledge. During N gales, there is considerable swell in the bay N of the moles, and entering the harbor may be difficult.

Caution.—An Explosives Dumping Area lies close E of the Vardo Light and may best be seen on the chart.

9.27 Bussesundet (70°22'N., 31°02'E.), somewhat ex-

Vardo

Vardo

posed to swell from both N and S, affords good anchorage to small vessels off the S end of Tjuvholem, in depths of 7 to 10m, about 183m N of a line of buoys marking a pipeline.

Two moles form a harbor in the S part of Bussesundet. A light is shown from the seaward end of each mole. The entrance to the harbor has a least depth of 6.7m, decreasing shoreward into drying flats. Several piers are situated in the S part of the harbor.

There is a prohibited anchorage in the S part of Bussesundet, best seen on the chart. Vessels arriving at the harbors without an anchoring or mooring berth allocated must anchor well out of the way until a berth is assign by the harbor authority. Under no circumstances may vessels anchor in the channels or near the piers, so as to impede traffic.

Vessels arriving at the harbors under quarantine flag, or which are ordered to lay in quarantine, must anchor in Bassesundet, where they must remain until the health authority gives them orders to go to another anchorage or mooring berth in or

Ytre Kiberg

outside the harbor.

Varangerfjorden

9.28 Varangerfjorden (70°00'N., 30°00'E.), a large and deep fjord lies with Kibergneset, its N entrance point, about 5 miles S of Vardo. The fjord extends about 50 miles W, and is free from dangers in mid-channel to a distance of about 7 miles from its head. The best harbors will be found in the inlets on the S side of the fjord, which is characterized by steep hills with sparse growths of trees. In contrast, the N side of the fjord slopes gently inland, with steep cliffs of irregular heights in places.

The tidal currents in the fjord are very irregular. Their direction is largely influenced by the prevailing winds, rather than by the tides. The more usual characteristic is a W set on the N side of the fjord and an E set on the S side, on change in direction occurring at HW or LW. The E set will usually be stronger than the W and may attain a velocity of about 2 knots, with heavy overfalls occurring particularly during strong E winds.

The N shore of Varangerfjorden is formed by the SE and S coast of Varangerhalvoy and is better protected against N gales than the E and N coast of the peninsula. Between Kibergneset and Vadso, 30 miles WSW, the coast is generally low and flat, forming open shallow bays bounded by white sand hills.

Ytre Kiberg (70°17'N., 31°00'E.), a small harbor about 2 miles W of Kibergneset, is available to small vessels with local knowledge. It is exposed to E winds, during which anchorage is not recommended, though there is good holding ground of sand and mud. A light is shown from the head of the harbor, and range lights in line lead into the inner harbor.

Coastal vessels call at the port, which is a fishing station. Storskjer, an above-water rock showing a light, lies about 3 miles SW of Ytre Kiberg Light. Shoal water, marked by beacons and iron posts, lies from Storskjer NE to Ytre Kiberg.

Komagneset, terminating in a point about 13 miles WSW of Kibergneset, is a high plateau with three prominent ridges between its summit and the sea; about 5 miles SW of these ridges is Skallneset, another prominent point.

Small vessels with local knowledge can anchor in good weather off Komagneset, in depths up to 6.1m.

9.29 Litle Ekkeroya (Lille Ekkeroya) (70°05'N., 30°14'E.), a small island fringed with reefs, lies about 4 miles SW of Skallneset. Vessels entering Varangerfjorden in foggy weather must be careful to identify Skallneset, as its long flat projecting point may easily be mistaken for either Litle Ekkeroya or Store Ekkeroy. Litle Ekkeroya shows a light on the SE point of the island.

It has been reported (1994) that numerous shoals and wrecks exist in close proximity, NW to SW of Litle Ekkeroya Light.

Store Ekkeroya lies about 3 miles SW of Litle Ekkeroy and is connected to the mainland by a narrow, low isthmus. Store Ekkeroya is higher than the mainland and when seen from a distance appears as an island. On its summit is a tall black beacon; a second black beacon stands on its E extremity. A light is shown on the seaward end of a mole on the SW side of Store Ekkeroya.

9.30 Vadso (70°04'N., 29°44'E.) (World Port Index No. 20690) is located on the N side of Varangerfjorden, about 15

miles NW of Kirkenes pilot station.

Vadso Port Authority
http://www.vadsohavn.no

Depths—Limitations.—The channel leads along the N side of Store Vadsoya and has a least depth of 6.2m. A bridge, with a vertical clearance of 3m, extends N from Vadso to the mainland. The harbor is seldom icebound; however it is not recommended to enter the harbor during strong N or S winds. Navigational aids can best be seen on the chart.

It has been reported (1995) that a 475m long channel, with a width of 180m and a dredged depth of 6.5m, leads from the outer harbor to the inner harbor.

The main pier extends W from a point S of the town. The pier is about 107m long, and accommodates vessels drawing up to 7.3m. Between this pier and the town are numerous quays and jetties, 65 to 300m long, with depths of from 3.3 to 7.5m alongside. Coastal vessels call regularly at the port.

Aspect.—The port is protected on its S side by the W part of Store Vadsoya, a low barren island lying on a coastal reef, and on its W side by a two breakwaters, one extending about 0.2 mile NNW from the W extremity of the island and the other extending about 91m S from the mainland.

Pilotage.—Pilotage is compulsory. Pilots should be ordered via SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost. The pilot boards about 0.5 mile W of the harbor entrance.

Vessels desiring a pilot should give 24 hours notice; confirmation should be made 2 hours prior to arrival at the pilot station.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 12, 14, and 16
2. Telephone: 47-92-695888
3. Facsimile: 47-78-954310

Anchorage.—Anchorage for vessels up to 400 tons is available in the basin, in depths of 4 to 6m. Larger vessels can anchor W of the mole, in depths of 16 to 21m, sand and clay. Anchorage is also available in the outer harbor inside the breakwater, in depths of 5 to 9m.

Small vessels can obtain anchorage E of the town, in depths of 4 to 5m, about 1.0 mile ENE of Vadsoya Light; it is approached E of Store Vadsoya.

9.31 Sandskjer (70°05'N., 29°33'E.), about 2 miles WNW of Lille Vadsoya and about 0.5 mile offshore, is a skerry fringed by a drying reef. It is marked by a black beacon tower. Vestre Jakobsely, about 5 miles WNW of Sandskjer, is a fishing harbor, with two short moles, at the mouth of a river. A light is shown at the head of the W mole.

Mortensnes, a village, lies 6.5 miles WNW of Veste Jakobselv. A light is shown from a point close SE of the village.

Meskfjorden (70°10'N., 28°40'E.), an inlet lies on the N side of the head of Varangerfjorden, has a narrow entrance which is encumbered with dangers and has very strong tidal currents. The N and deeper channel leading into the inlet has a least depth of 4.9m. The fjord is icebound from October to May. Range lights to the fjord stand on the N shore, close W of the entrance.

Small vessels with local knowledge can obtain anchorage off the N shore of the fjord, 1 mile W of the rear range light, in a depth of about 15.2m.

Karlebotn (70°07'N., 28°45'E.) lies on the S side of two inner fjords of the head of Varangerfjorden. Anchorage can be obtained on the NW side of Karlebotn, about 0.5 mile ENE of Rabbedalen, in depths up to 27.4m.

Small vessels anchor off **Bigganes** (70°07'N., 28°36'E.), a village on the NW side of the head of Karlebotn, in a depth of about 12.8m, about 2 miles WSW of Rabbenes Light.

Varangerfjorden—South Side

9.32 Veinesbotn (70°05'N., 28°47'E.) is an inlet on the S side of Veidnes, a peninsula which separates it from Karlebotn. A light is shown on the N entrance point of the inlet. There is a small, but very good harbor for small vessels off Grasbakken, a village on the S side of the entrance to Veinesbotn. The anchorage has depths of up to 15.2m; the holding ground is good. A quay at the village has a depth of 6.4m alongside. A light is shown from a rock off the village.

Latnaeringen, a promontory, lies about 6 miles E of Grasbakken. There is anchorage for small vessels with local knowledge on the W side of the promontory, in depths of 10.1 to 15.8m. Vessels approaching this anchorage should be careful to avoid the foul ground, marked by a light, on the outer end of which is Storskjaer. The anchorage is sheltered from E winds, but is not recommended during N and W winds.

Bugoyfjorden (69°56'N., 29°36'E.) lies about 14 miles SE of Latnaeringen. In winter, the fjord is icebound up to about 1 mile from its head, but it freezes farther out in hard winters.

The SE side of the fjord consists of steep hills and is uninhabited; the NW side is lower and has some settlements and harbors. On the S side of the entrance, a group of islets and rocks lies close offshore. At the N end of this group an above-water rock is marked by a lighted beacon. The tidal currents in the fjord are weak and usually set outward.

Between the W side of Bugoya and the mainland, there is a harbor where small vessels can anchor in depths of up to 3.7m.

The harbor is protected from the N by two short moles. A light is shown on the head of the W mole. The sea breaks in the N entrance to the harbor if there is a swell.

9.33 Kjofjorden (69°50'N., 29°47'E.), a long fjord on the W side of the island of Skogeroy, can be navigated by large vessels. The shores of the fjord are high, rocky, and barren for some distance inland, but have a less rugged character near Neidenfjorden, which continues from Kjofjorden to the S.

In hard winters, the fjord may be icebound; however icebreakers usually keep a channel open from Kirkenes to Neiden, a town on the W side of Neidenfjorden. The tidal current runs very strong between Korstjorden, a fjord on the SE side of Skogeroy and Neidenfjorden.

The fairway in Korsfjorden is nearly free from dangers within the entrance, but strong squalls occur in the N part of Kjofjorden during W winds. The fjord is well marked by navigational aids. Neidenfjorden extends about 4 miles SSW from the S end of Korsfjorden; Munkefjorden continues SSW for 3 miles.

Varangerfjord

Varangerfjord

Anchorage.—Brashamn, a small landlocked harbor, lies about 1 mile within the W side of the entrance to Korsfjorden and is suitable to small vessels with local knowledge. Vessels with local knowledge can anchor on the W side of Neidenfjorden in a position about 1 mile SW of Skogeroypynten Light. Vessels should not anchor in depths of less than 24m in order to swing clear of the drying shore reef.

There are a number of other anchorages in the fjords, which can best be seen on the chart.

9.34 Bokfjorden (69°50'N., 30°07'E.) is entered between Bokfjorden Light and the NE point of the island of Kjelmoy, 2 miles to the W. The fjord extends about 9 miles S to a promontory on which stands the town of Kirkenes, where it divides into Elvenefjorden and Langfjorden.

About 4 miles within the entrance to the fjord lies Korsfjorden, which branches WSW for about 9 miles on the S side of Skogeroy to a junction with Kjofjorden and Neidenfjorden. The above fjords are well marked by navigational aids, which can best be seen on the chart.

Bokfjorden Light (69°53'N., 30°11'E.) is shown from a tower, 10m in height, standing on Hungerneset. A racon is located at the light.

Anchorage.—Good anchorage for large vessels is obtainable at the entrance to Langfjorden, SW of Kirkenes. Depths up to 37m are found in this anchorage. Small vessels can anchor in Soldaterbukt, in depths of 9.1 to 14.6m. This small bay lies between the SW side of Prestoy and the mainland to the W.

9.35 Kirkenes (69°44'N., 30°03'E.) (World Port Index No. 20650) lies at the head of a promontory separating Elvenesfjorden and Langfjorden. The harbor is used mainly for the loading of iron ore.

Kirkenes Port Authority

http://www.kirkenes-havn.no

Depths—Limitations.—Large vessels of unlimited draft can enter the harbor. Vessels up to 171m in length and drawing

up to 9.4m can berth at the harbor. Bulk ore carriers of 120,000 dwt and having a maximum draft of 15.5m, a maximum air draft of 13m, and a maximum length of 303m, can be accommodated.

Under normal conditions, oil carriers of 20,000 dwt and having a draft of 10m can be accommodated.

Berthing details are shown in the accompanying table titled **Kirkenes—Berthing Information**.

Pilotage.—Pilotage is compulsory for all vessels over 70m loa. Pilots should be ordered through SafeSeaNet but may be ordered through the Lodingen Pilot Booking Center at an additional cost.

Kirkenes—Berthing Information		
Berth Name	**Length**	**Depth Alongside**
Jakobsnes	40m	7.0m
Prestoya I	104m	7.0m
Prestoya II	152m	9.0m
Industrial Deepwater Quay	90m	13.5m
Kirkenes Trelast	10m	4.2m
Sentrumskaia	50m	6.0m
Kimek (three quays)	60-119m	4.7-8.7m
Sydvaranger Export Dock	177m	13.1m
Sydvaranger Import Dock	110m	9.0m

Notes:
1. One berth available for small tankers to discharge gas and diesel fuel oil.
2. Cruise vessels can be accommodated at Sydvaranger Dock (either side) and at Prestoya II.

There is a coastal pilot station at Kirkenes. The lookout station for the pilots is off **Oksebaasen** (69°51'N., 30°07'E.). Contact can be made via VHF channel 16.

Vessels at sea requiring a pilot should give at least 24 hours notice, notifying confirmation or any alteration at least 2 hours before the original time stipulated.

Vessel Traffic Service.—For details, see Vardo in paragraph 9.26.

Contact Information.—See the table titled **Kirkenes—Contact Information**.

Anchorage.—Vessels waiting to load ore can anchor in the entrance to Langfjorden, about 0.5 mile W of Kirkenes Church, in a depth of about 33m.

Kirkenes—Contact Information	
Port Director	
Telephone	47-78-974744
Facsimile	47-78-977589
Traffic Office	
VHF	VHF channels 12 and 16

Kirkenes—Contact Information	
Telephone	47-41-454992
E-mail	havnevakt@svk.no
Port Authority	
Telephone	47-78-977444
E-mail	havnevesenet@svk.no

Range lights, in line bearing 208°, lead to this anchorage. There is also anchorage 0.15 mile NE of a mud pipeline, in a depth of 27m, close off the harbor.

Caution.—It is necessary that vessels lying in the harbor at Kirkenes should pay attention to the breaking up of ice at the end of the winter. Spring tides and a S wind clear ice from the harbor, but it is considerably later before the main ice from the head of Elvenesfjorden drifts seaward. If at anchor, drifting ice may cause a vessel to drag anchor. A vessel moored to a quay should be moored flush against the berth to prevent ice from lodging between the ship and the quay, which could carry away her hawsers.

9.36 Holmengrafjorden (69°51'N., 30°19'E.), the entrance of which lies about 4 miles ESE of Bokfjorden, is entered between Jarfjordennes and Trifannes, about 1 mile NNW. A shoal, which dries, lies about 0.2 mile N of Trifannes and is marked by an iron perch. Holmengraholmen lies in the fairway of the fjord about 2 miles W of Jarfjordnes.

Anchorage is available in mid-channel 0.2 mile from the head of the fjord, in 29 to 37m, good holding ground. The best anchorage for small vessels with local knowledge is in Innerhamn, on the SE side of the fjord, in a depth of about 20m, good holding ground.

The fjord trends S for about 9 miles to Kjerrisneset, then WSW for 3 miles. In winter, ice usually lies from the head of the fjord to Kjerrisneset. Jarfjorden Light is shown from a pedestal on the E side of the fjord, about 0.5 mile SSW of the E entrance point. A vessel entering Jarfjorden should keep nearer the W side of the fjord to avoid the dangers on the E side of the entrance.

The best anchorage in Jarfjorden is in Lanabukt, the inlet E of Hinnoy, where there are depths of 20 to 24m. The inlet is free of ice and is a port of call for coastal steamers. Small vessels with local knowledge can anchor near the head of the fjord, off Jarfjordenbotn, in depths of up to 22m.

Sagfjorden (69°49'N., 30°32'E.) lies about 3 miles E of Jarfjorden and is entered between Sagfjordenneset and Koljeneset. An unmarked rock, with a depth of about 1m, lies in this narrow channel 0.5 mile WSW of the entrance.

Anchorage is available for small vessels with local knowledge in summer near its head, about 1 mile within the entrance, but is seldom used.

Pasvikhamn (69°49'N., 30°35'E.) lies about 1 mile E of Sagfjorden, and is entered between Dodesneset and Vardeneset. The harbor is good at all times of the year for vessels with local knowledge. Anchorage is available, in depths of up to 33m, about 1 mile within the entrance. A swell occurs within the inlet during NW winds. There is an islet and rocks, awash, on the SW side of the entrance. A vessel entering the inlet

should pass E of the islet and rocks. A black beacon stands on Vardeneset.

9.37 Ytre Smastraumneset (69°48'N., 30°41'E.) lies about 2 miles E of Pasvikhamn and affords anchorage in summer to small vessels with local knowledge, in depths of 11 to 15m, clay. There are mooring rings on both sides of Ytre Smastraumneset.

Kobbholmfjorden (69°47'N., 30°44'E.) lies about 2 miles SE of Ytre Smastraumneset and is entered by passing between **Heikeneset** (69°48'N., 30°44'E.), and Ytre Kobbholmen Light.

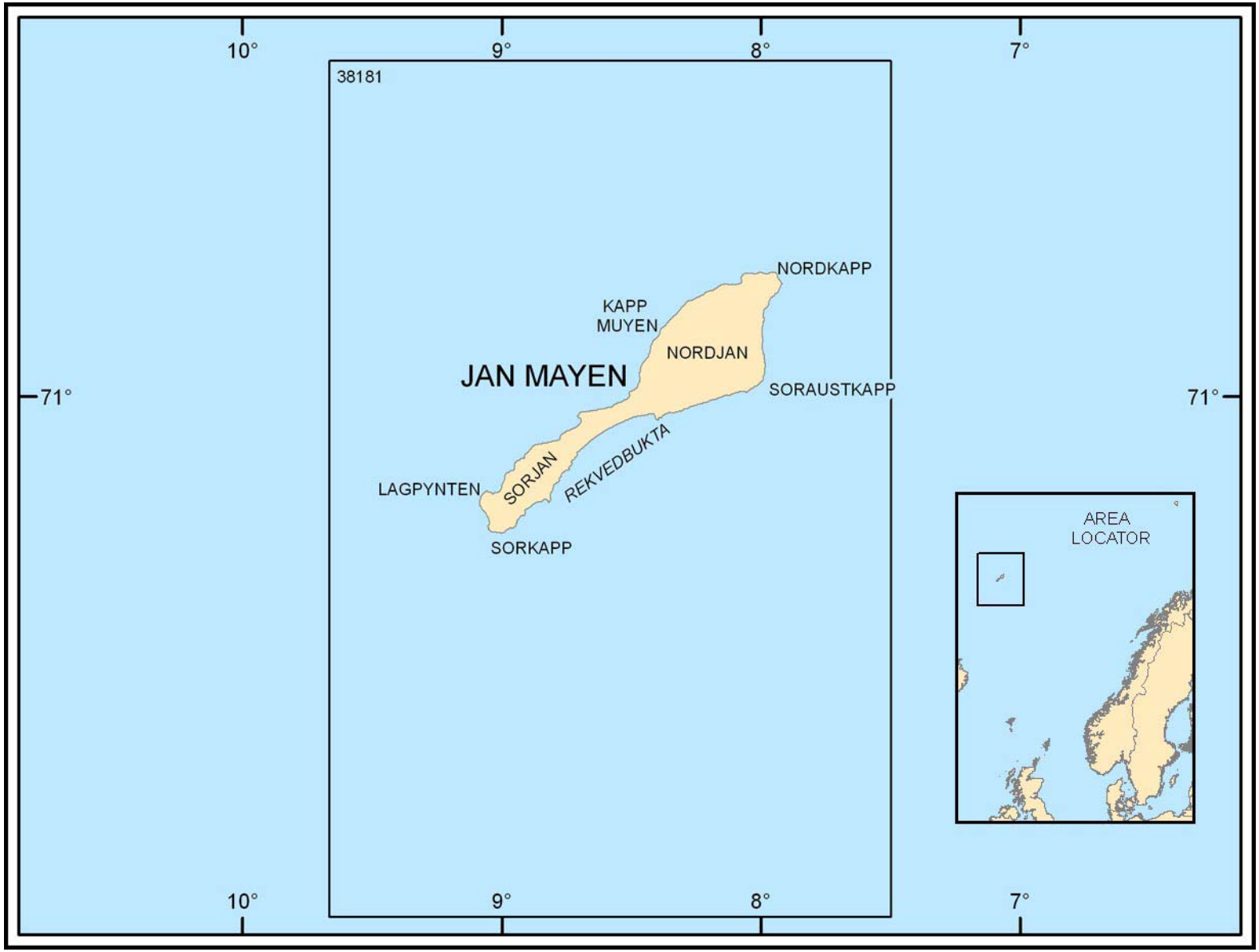
A number of islets and rocks lie on the NE side of the fjord and can best be seen on the chart.

Small vessels with local knowledge can anchor in Storbukt, on the W side of the fjord, in depths of up to 45.7m, about 183m offshore. Vessels are advised to secure to the shore due to rapidly increasing depths.

Anchorage is also available on the SE of the fjord in Fabrikbukt, in depths up to 44m, about 2 miles SE of Storbukt.

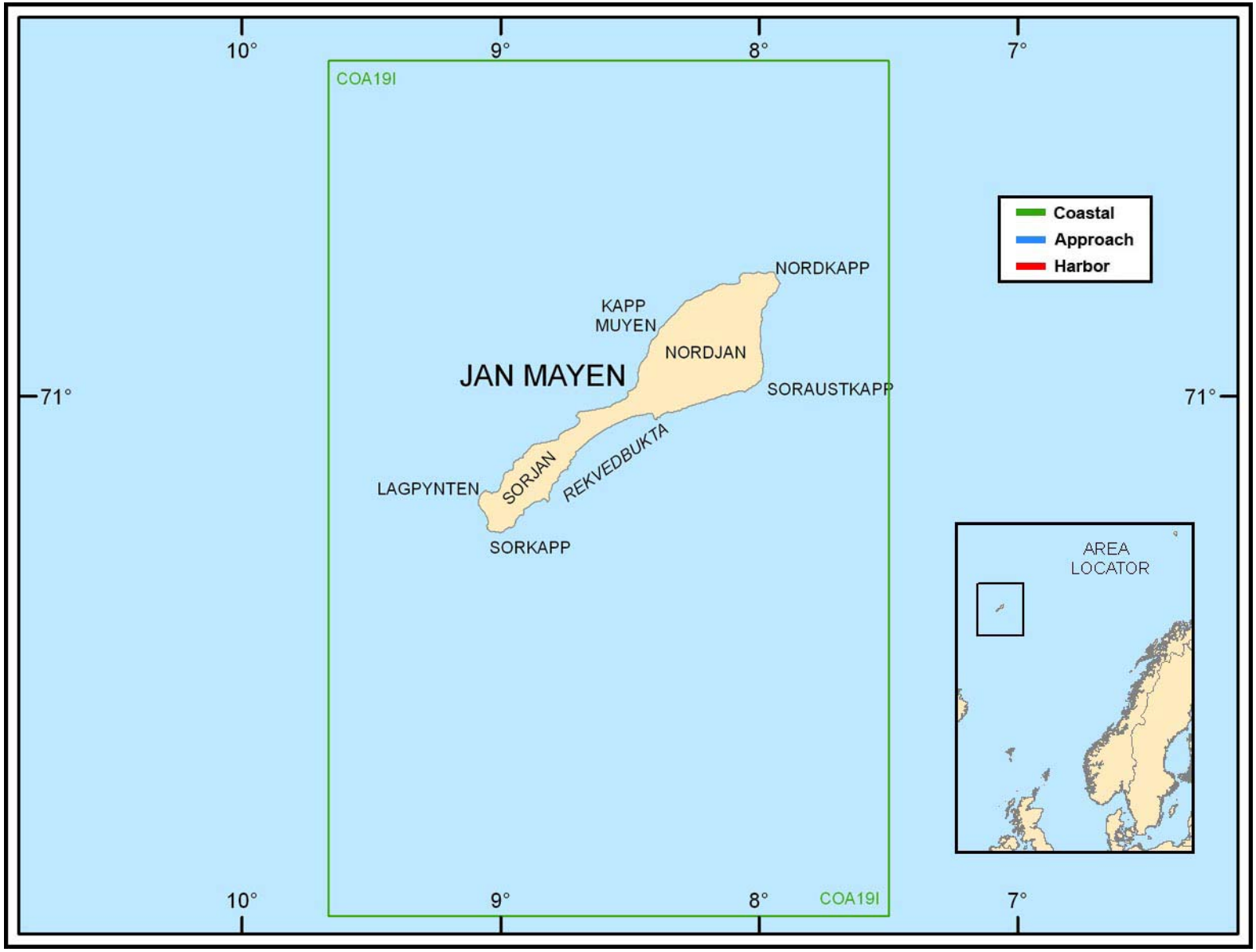
Jakobselv (69°47'N., 30°50'E.), a river, the mouth of which lies 8.5 miles E of Jarfjorden, flows from lakes and marshes 40 miles inland. Grense Jakobselv is a village on the left bank of the river near its mouth. The alignment of two lighted beacons, bearing 208° and situated on the W bank of the river, indicates the seaward section of the boundary between Norway and Russia. A white stone building with a tower stands on the W side of the mouth of the river and is conspicuous from seaward for a considerable distance.

There is a black buoy moored about 0.2 mile N of the mouth of Jakobselv. It also marks the frontier of Norway.



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

SECTOR **10** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 19 (Limited Distribution) disc within the README\ ICS folder.

SECTOR 10

JAN MAYAN

Plan.—This sector describes the island of Jan Mayen from Sorkapp, the SW extremity, to Nordkapp, the island's northeasternmost point. The sector also describes the numerous bays of Jan Mayen.

General Remarks

10.1 Jan Mayen lies about 250 miles E of the E coast of Greenland and about 300 miles NE of the NE extremity of Iceland. The island is about 30 miles long and lies in a SW to NE direction. Its narrowest part, which is less than 2 miles wide, is in the central region. The island is important chiefly because of its strategic position for weather forecasting.

Jan Mayan

The island, which apparently originated entirely by volcanic processes, is divided into three distinct portions. The NE part is almost entirely occupied by Beerenberg, an active volcano over 30 miles around the base. Beerenberg is one of the largest known volcanic cones. The crater, over 1 mile in diameter, is filled with a glacier which escapes by a break in the N wall and cascades down to the sea. The highest peak in the crater is 2,277m high.

Beerenberg dominates the island from all directions and is visible from a great distance in clear weather. In fog, the summit is sometimes suddenly revealed

The low central region consists of many lava flows and volcanic sand deserts, with almost no vegetation. There are a number of long beaches of dark volcanic sand, mixed with shining olive green crystals and strewn with driftwood, probably from the great rivers of N Siberia. In the NE part of this region are two lagoons, or fresh water lakes, separated from the sea by narrow sand bars.

The SW region consists of scattered peaks, which rise to an elevation of 768m, and then, in most places, fall steeply to the sea. In some of the valleys, there are numerous small volcanic cones which interrupt the natural drainage from the hillsides to form small lakes. Mist is common in this area.

The vicinity of land may be indicated by sea birds, which swoop down in great numbers around a vessel. The cries of these birds on land is like the distant roaring of a cascade and may be of assistance in warning vessels of the proximity of the cliffs they inhabit.

Winds—Weather.—The prevailing wind direction is E. Gale winds and storms are usually from a NE to NW direction, although NE winds are not very common. From June through August, frequently the wind is out of the S to SW. Calm weather is rare, but occurs mostly from May to August.

Fog occurs most frequently in calm weather or with E to SE winds. Frequently, there is fog during most of the summer. The island can be wrapped in fog for weeks. When fog hovers close over the sea around the island in calm weather, the wind will hold it back against the weather side of the island, while the lee side remains clear. With N or S winds, however, the fog can be piled over the low central part of the island, whereas the mountains on Nordjan and Sorjan force it high aloft so that it drifts in the lee as light clouds. This means that one side of the island can have extremely poor visibility, while there is clear weather with sunshine on the opposite side.

Precipitation occurs very frequently, although not in large quantities. September and October are the wettest months, whereas May and June are the driest. Precipitation mostly falls as snow. However, it is rare for a precipitation to fall exclusively as snow during a month's interval, even during the winter months.

Ice.—The island is usually affected by sea ice from mid-November to mid-April. In severe seasons, the island may be affected as early as late October and as late as early August, and in a warm year, the island may be affected by ice perhaps for only several weeks during winter months

Encountering mist is very common around Jan Mayen and visibility is often poor. The temperature of the surface water should be taken frequently, perhaps hourly. Extreme caution should be taken of encountering the ice barrier, especially when the seawater temperature falls to or below 3°C.

From mid-July to mid-August is the best time for finding an opening in the ice around the island and for making a landing. During this time of year, the sea around the island is often calm or there exists a light breeze off the land. Making a landing is extremely difficult or impossible with a swell or any waves that break along the shore.

Tides—Currents.—Jan Mayen lies in the boundary water

Beerenberg

between the East Greenland Current and an eddy from the Gulf Current and the North Atlantic Current, both running in the same direction, and causing a SW main current.

The tidal range varies between 0.5 and 1.2m and causes a N current with rising water and a S current with falling water.

With the addition of the variable depth conditions, irregular current conditions are thereby produced around the island. Generally, there is a SW flow of 0.5 to 1 knot, sometimes rising to 1.5 knots, although accurate observations have not been made.

During spring tides, inshore along the NW coast, the flow may become N. Because of bottom conditions, irregular flows or eddies occur, particularly S of the island in the vicinity of Sorkapp and Strumflakect, a small body of water close to and S of Sorkapp.

Depths—Limitations.—Except when in the vicinity of Sorkapp, and Losbaten, a small islet on the SE coast, a vessel, by keeping a distance of about 1 mile offshore, will be outside the 20m danger curve off Jan Mayen. It is recommended that vessel navigate at least 2 miles offshore when in the vicinity of Sorkapp or Losbaten.

In the N, the great depths run right into the island from Soraustkapp to Nordvestkapp.

Lvndquistflaket stretches NW about 15 miles from the center of the island toward Marobanken, with a depth of 133m in the shallowest part.

Stimen, a shoal ridge about 2 mile WNW of the W extremity of Sorjan, runs about 4 miles in a NE to SW direction. There is a series of shoal heads here, with a least depth of 123m.

Hoybergrenna, between the shoal ridge and land, has increasing depths from 350 to 700m to the S. There are also peaks that reach up to 200m above the surrounding bottom.

From Sorjan, Jan Mayenbanken stretches S out to sea with increasing depths. The depth is thus about 500m at a distance of about 40 miles S of the island.

Straumflaket stretches from about 4 miles S of Sorjan for 10 miles S. The shallowest part of the bank is Bouwensonbaen, with a depth of 6m, which lies about 9 miles SSE of Sorkapp. A 6m shoal, whose position is doubtful, was reported to lie about 1 mile S of Bouwensonbaen. There are also other shoals on this bank which reach up to depths of as little as 12m.

Sarsbanken extends about 20 miles E from Jan Mayen, with depths of 250 to 300m. The bottom then falls away to great depths on the N side of Sarabanken.

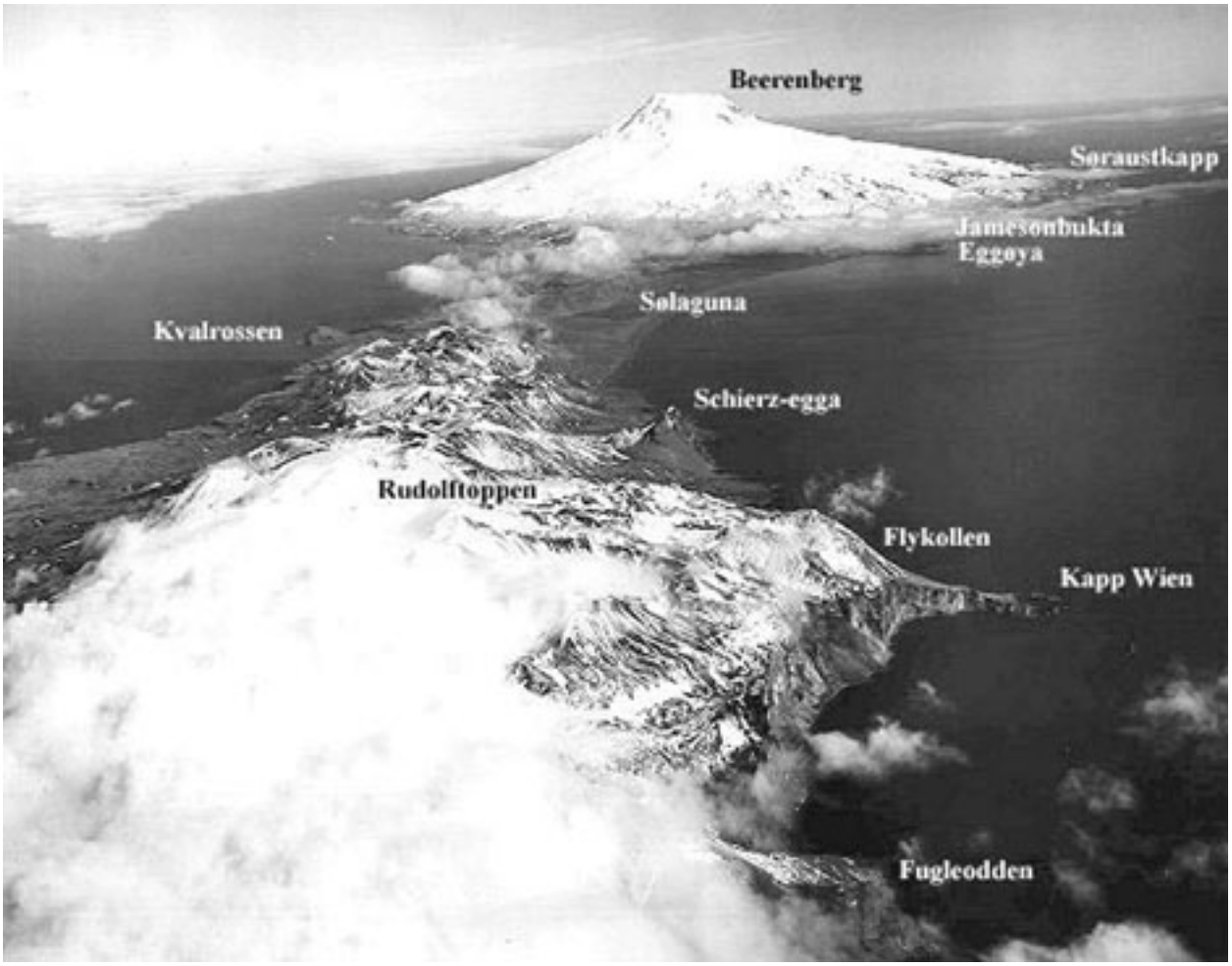
Pilotage.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Regulations.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Southeast Coast

10.2 For about 6 miles between Sorvestkapp and Kapp Wi-



Beerenberg and surrounding vicinity

er, there is a continuous undulating cliff about 150 to 300m high, falling vertically down to the sea or a rather narrow beach. Small landslides into the sea often occur along this coast.

The W point of Sorvestkapp, 214m high, ends in a sharp bill as a kind of portal over a remarkable 20m high hole right through the rock.

Sjuskjera stretches about 0.5 mile W from Sorvestkapp. This skerry lies 0.2 mile from land and is a 27m high inaccessible rock with a profile like a goose. A couple of the other skerries are about 3m high and are almost like large stones to look at, while the others are rocks, awash.

10.3 Sorkapp (70°50'N., 8°59'W.) is the S extremity of the island. It is foul within 0.3 mile from land. Due S of the point, the 20m bank runs out to about 1 mile from land, with a 13m depth at its extremity. Sorkappgrunnen, a 10m shoal, is located about 0.2 to 0.3 mile outside the 20m curve, slightly more than 1 mile S of Sorkapp.

From Sorkapp, the coast continues 1 mile ENE toward Hjelmen, 341m hugh, with the easily-recognized points and skerry of Kjeglene lying off.

Northeast from there is Fugleodden, which forms the W limits of Hornbaekbukta. To the E, the bay is bounded by Kapp Wien and is about 2 miles wide. Vessels find a good lee in Hornbaekbukta against winds from the NW quarter, anchoring in depths of 10 to 20m.

The N part of the bay has an uneven bottom, with somewhat shallower, sharp peaks. In the E part of the bay, about 0.5 mile S of Kapp Wien, there is Fyrtarnet, a 47m high rock that is narrower at the base than on top. It is perhaps the most remarkable natural landmark on the coast.

The conical Flykollen, 419m high, standing inside Kapp Wien, is also easy to recognize where it runs in an even curve down to the cape itself, which in turn is comparatively low and divided at its end.

There is a stretch of about 3 miles, from Kapp Wien to Kapp Traill in the NE, that is very foul to about 0.7 mile from land in Brotvika, just on the NE side of Kapp Wien. There are also a several high basalt rocks in the sea.

Schiertzegga, 378m high, lies just S of Kapp Traill, with a stairway-shaped and splintered profile to the NE, and with a

hat on the highest point.

As a rule, the lower ledge will be visible beneath the fog and is easily recognizable by a point which is separated from the rest of the land by a deep hollow.

10.4 Rekvedbukta (70°57'N., 8°34'W.) is a bay entered between Kapp Traill and Eggoya, 217m high. Along the first 2 miles NE from Kapp Traill, the coast consists of a low, heavily splintered cliff edge. In the middle of this stretch is Batvika, a comparatively good boat harbor with a sandy beach on the N side, which provides room for hauling up boats. Batvika is the first landing place possible when proceeding on the NE stretch from Sorkapp, and serves as the nearest harbor for Olonkinbyen.

Olonkinbyen is the only inhabited place on Jan Mayer. It serves as the base for the staff of the LORAN station and the Jan Mayen radio station. A road runs from Olonkinbyen across to Kvalrossbukta, on the opposite side of the island.

Olinkinbyen Weather Station

With E wind conditions, landing is difficult in Batvika. Under such conditions, Kvalrossbukta is an excellent harbor. There are masts for the radio and navigation systems erected in the shore area NE along Rekvedbskta, with the radio station itself right in the S part. There is an air strip just E of the radio station; S of this is an old, renovated hunting hut.

The shoreline along Rekvedbukta consists of a low sandy plain. Inside the beach, there is the large Sorlaguna.

On the N side of the lagoon is Soyla, a large basalt rock, 114m high, which is a conspicuous landmark.

10.5 Losbaten (70°56'N., 8°40'W.) is a small islet lying S of the radio station. about 0.7 mile from land.

Losbatrevet is a shoal, about 3m deep, that extends 0.5 mile ESE.

Nansenflua, a 2m shoal, lies 1 mile offshore and 4 miles NE from Losbatrevet. Abnormal magnetic variations, to the extent of 20°, were experienced in the area about 5 miles E of Losbaten. Nansenflua is an underwater rock with a small top surface and about 20m high vertical sides.

Rekvedbukta is otherwise clear, with an evenly rising bottom, except for a 13m shoal about 1 mile NE of Losbaten. When vessels keep away from the shoals described, they can anchor throughout the bay in W to N weather. With such conditions, fog usually comes rolling across the low, central part of the island.

With W winds, vessels anchor best between Losbaten and Batvika, while with N winds the best lee is to the E of Eggoybukta. Smaller vessels can lie here with the wind due NE if they go far into the bay. With particularly strong winds, large clouds of sand swirl up from the plain and are driven outward.

10.6 Eggoya (70°58'N., 8°24'W.), 217m high, is the remains of an old crater, and is really a peninsula. The outer part is so cut away by the sea that it forms a bay between two steep points. From Eggoya, the coast runs 8 miles ENE to Soraustkapp. This stretch is fairly straight. The large, sandy plain behind Eggoya opens to the 1 mile wide Jamesonbukta.

Gouwernaerbaen is a 10m shoal that is about 1 mile S of Jamesonbukta. From Jamesonbukta E, there is a 1 mile wide belt of lava rocks. Turnbukta cuts in a little way in the N part of this. Some projecting points, together with several skerries, provide a considerable lee against swell, and the bay is therefore well-suited for hauling up boats.

To the ENE of this lava belt there is a new sand plain, Ullringsanden, with a lagoon beneath Kreklinghogda, red crater wall, 61m high. The sand plain then stretches to Kapp Hap as a narrow strip along the foot of the mountain.

Presidentsteinen, 12m high, is an easily-identifiable offshore islet about 1 mile WSW of Kapp Hap.

East Coast

10.7 Along a stretch of about 3 miles around **Soraustkapp** (71°01'N., 8°00'W.), the mountainsides plunge down into the sea from heights of up to 200m. Soraustkapp itself appears as a break in the cliff edge in about the middle of this area. The coast continues as steeply N to Austbukta.

Several glacier arms push down on this stretch; two of them have their fronts in the sea. The N front is really two parallel glaciers, Prince Haralds Bre and Frielebreen, which come together at the lower end.

On the stretch from these glacier fronts and further N to Austkapp, the coastline is new as a result of the lava masses which burst out during a volcanic eruption. Due to the effects of the sea and the steep sea bed, one cannot assume the shoreline is stable.

North of this new land, there is a low cliff edge between Austkapp and Nordkapp, which rises up to a height of about 70m midway between the capes.

The coast here forms the end of the ridge of Breerenberg to the NE with several craters. The two most conspicuous are Sarskrateret, 264m high, and Hohenlohekrateret, 121m high, nearest the cliff.

In no place off the E coast does the 20m bank reach further out than 0.5 mile.

Austbuka and Clandeboyebukta were formerly the only places around the island where vessels lay well in SW weather. Volcanic eruptions, however, may have changed the bottom conditions, which were previously steep outside the danger line. Strong katabatic winds can occur off the coast here.

North Coast

10.8 Nordkapp (71°10'N., 7°57'W.) lies 1 mile NNW of Austkapp and is moderately high, with a rugged background. From Nordkapp, the flat Kokssletta extends with a width of 600 to 1200m across to Krossbutkta, about 2.5 miles W. Kokssletta is made up of coke like lava.

With S winds, Nordbukta, W of Nordkapp, provides good anchorage for smaller vessels, but the bottom falls off steeply outside the danger line.

Krossbukta, a better harbor, has sandy beaches. The bottom here rises evenly up from 50m and most often the wind is either out of the S or E.

Kapp Muyen, on the NW coast, is 7 miles SW of Krossbukta. Kapp Muyen is not recommended as a landing area, especially in the N part, where the mountain falls almost vertically 400m. Three glacier arms emerge with fronts in the sea on this stretch. Weyprechtbreen is the largest.

West Coast

10.9 South of Kapp Muyen, the coastal plain gradually widens. There are some steep cliffs that meet the sea. Further down the coast, the buildings of the a former radio station stand at Libergsletta. S of Libergsletta, there is Nordlaguna which is separated from the sea by a low shore bank.

The coastal waters on this stretch are clear except, for a 10m shoal 0.3 mile offshore just S of Kapp Muyen; a rock, awash, about 183m off Fugleberget near Nordlaguna; and a 5m shoal about 0.1 mile from land N of Danielsenkrateret.

Fugleberget forms the separation between Stasjonsbukta and Maria Myschbukta, both of which are excellent anchorages when the weather allows.

Southwest Coast

10.10 Brielletarnet (70°58'N., 8°42'W.) 91m high, has the same formation as Fyrtarnet on the SE coast. It is connected to land by Kvalrossen, 157m high; together they form the most remarkable place on the W side of the island.

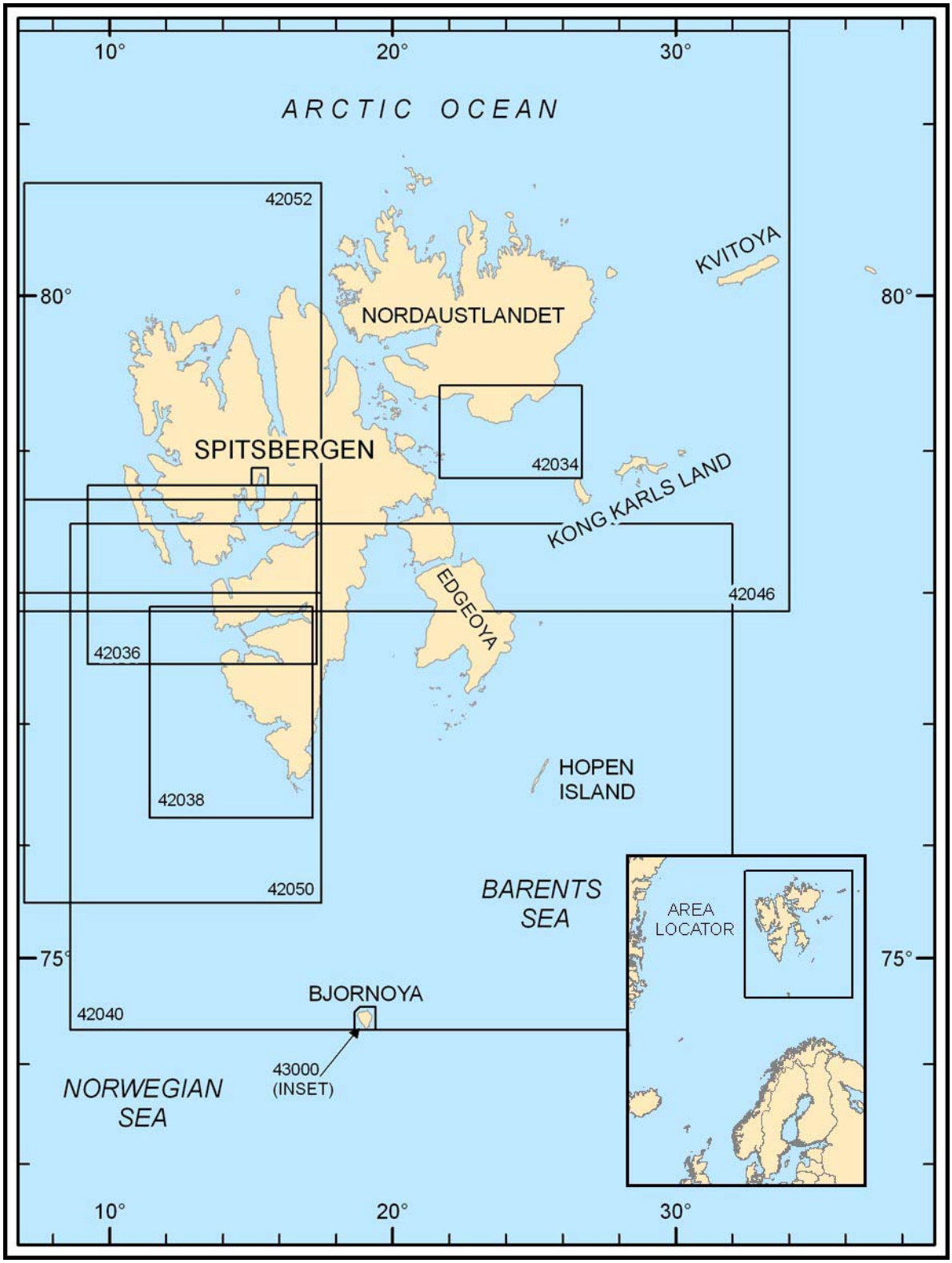
Kvalrossbukta lies on the S side of Kvalrossen and is the best harbor on the coast during favorable weather conditions.

The bays further S were used by whalers. Apart from Tommerbukta, the N bay, and Guineabukta, the S bay, they are not particularly suited as harbors. In many places, landing is inaccessible because of an almost continuous cliff edge, which is formed by the distinctively gray and wide Lavastraumen in the N. This comes from the mountains in the interior of Sorjan and ends at the edge of the sea at **Kapp Rudsen** (70°56'N., 8°53'W.).

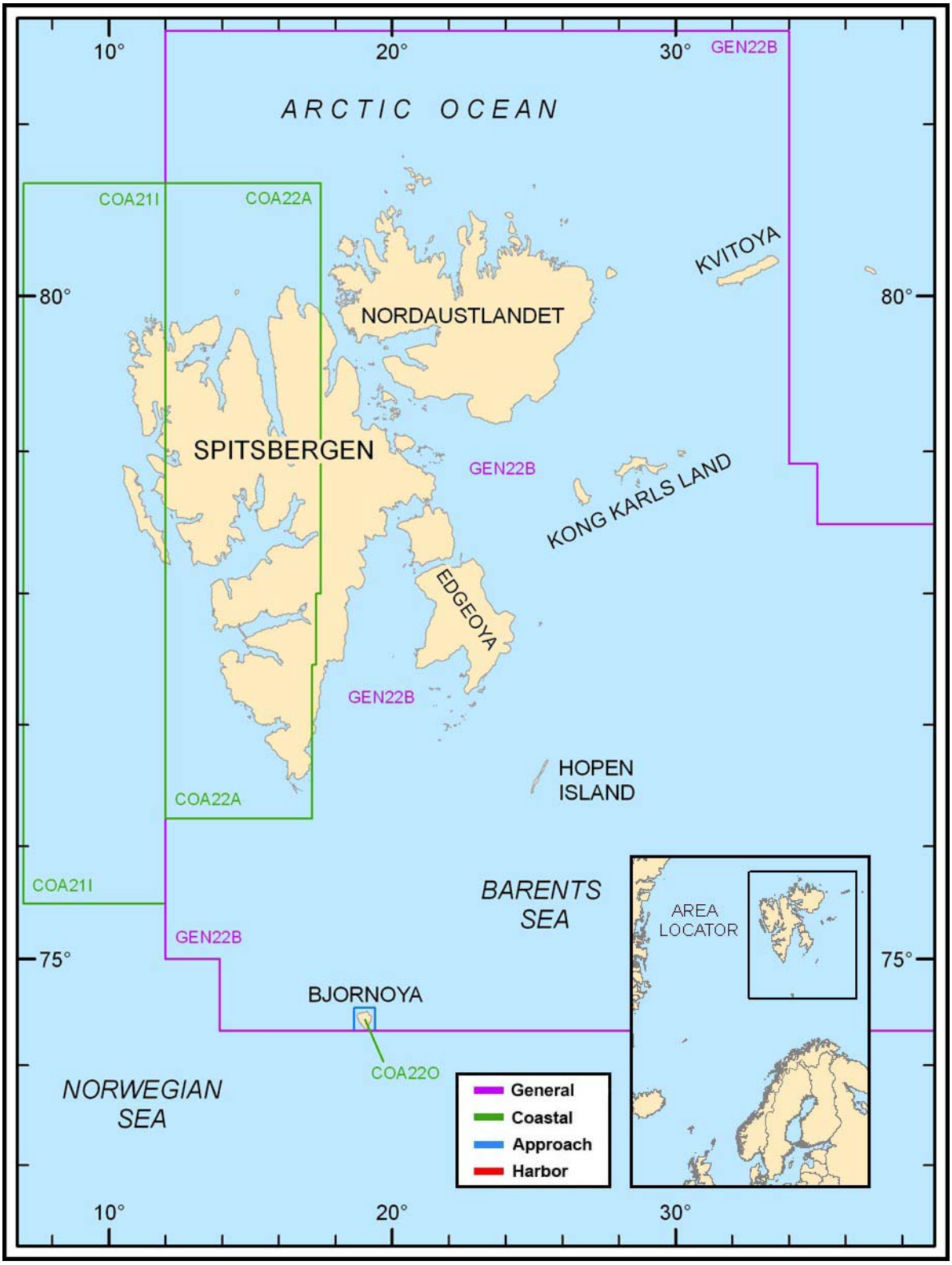
From Kapp Rudsen, the waters SW are relatively foul, with many skerries near land and with shoals out to about 0.1 mile from shore. Fuglesoyla, 14m high, is a rock about 183m off the coast, 1.75 miles SW from Kapp Rudsen, which provides a good landmark.

Between Guineabukta and Sorbukta, there is Kraterflya, with Richterkrateret, 108m high; Hoyberg, 68m high; and Arnethkrateret, 111m high. The plain between the last two and Sorbukta has an over boiled surface, with upright figures in places.

Sorbukta is a much-used harbor, which provides excellent shelter against winds between the NNE and E.



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



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SECTOR 11

SVALBARD ARCHIPELAGO (SPITSBERGEN)

Plan.—This sector describes the Svalbard Archipelago, the name given to all territory between the parallels of 74°N and 81°N, and between the meridians of 10°E and 35°E. It comprises the main group of islands consisting of Spitsbergen (Vestpitsbergen), Nordaustlandet, Barentsoya, Edgeoya, Prins Karls Forland, and numerous smaller islets, and the outlying islands of Kvitoya, Kong Karls Land, Hopen, and Bjornoya.

General Remarks

11.1 Winds—Weather.—Data on wind direction and velocity show that gales tend to be somewhat less frequent from N of latitude 70°N. Winds in Bjornoya are very variable; there is little diurnal variation.

The ground W of Bjornoya is less foggy than Bjornoya itself, and in the area around the island there is a rapid increase in fog frequency from W to E. In July, 40 per cent of observations report fog to the NE of the island.

Fog can be expected when the wind changes to E after a spell of SW winds while pressure remains high. Fog has been known to persist over the island for as long as 19 days.

The coasts of Svalbard are subject to squalls which develop suddenly, even from a calm, and falling snow may rapidly obliterate landmarks. Downslope winds from the glacier are a common feature.

Fog is rather frequent at Edgeoya and Nordaustlandet and is more frequent on the E coast of the island than on the W coast of Spitsbergen.

The light conditions on Svalbard are very special, as in polar regions in general, and are rather different from those we are used to in lower latitudes. The further N one moves to the polar circle, the longer the periods when the sun stays above the horizon day and night in summer (midnight sun), and below the horizon in winter (polar night)

The table shows when the "perpetual day" and "perpetual night" begin and end for the latitudes covered by Svalbard. These periods increase by about 6 weeks from 74° to 81°N, corresponding to 6 days for each degree of latitude one travels N, which again means about 2 hours, 26 minutes for every nautical mile.

Vessel Traffic Service.—NOR Vessel Traffic Service (NOR VTS) is in operation for vessels transiting the Norwegian Economic Zone (NEZ) from the Norway/Sweden border in the S to the Norway/Russia border in the N. The NEZ also includes the areas around Svalbard and Jan Mayen Island. For further information, see paragraph 1.1.

Ship Reporting System.—The Svalbard Reporting System requires vessels to report to NOR VTS when within the territorial waters (12 miles) of Svalbard, including all islands, islets, and reefs between latitude 74°00'N, latitude 81°00'N, longitude 10°00'E, and longitude 5°00'E. For further information, see **Norway—Ship Reporting System** in Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean.

Bjornoya

11.2 Bjornoya (74°27'N., 19°04'E.), the S island of Svalbard, lies with its S extremity about 250 miles NNW of Nordkapp, the N point of Norway and about 140 miles SSE of Vestspitsbergen. The island is triangular in shape, with the apex pointing S; its length from N to S is about 10 miles and its greatest width is about 8 miles.

The S and E part of the island are mountainous; the N part is a stony and barren plateau. The coasts of the island are characterized by high and almost vertical cliffs. Many of the steep cliffs are fringed with beaches on which landing can be effected in fine weather, but few of the beaches afford access to the interior of the island.

Bjornoya is often entirely or partly obscured by mist, but Miseryfjellet, a mountain on the E coast, is frequently visible when the lower parts of the island are hidden. In fine weather, the mountain may be seen for a distance of up to 40 miles.

A Norwegian government meteorological and radio station is situated at the N end of the island and is marked by three high radio masts. A radiobeacon is located near the meteorological station. A consol beacon transmits about 2 miles SSE of the radiobeacon.

Ice.—Bjornoya is usually affected by ice from late December to late March. In a heavy ice year, however, it may be affected as early as late October and as late as early May. In a light season, it is effected by ice for at least a few weeks in winter. Small icebergs are sometimes found in the vicinity of Bjornoya from May to October.

Tides—Currents.—The current runs around Bjornoya at an unusual rate and in certain places raises a tremendous sea, which is quite dangerous to small craft. The sea is especially heavy around the S end of the island, between Sylen and the entrance to Sorhamn, where the current attains a rate of about 3 knots. Tide rip around the island are experienced far out to sea.

On the rising tide, the current runs N on the E and W coasts and W on the N coast. After the occurrence of HW, the rate of the current decreases, and there may be slack water for as long as 0.5 hour. On the falling tide, the current runs S on the E and W coasts and E on the N coast.

Pilotage.—See Pub. 180, Sailing Directions (Planning Guide) Arctic Ocean for further information.

Latitude	Midnight Sun			Polar Night			Latitude
	From	To	No. of Days	From	To	No. of Days	
74°N	May 3	Aug. 9	99	Nov. 10	Feb. 1	84	74°N

Latitude	Midnight Sun			Polar Night			Latitude
	From	To	No. of Days	From	To	No. of Days	
75°N	Apr. 30	Aug. 12	105	Nov. 6	Feb. 5	92	75°N
76°N	Apr. 27	Aug. 15	111	Nov. 3	Feb. 8	98	76°N
77°N	Apr. 24	Aug. 18	117	Oct. 31	Feb. 11	92	77°N
78°N	Apr. 21	Aug. 21	123	Oct. 28	Feb. 14	110	78°N
79°N	Apr. 21	Aug. 21	123	Oct. 28	Feb. 14	110	79°N
80°N	Apr. 15	Aug. 27	135	Oct. 22	Feb. 20	122	80°N
81°N	Apr. 12	Aug. 30	141	Oct. 19	Feb. 23	128	81°N

Bjornoya from S

Anchorage.—There are no sheltered harbors in Bjornoya and vessels surprised by the weather are forced to find shelter on the lee side of the island and to anchor close in under the cliffs, behind the points, or in the bays.

In good weather, anchorage may be obtained anywhere around the island. Anchorage within a distance of 2 miles offshore may be obtained, in depths of 15 to 36m, most places being sand bottom.

Spitsbergen Bank (75°00'N., 21°00'E.), defined by the 183m curve, lies with its outer edges at least 25 miles S and W of Bjornoya; then the bank extends N, NE, and E of the island. Though the bank is not completely surveyed except in the vicinity of the island, depths of 22m and 18m have been obtained 43 miles N of the island. Depths of less than 37m are frequent around these two soundings. Abnormal magnetic variations have been reported on the bank in the vicinity of Bjornoya.

Bjornoya—East Coast

11.3 Kapp Bull (74°21'N., 19°05'E.), the S extremity of Bjornoya, is a steep headland, 373m high, close off which lie three islets. The coast on either side of Kapp Bull is steep-to; however, there are no harbor or landing places and strong squalls frequently occur close inshore. Small boats are cautioned when proceeding along the coast during spring and early summer, when ice is melting, for landslides and falling rocks are almost continuous. Kapp Kolthoff, lies 0.75 mile ENE of Kapp Bull and Alkeholmen, an islet, lies between them.

Sorhamna, a small bay, lies 1.5 miles NNE of Kapp Kolthoff. The E side of the bay is protected by a steep and narrow islet.

The depths in the middle of the bay are about 14.6m and greater, shoaling to less than 9.1m at its head. Anchorage in the bay may be obtained as convenient, but the holding ground is not good. At the head of the bay is a small beach where landing is possible; however, it was reported that the height of the cliffs prevented access to the interior.

Roedvika (74°24'N., 19°13'E.), a small open bay, lies 2 miles NNE of Sorhamna. During W winds, this bay affords the most secure anchorage on the E side of Bjornoya. A depth of 11m is found in the middle of the bay.

Miserygrunnen, a dangerous rocky shoal which is often hard to distinguish, lies close offshore SE of the S summit of Miseryfjellet. Great care should be taken when approaching Roedvika from the N. Evensenbukta, a small bay, lies 3.5 miles NNE of Roedvika. There is a landing place in the bay, but there is no suitable anchorage due to rocks and strong tidal currents.

Austervag (74°30'N., 19°12'E.), a small cove, lies about 2 miles NNW of Evensenbukta. Two beacons stand close within the head of the cove; when in line, bearing 218°, they indicates the approach to Austervag. Small vessels with local knowledge can obtain anchorage during S or W winds. Vessels are cautioned, should the wind change to NW, a heavy sea soon sets in and vessels must leave. Two radio masts stand 0.5 mile SE of the range beacons.

Bjornoya—North Coast

11.4 The N coast of Bjornoya affords the best landing places and is comparatively free from off-lying dangers. **Nordkapp** (74°31'N., 19°07'E.) forms the N extremity of the island. Herwighamn is an indentation in the coast and lies about 2 miles WSW of Nordkapp. A small stone pier, with a depth of 4m alongside, is located at Herwighamn. Gravodden, a promontory, lies 0.75 mile W of Herwighamn. A meteorological and radio station stands 0.3 mile SSE of Gravodden. A number of lighted radio and consol masts stand near the station and up to 2 miles E of the station. Herwighamn affords anchorage to small vessels, in a depth of 10.9m.

Nordhamn (74°31'N., 18°59'E.) is an open bay entered between Gravodden and Kapp Kjellstrom, the extremity of a small promontory 1 mile W. Emmaholmane, a chain of islets, extends 0.3 mile N from a position close W of Kapp Kjellstorm. The islets are very prominent and cannot be mistaken for other islets on the N coast.

The shore at the head of Nordhamn is low and flat, with a small projection which divides the head into two bays. Anchorage, during offshore winds, is obtainable off these bays according to draft. A vessel anchored, in 15m, nearly 0.5 mile NW of **Gravodden Kobbebukta** (74°31'N., 18°54'E.), an open bay, lies between Kapp Kjellstorm and Taggodden, a point about 2 miles WSW.

Anchorage may be obtained in offshore winds 0.25 mile off the head of the bay, in a charted depth of 9m. In the E part of the bay, the shores slope evenly down to the sea; landing with access to the interior is possible, but in the W part the cliffs are unscalable.

Bjornoya—West Coast

11.5 From Taggodden, the coast curves SW and S for about 2 miles to **Kapp Duner** (74°29'N., 18°46'E.), which is the NW point of a forked promontory forming the W extremity of Bjornoya. Grytvika, on the NE side of Kapp Duner, affords anchorage to small craft with local knowledge during E or S winds. Teltvika, close SE of Kapp Duner, is a small cove from which landing and access to the interior are possible.

Lunekevika (74°28'N., 18°47'E.), a bay about 0.5 mile wide at its entrance, lies on the S side of the Kapp Duner promontory; landing can be effected on a short sandy beach, which affords access to the interior of the island. The bay affords anchorage for vessels with local knowledge.

Vernevagen, a bay, lies with Kapp Elizabeth, its S entrance point, about 2 miles SSE of Kapp Duner. The entrance to the bay is obstructed on its N and S sides by extensive shoals. Close N of Kapp Elizabeth is a landing place. A cairn of stones stands about 0.3 mile ESE of Kapp Elizabeth.

Kapp Ruth projects from the coast about 3 miles SSE of Kapp Elizabeth; midway between the two is Kapp Hanna, near which a beacon stands. Kapp Maria lies about 1 mile SE of Kapp Ruth; on its N side a group of islets lies close inshore.

Caution.—A depth of 2.7m was reported (1994) to lie 1.8 miles WSW of Kapp Ruth.

11.6 Landnordingsvika is a bay entered between Kapp Kare and Kapp Harry, about 1 mile to the SE. Shelter is afforded in this bay during E and NE gales, but winds from other directions may raise a heavy sea. Vessels should approach with the middle of the bay bearing about 045°, and then can anchor, in depths greater than 9.1m, with Kapp Harry in range about 133°, and in line with the outermost large rock on Skredneset, a point 0.3 mile farther SE.

Sylen (74°22'N., 19°02'E.), an awl-shaped pillar of rock, 80m high, lies about 2 miles SSE of Kapp Kare. Hornvika, an indentation on the S side of Hambergfjellet, lies close SE of Sylen. Stappen (74°20'N., 19°04'E.), lying NW of Sylen, is a conspicuous pillar-shaped rock about 186m high.

The coast on either side of the S extremity of Bjornoya is steep-to and there are no landing places. Small craft should exercise great care along this coast, especially during spring and early summer, when the melting ice causes continuous landslides of rock. The sea raised by tidal currents is especially heavy at the S end of the island, between Sylen and the entrance to Sorhamna on the E coast.

Spitsbergen

11.7 Spitsbergen, the largest island in the main group forming Svalbard, is situated about 400 miles N of Norway. A thick sheet of ice covers a large portion of the interior of the island, through it projects numerous sharp peaks. The whole of the W coast of the island is mountainous. The valleys opening towards the coast, at the heads of which is a chain of mountains, are in most cases filled with permanent ice.

Regulations.—Vessels may not possess or use heavy fuel oils in the following protected areas in Svalbard:

1. Northwest Spitzbergen National Park.
2. Forlandet National Park.
3. Northeast Svalbard Nature Reserve.
4. Southeast Svalbard Nature Reserve.

Further information about protected areas in Svalbard can be

Courtesy of Olav Haugen, Norwegian Mapping Authority
Stappen from SE

Courtesy of Marek Szymocka
Polish Polar Station on Spitsbergen

found in the web site of the Governor of Svalbard.

Governor of Svalbard Home Page

http://www.ssysselmannen.no/en/Toppmeny/About-Svalbard/Laws-and-Regulations

When approaching the W coast of the island, considerable reliance may be placed on soundings. Deep submarine valleys penetrate into the fjords, while the coast between them is fronted by banks on which the depths in most cases increase regularly close inshore from 45 to 90m.

Due to the effect of the warm West Spitsbergen Current, most parts of the W coast are usually accessible from late May to early November. However, in a bad ice year, this coast may be affected from mid-October to late July. In a light year, apart from the formation of fast ice in fjords, this coast may remain practically ice-free throughout the winter.

A polar station exists on the NW coast of Spitbergen. It is owned and manned by Nicolaus Copernicus Universsity of Poland.

Sorkapp Land

11.8 Sorkapp Land (76°50'N., 16°25'E.) is a peninsula, 27 miles long in a N-S direction, at the S end of Spitsbergen. The coast of Sorkapp Land is one of the most exposed in Spitsbergen, and drift ice may be encountered off it at any time. Sorkappoya, a narrow island, lies off the S coast of Sorkapp Land. Sorkapp, the S extremity of the island, is surmounted by a beacon. A large lagoon is entered from the W side of the island. Flakskjeret is a low islet lying near the outer end of a chain of islets and rocks extending 3.5 miles ESE from the E extremity of Sorkappoya.

Sommerfeldbukta indents the S coast of Spitsbergen for about 4 miles, and lies about 3 miles N of the N extremity of Sorkappoya. Oyrlandet is a narrow and level tongue of land extending 5 miles SSW and forming the W side of Sommerfeld-

Courtesy of Marek Szymocka
Polish Polar Station on Spitsbergen

Courtesy of Marek Szymocka
Northwest Spitsbergen

bukta. A hunter's hut stands on each entrance point to Sommerfeldbukta.

Anchorage is obtainable off the entrance to Sommerfeldbukta, in a depth of about 8m. The depths within the entrance are less than 3m; the inner part of the bay dries.

Stormbukta (76°41'N., 16°18'E.), a small bay, lies close N of the W coast of Oyrlandet. Open anchorage is obtainable in the entrance to Stormbukta, but this berth is exposed to heavy E squalls which descend from the mountains, and caution is necessary owing to the dangers on the N side of the approach. Brimingen is a dangerous rock lying 6 miles W of the head of Stormbukta and 2.25 miles offshore. The coast between Stormbukta and **Suffolkpynten** (76°52'N., 15°34'E.) is very foul and should not be approached within 2.5 miles.

Hornsund, lying 19 miles NW of Stormbukta and entered between Suffolkpynten and a point 7.5 miles NNW, extends 10 miles ENE, with two short branches at its head. A bank, with a

Courtesy of Marek Szymocka
Hornsund

depth of 29m, has been reported to lie about 6 miles NW of Suffolkpynten. Horsund is ice-free from July to October and the sound is usually navigable in June and November. The sound of Horsund is exposed to very severe E squalls which descend from the mountains.

Vessels entering Hornsund should keep in mid-channel, taking care to avoid the dangerous shoal lying about 3 miles W of Suffolkpynten. A rock, which does not cover, lies close E of this shoal. Anchorage may be taken off the SW side of Gashama, a bight on the S side of Hornsund. When entering the bight care is taken to avoid two below-water rocks in its E part.

Courtesy of Marek Szymocka
Summer at Hornsund

Han's Glacier (Hansbreen) is a large glacier which descends to the N shore of Hornsund, close E of a small inlet. It is bounded on the E by a sharp ridge, 889m high, extending N from the W entrance of Burgerbukta, with a very steep fall on its E side. Both Han's Glacier and the ridge are prominent from off the entrance to Hornsund.

Courtesy of Olav Haugen, Norwegian Mapping Authority
Bellesund Light

Courtesy of Marek Szymocka
Han's Glacier

Hornsund to Bellsund

11.9 The coastal area between Hornsund and Bellsund is backed by sharp-pointed and crevassed peaks, a feature of the W coast of Spitsbergen N of Hornsund. Depths of less than 91m will be found from about 6 to 10 miles offshore at Torbjornsenfjellet as far N as 77°30'N, so that soundings will give warning of the proximity of danger.

The coast for 2.5 miles NW of Torbjornsenfjellet consists of a high mountain ridge. Werenskioldbreen lies N of this ridge, and a low swampy tract of land extends for 3 miles at the foot of its front. Tonefjellet, on the W side of Werenskioldbreen, is easily identified from seaward.

Dunoyane (77°04'N., 15°00'E.), a group of three islets surrounded by several rocks, lies on the outer part of a shallow bank which forms the coast for 5 miles. The inner part of this bank dries. Anchorage, in depths of 5 to 10m, may be obtained 0.3 mile NE of the NW islet. The anchorage is approached from the N; local knowledge is necessary because of the many dangers in the vicinity.

Olsholmen, an islet 5 miles NNW of Kapp Borthen, provides anchorage during E winds between it and the coast, 0.75 mile E, but local knowledge is necessary and care must be taken to avoid several dangers in the vicinity.

From Kapp Borthen, the coast trends in a general N direction to Kapp Lyell, a distance of about 25 miles. A mountain range runs parallel to the coast, about 2 miles inland. The coast in this vicinity is fringed with rocks which extend as far as 1.5 miles offshore. A 13m patch lies 4.5 miles WSW of Kapp Borthen.

Bellsund

11.10 Bellsund (77°39'N., 14°00'E.), an important inlet, is entered between Kapp Lyell and Kapp Martin, which shows a light. It extends about 12 miles E of Midterhuken, the W extremity of a mountainous peninsula known as Midterhukhalvoy. This peninsula divides the inlet into two E branches, Van

Mijenfjorden and Van Keulenfjorden. A small S branch of Bellsund, lies on the E side of the peninsula and is known as Recherchefjorden.

The mountains in the vicinity of Bellsund are barren and have many crevasses, particularly the peaks farthest W. On the N side of the sound a plain extends to the foot of Ingeborgfellet, a peak about 7 miles E of Kapp Martin.

Ice.—Bellsund is not navigable from December to May. In June and November, the ice is generally navigable; from July to October, the inlet is ice-free.

Recherchefjorden, the S branch of Bellsund, was formerly the chief place of assembly for the whaling fleet. The fjord is well sheltered, though NW winds may send in some sea. Reinodden, a flat projection on the E side of the fjord, has a dangerous spit, on which there are several rocks that extend 0.75 miles NNW offshore. Recherchefjorden is not usually clear of ice until June or July and it freezes early, sometimes in September.

Good anchorage may be obtained, in depths of 33 to 37m, good holding ground, in the SW corner of the fjord. Do not anchor anywhere near the two glaciers in the fjord, as they are fringed with large quantities of floating ice.

Regulations.—The Norwegian Maritime Traffic Regulations for Specific Waters have been extended to include the waters of Bellsund and Van Mijenfjorden. The regulations apply to the waters within a line drawn between Bellsund Light and Kapp Lyell (77°34.5'N, 14°14.4'E). The regulations apply to the following vessels:

1. Vessels with a maximum length of 24m or more.
2. Vessels towing an object which is longer or wider than 24m.
3. Vessels towing an object where the total length of the vessel and the tow is 35m or more.
4. All vessels carrying hazardous or polluting cargo in bulk.

Permission should be obtained from the Norwegian Coastal Administration by contacting NOR VTS (call sign: NOR VTS) in good time and at least 1 hour before entering the area. Vessels carrying hazardous or polluting cargo in bulk must give 6 hours notice. If there are extraordinary safety measures to be out in place, 24 hours notice is required.

Permission must also be obtained prior to the following:

1. Entering Akselsundet or Mariasundet.
2. Anchoring or stopping.
3. Commencing any movement within the area.
4. Changing the agreed voyage route.

The regulations do not apply to vessels engaged in fishing or hunting but such vessels must maintain a continuous listening watch on the working channel of NOR VTS.

Midterkuken (77°39'N., 14°46'E.) is a promontory forming the W extremity of Midterhukhalvoy. A cove which lies close SE of Midterkuhen affords shelter from N winds. The depths in the cove appear to decrease regularly toward the head, from about 33m at the entrance. Anchorage may be obtained, in a depth of about 15m, with the S extremity of the outer islet, which forms the W entrance point, bearing 292°, distant 0.175 mile, or in a depth of about 9m, about 183m farther inshore.

Van Keulen Fjorden lies on the SE side of Bellsund and is entered between Ahlstrandodden and Forsbladodden, 2.75 miles NNW. The fjord penetrates about 15 miles inland, and is surrounded by flat-topped mountains. Nathorstbreen, a glacier at the head of the fjord, has an extensive moraine on either side of its front. Anchorages in the fjord are found close within the entrance and are indicated on the chart.

Van Mijenfjorden

11.11 This fjord is entered by Mariasundet and Akselsundet, two narrow channels at either end of the island Akseloya. On either side and at the head of the fjord are flat-topped mountains, separated by broad flat valleys which are mostly ice-free. Strong winds often blow out of the fjord.

Mariasundet (77°41'N., 14°51'E.), the S entrance to the fjord, is about 0.25 mile wide between Maseneset and the island of Mariaoya, off the S end of Akseloya. The least charted depth in the fairway is about 11m. The tidal currents in this passage are very strong, and several dangers, the positions of which are best seen on the chart, lie in the W approach and in the entrance channel close SW of Maseneset.

Akselsundet (77°45'N., 14°36'E.), the N entrance to the fjord, is the usually used and is nearly 0.6 mile wide at its narrowest part. The N side of the passage should not be approached within about 0.2 mile; the S side should not be approached within 183m.

The depths are from 16.5 to 51m in mid-channel. Though the tidal currents are weaker than those in Mariasundet, they may attain a velocity of 5 to 6 knots at springs, causing considerable eddies and rip tides. Large vessels or those with low power should pass through Akselsundet at or near slack water. An aero light is shown from the N extremity of Akseloya.

11.12 Fridtjovhamna (Frithjofhamn) (77°46'N., 14°39'E.), a cove on the N side of Akseljundet, is entered W of Kapp Schollin, from which a spit extends 0.3 mile SSW. When entering the cove, caution is necessary to avoid a bank, with depths of less than 1.5m, which extends 0.2 mile NE and N from the W entrance point. Anchorage is obtainable in the middle of the cove or off its E side, in a charted depth of 16.5m. Local knowledge is necessary when anchoring in this cove.

Between Maseneset and Blixodden, 16 miles ENE, the S shore of Van Mijenfjorden is steep-to, with the exception of a small bank. On this bank, there is a depth of 2m, which extends 0.5 mile offshore abreast Bromelldalen, a valley 1.5 miles W of Blixodden. Conwentzodden, 5 miles ENE of Blixodden, is the extremity of a large projection forming part of an old moraine. A spit, on which the depths are less than 9m, extends nearly 1.5 miles NW from Conwentzodden.

Between Kapp Schollin and Svartodden, which shows a light and lies 5.5 miles ENE, the N coast of Van Mijenfjorden rises steeply to the summit of Kolfjellet. A camp lies at the foot of this mountain. Dom Miguelodden, a cape, shows a light and lies 10 miles ENE of Svartodden. Svensksundhamna, entered between Dom Miguelodden and Langneset, 2 miles ENE, offers anchorage to small vessels with local knowledge. Kapp Amsterdam, which shows a light, lies 7.5 miles ENE of Langneset.

Sveabukta (77°52'N., 16°45'E.), an inlet at the NE corner of the fjord, is entered between Kapp Amsterdam and Ottoneset and extends 2.5 miles N to Barryneset. Sveagruva, a former coal mining settlement with a jetty, is situated close NW of

Courtesy of Olav Haugen, Norwegian Mapping Authority

Akseloya Light from NW

Barryneset. The channel from Van Mijenfjorden to an anchorage close S of Sveagruva carries a least depth of 4m. The first leg is marked by leading beacons, which in line bear about 016°. Local knowledge is required for the remainder of the channel. The channel continues N along two more legs, which are marked by lighted beacons. Although facilities at the settlement had been improved, including the construction of an export quay and storage area at Kapp Amsterdam; no mining is presently taking place.

Bellsund to Isfjorden

11.13 Between Kapp Martin and Kapp Linne, 21 miles N, the coast is fronted with dangers. Lights are shown from these inlets. Kapp Bjorset, which lies 6.5 miles N of Lagneset, and Stabbane, 6 miles farther N, are inlets which show lights.

There are no reported harbors of refuge in this section of the coast. From a position off the entrance to Bellsund, a mountain range may be seen stretching N from Ingeborgfjellet until hidden by another range extending NNW from Ytterdalssata. The coastal plain is widest abreast Ytterdalssata.

Kapp Linne (78°04'N., 13°37'E.), which shows a light, forms the S entrance point of Isfjorden. A radio station, located about 0.2 mile SE of the light, is also a Norwegian government meteorological station. Randvika, a cove on the E side of Kapp Linne, has an anchorage available in depths of 12 to 13m during S and SE winds located ENE of Kapp Linne. Two beacons at the head of the cove in line bearing about 150° and Kapp Linne Light bearing 260°. Large vessels may anchor farther offshore, in a depth of about 15m, 137m E of the line of the anchorage beacons, with Kapp Linne bearing about 233°.

Festningen, which shows a light, lies 5 miles NE of Kapp Linne. Festningen is fringed by shoals extending 0.5 mile offshore; the outer edge is marked by a buoy.

Isfjorden

11.14 Isfjorden (78°18'N., 15°00'E.), the largest fjord in Spitsbergen, is entered between Kapp Linne and Daudmannsodden, 12 miles NW. From its entrance, it stretches 55 miles NE to the head of Billefjorden, and numerous bays and fjords lead off each side. From June to November, the approach to the fjord is ice-free, with the exception that the tidal currents may sometimes cause the entrance to be barred by loose pack ice. This is most likely in early June, but in bad years it may happen in July or even later.

The fjord is ice-free from July through October inclusive. In June and November, the W part of the fjord is also ice-free, the inner part containing ice that is generally navigable. From December through May, it is unnavigable.

Isfjorden—Southeast Side

11.15 Gronfjorden (78°03'N., 14°11'E.) is entered between Festningen and Heerodden, which shows a light, and is marked by a buoy on its edge. There are two small glaciers at the head of the fjord and mountains stand on both sides of the fjord.

Caution.—Anchoring, fishing, diving, and salvaging are

Courtesy of Olav Haugen, Norwegian Mapping Authority

Sveagruva

Courtesy of Marek Szymocka

Isfjorden

prohibited in the N part of the fjord in two circular restricted areas, each with a radius of 150m, protecting historic wrecks. These areas are centered on the following positions:

a. 78°04'17.4"N, 14°09'20.4"E.
b. 78°04'24.0"N, 14°08'40.2"E.

11.16 Barentsburg (78°04'N., 14°14'E.) (World Port Index No. 20560) is an extensive Russian coal mine settlement located on the E shore of Gronfjorden, about 2 miles S of Heerodden. A pipeline is laid across the fjord from a position 0.5 mile S of Barentsburg in a WSW direction. The landing place of the pipeline on the W side is marked by lights. There are two piers abreast the settlement, each of which has depths of 8 to 9m alongside and is capable of accommodating large coal vessels.

One of the piers is used exclusively for loading coal. A pipeline is laid across the fjord from a position 0.5 mile S of Barentsburg in a WSW direction. The landing place of the pipeline on the W side is marked by lights.

Finneset is a small projection 3.5 miles S of Heerodden, on which are some buildings and two conspicuous radio masts. A light is shown at the SW point of Finneset. Three range lights are shown from a position 0.75 mile NNE of the light at Finneset; in line bearing 146° they lead through the middle of the entrance to Gronfjorden to a position 0.25 mile W of Barentsburg. Small vessels with local knowledge may anchor on either side of Finneset. There is also a possible anchorage, in a depth of about 46m, at the head of the fjord.

Between Heerodden and Kapp Laila, 8 miles E, the low coast is fringed by a shore bank. It has been reported that 2 miles E of Heerodden the bank extends farther N than charted. Hollendardalen, a wide ice-free valley, breaks the coast 3 miles E of Heerodden and extends S and SE.

11.17 Colesbukta (78°08'N., 14°57'E.), is entered between Kapp Laila and a point 2.5 miles NE. The bay extends 2.5 miles in a SE direction. Both entrance points, the SW side of the bay, and its head are fringed with shoals. It was reported that the shoal fringing Kapp Laila extends farther N than charted. The depths in the bay are suitable for anchorage, but it is open to the NW.

Grumantbyen, a former coal mining settlement, lies at the mouth of Grumantdalen, a valley about 4 miles NE of the en-

Courtesy of Olav Haugen, Norwegian Mapping Authority

Barentsburg

trance to Colesbukta. The valley contains one of the most important coal mines in Spitsbergen. Abreast Grumantbyen, the depths increase so rapidly offshore that vessels can only obtain anchorage very close inshore. There is a pier for loading coal by conveyor. Two mooring buoys are located close inshore in the vicinity of the coal pier.

Courtesy of Marek Szymocka

Grumantbyen

Vestpynten (78°15'N., 15°27'E.), the SW entrance point of Adventfjorden, lies about 9 miles NE of Colesbukta. A light is shown from the point.

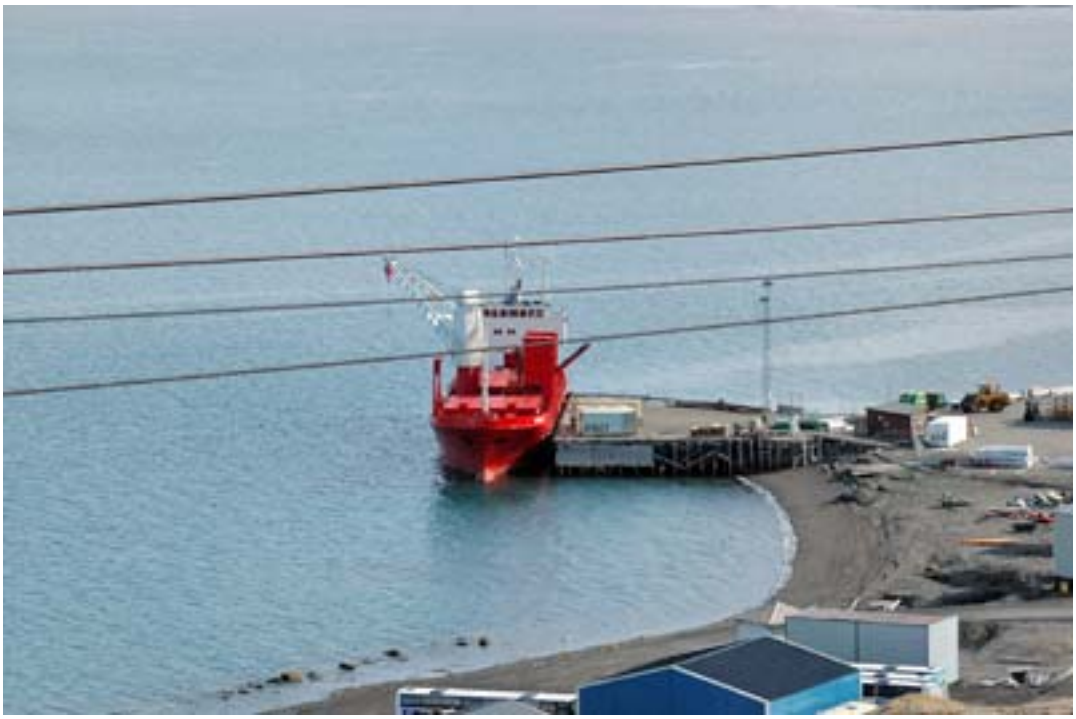
Adventfjorden

11.18 Adventfjorden (78°15'N., 15°37'E.) is entered between Vestpynten and Revneset, a point 3 miles to the NE. A shoal bank fringes Revneset for about 0.5 mile offshore, its outer edge being marked by a buoy. About 1.75 miles within Vestpynten, on the SW side of the fjord is Adventpynten, a salient point which is low, sandy, and inconspicuous. The point shows a light. A low tract of land lies between the two above points; about 2 miles farther SE is Longyearbyen.

The wide valley of Adventdalen extends SE from the head of the fjord, with Adventelva flowing through it. The area off the mouth of the river is gradually silting up, but the edge of the shoal water is very steep-to and anchorage is afforded only in great depths. Moskushamn, a former mining camp, stands 3 miles SE of Revneset. Anchorage off the pier is exposed except during E winds.

Caution.—Anchoring, fishing, diving, and salvaging are prohibited in the head of the fjord in a circular restricted area, with a radius of 150m, protecting a historic wreck, in position 78°14'30.6"N, 15°41'49.2"E.

11.19 Longyearbyen (78°14'N., 15°39'E.) (World Port Index No. 20570), a coal-mining settlement, lies near the head of Adventfjorden, on its SW shore. A coast radio station, from



Courtesy of Olav Haugen, Norwegian Mapping Authority

Longyearbyen—West Pier

Courtesy of Marek Szymocka

Longyearbyen

which a radiobeacon transmits, is located at Longyearbyen.

Longyearbyen Home Page

http://www.portlongyear.no

Depths—Limitations.—Bykaia is the public quay, 84m long with an alongside depth of 9m and handles general cargo and passengers. Gamlekaia is the Old Quay and is 48m long with a depth alongside of 4.8m. The Old Quay is a wooden pillar quay where general cargo is worked for small coasters and bunkers are provided for small and medium sized vessels.

Contact Information.—The port can be contacted, as follows:

1.	VHF:	VHF channels 12 and 16
2.	Telephone:	47-91-122300
		47-79-022150
3.	Facsimile:	47-79-021315
4.	E-mail:	bykaia@lokalstyre.no

Anchorage.—Large vessels can anchor 0.25 mile N of the piers, in a depth of 47m, thick mud. The depths are considerable until close off the head of the larger pier.

Revneset to Gasodden

11.20 Between Revneset and Deltaneset, 5 miles NE, the coast is formed by a plateau, similar to that SW of Adventfjorden, above which can be seen the summit of Konussen. Hatten, a rocky mound, which resembles a hat, lies 2.5 miles ENE of Deltaneset. An aero light is shown from the NW side of Deltaneset.

Sassenfjorden (78°23'N., 16°30'E.) is entered between Diabasodden and Gasodden, 6 miles NNE, and extends 8 miles ESE to Bjonapynten. Sassendalen, a wide ice-free valley, extends over 16 miles SE from the head of Sassenfjorden, with numerous valleys on its SW side.

Gasoyane, a group of four islets, lies about 1 mile W of Gas-

Courtesy of Olav Haugen, Norwegian Mapping Authority

Longyearbyen—East Pier

Courtesy of Olav Haugen, Norwegian Mapping Authority

Longyearbyen

Courtesy of Olav Haugen, Norwegian Mapping Authority

Pyramiden

odden. The passage between the islets and Gasodden is foul and should not be attempted without local knowledge. A light is shown from the NW end of the islet. Gipsvika, an open bay 2.25 miles wide, is entered 2 miles SE of Gasodden. Ministergrunnen, with a depth of 5m, lies 3.75 miles SE of Gasodden and Medfjordgrunnen, with a depth of 15m, lies 1 mile farther SSE. Two other patches, with depths of 13m and 16m, lie 0.8 mile NW and 0.6 mile S, respectively of Ministergrunnen.

Courtesy of Marek Szymocka

Templefjella (Temple Range)

Templefjella (Temple Range) is flat-topped and rises precipitously from the sea in cliffs resembling tiers of cones arranged one upon another, a peculiar formation which is common in Svalbad. Templet, at the NW end, rises to an elevation of 667m. Sindballefjellet, at the NE end, 737m high, is covered by an ice cap, which appears permanent, as there are no signs of avalanches.

Templefjorden (78°24'N., 17°00'E.), the NE continuation of Sassenfjorden, extends for about 8 miles from Bjonapynten. Its shores are comparatively steep. There are no outlying dangers. The head of the fjord is fringed by glaciers.

Bjonahamna, a cove on the NE side of Bjonapynten, affords anchorage, in about 31m, in its middle part, but the cove should not be used when broken ice may block its entrance. Care must be taken to avoid the shoal patches in the N part of the cove.

Billefjorden

11.21 Billefjorden (78°34'N., 16°28'E.) forms the NNE continuation of Isfjorden and extends inland for more than 15 miles. It is entered between Gasodden and Rundodden. Lights are shown from Kapp Ekholm, on the E side of the fjord, and Rudmosepynten, at the head of the fjord. The fjord is free from offlying dangers on its W side, but toward the E side, a 6m patch lies about 3 miles N of the Gasoyane islets. Rocks, with depths of 5m and 7m, lie 0.6 mile NW and W, respectively, and an isolated 11m patch lies 1.25 miles NW, of Skvalpeskjer, a patch which lies about 4 miles NE of the Gasoyane islets.

Skansbukta, a bay close within the W entrance point of Billefjorden, is about 1 mile wide at its entrance and extends about 1 mile NNW. The general depths in the bay decrease regularly, over a muddy bottom, from 42 to 18m. Small vessels may anchor close to the head of the bay, in depths of 15 to 18m. The bay affords excellent anchorage, the best in Isfjorden; it may be obtained anywhere in the bay. When entering the bay, vessels are requested to keep to the middle until depths of about 29m are reached.

Mimerbukta (78°39'N., 16°25'E.) lies about 9 miles NNE

Courtesy of Olav Haugen, Norwegian Mapping Authority

Pyramiden Havn

of Skansbukta. The bay is 1.5 miles wide at its entrance and extends 1.5 miles W. A mud flat fills the inner part of the bay, extending 1 mile from the shore. A shallow spit extends 0.2 mile S from the NE entrance point and usually excludes ice from the bay.

Pyramiden, a Russian coal mining settlement, lies at the had of the bay. A small wooden jetty, close within the entrance point, is suitable only for lighters. A depth of about 20m is reported about 0.1 mile off its head. Good anchorage for small craft is obtainable, with local knowledge, close off the settlement.

Petuniabukta lies close NNE of Mimerbukta and forms part of the head of Billefjorden. The bay is about 2 miles wide at the entrance and extends about 3 miles to the N. Though the depths in the bay are suitable for anchorage, conditions are dependent on the movement of local ice.

Adolfbukta, a bay, is entered between Rudmosepyten, which shows a light, and Kapp Napier. It lies close SE of Petuniabukta. The shores of the bay are steep-to and depths are deep. Small vessels can anchor between Kapp Napier and the reef E of it, but this position may be dangerous because of ice from the large glacier at the head of the bay.

Caution.—Anchoring, fishing, diving, and salvaging are prohibited in the fjord in a circular restricted area, with a radius of 150m, protecting a historic wreck, in position 78°14'37.2"N, 13°50'52.2"E.

11.22 Nordfjorden (78°30'N., 15°00'E.) is entered between Bohemanneset, which shows a light, and Kapp Thordsen, 6.5 miles WSW of Rundodden. It is 9.5 miles wide at its entrance and extends 11 miles N to Kapp Waern, with general depths of 73 to over 183m. Kapp Waern is the extremity of a peninsula separating Ekmanfjorden and Dicksonfjorden.

Ekmanfjorden is entered between Kapp Waern and Sveaneset, a point about 5 miles WSW. The fjord extends about 10 miles in a N direction. The entrance is free of dangers, except for banks extending about 0.5 mile off the two points. Flintholmen, a small island, lies close off the W side of the fjord. Corahulmen, another small island, lies on the E side near the head of the fjord.

There is a good harbor for small craft on the W side of Flintholmen. To reach this anchorage, a vessel must pass N and W of a drying rock which lies in the N entrance near the W side of Flintholmen. Good anchorage may be obtained, according to draft, E of Coraholmen. Small craft may anchor in the basin on the bank SE of the island, approaching from SW, but caution is necessary.

Dicksonfjorden (78°42'N., 15°20'E.) is entered between Kapp Woern (Kapp Waern) and Kapp Wyk (Kapp Wijk), 2.5 miles ENE. The fjord trends about 4 miles NE and 12 miles N, where the head is filled by drying mud flats for about 2 miles offshore.

The entrance to the fjord and the channel N are constricted by shoals, the positions of which can best be seen on the chart. Accumulations of drift ice in the narrow entrance may make it impossible to leave the fjord for weeks at a time.

Kapp Nathorst (78°47'N., 15°25'E.) projects from the E side of Dicksonfjorden, 4.5 miles from the head of the fjord. A

shoal spit extends nearly 1 mile W and NW from the cape, leaving a narrow channel between its edge and the bank fringing the W shore. This channel leads to a large basin in which good anchorage may be obtained, in depths of 20 to 40m, good holding ground. The head of the fjord is filled by drying mud flats which extend about 2 miles offshore.

Isfjorden to Smeerenbergfjorden

11.23 Prins Karls Forland (78°30'N., 11°06'E.) lies off the W coast of Spitsbergen between Daudmannsodden and Kvadehuken, 50 miles NNW, and is separated from it by Forlandsundet, a strait navigable only by vessels drawing 3.5m or less. There are no sheltered anchorages on the W coast of Prins Karls Forland, but N of Forlandsundet anchorage is obtainable in Kongsfjorden. Anchorages can also be found in Krossfjorden, Magdalenefjorden, and Smeerenburgfjorden.

Salfjellet (78°14'N., 12°03'E.), located at the S end of Prins Karls Forland, is saddle-shaped and very distinctive. It lies at the S end of a mountain range, which extends 3 miles NNW.

The mountains of Prins Karls Forland are frequently enveloped in a dense canopy of clouds, which often descend to an elevation as low as 30m and sometimes to sea level.

Fuglehuken (78°53'N., 10°30'E.) is the N extremity of Prins Karls Forland. A lighted beacon located on a knoll on the point is reported difficult to see on certain bearings against the background of mountains.

Magnetic disturbances amounting to 4° have been experienced in places off the W coast of Prins Karls Forland. An 8°E disturbance was observed in a position about 12 miles W of Kaldneset, a point near the middle of the W coast. Disturbances of greater amounts, up to 11°W in places, have been experienced N of the island.

11.24 Forlandsundet (78°30'N., 12°40'E.), with a maximum width of about 10 miles, separates the W coast of Spitsbergen from Prins Karls Forland. Vessels are advised not to use this passage before the middle of May because of ice.

Poolepynten, a steep-to point, is marked by a beacon and lies on the E side of Prins Karls Forland, about 12 miles N of Salfjellet. Between Poolepynten and Dawespynten, a point about 8 miles NW, the coast recedes to form a bight, the S part being known as Brucebukta and the N part as Peterbukta. Brucebukta is free of dangers and affords anchorage, in a depth of about 8m, 2.5 miles NW of Poolepynten.

Murraypynten, a sandy tongue extending 0.5 mile E, lies 11 miles NNW of Dawespynten.

Eidembukta (78°21'N., 12°45'E.), a bight with a glacier at its head, lies on the E side of Forlandsundet, about 9 miles NNW of Daudmannsodden. Anchorage may be obtained in the N part of the bight; however mariners are cautioned to avoid a 4m shoal located approximately 0.5 mile S of the anchorage.

A chain of islets, rocks, and reefs, about 2 miles offshore, W of the NW entrance point, extends in a SW direction.

St. Jonsfjorden, a fjord with a glacier at its head, lies about 10 miles N of Eidembukta. Other glaciers enter the fjord on either side. The shores of the fjord are steep-to and free from dangers, but in the entrance on the N side is a dangerous detached shoal. Hermansenoya, an island, lies on the N side of the outer entrance. The passage between the island and the mainland is free of dangers on the S side.

Sarstangen (78°44'N., 11°29'E.), two narrow banks of sand enclosing a lagoon, extends 2.5 miles WSW from the general line of the coast of Spitsbergen. A beacon stands near the extremity of Murraypynten. A light, with a racon and a radar reflector, stands on the point of Sarstangen. Sarstangen tower beacon stands about 183m E of the light.

Forlandsrevet, a sandy bar connecting Sarstangen and Murraypynten, is about 13 miles within the N entrance to the sound. The chart should be consulted for details regarding the narrow and shallow channel.

Forlandsundet—North End

11.25 Forlandsundet is entered from the N between Fuglehuken and Kvadehuken, a low and salient point about 11 miles ENE. From Fuglehuken, which shows a light, the W coast of Forlandsundet curves SE for about 8 miles to the point of Heemskerckneset. For about 4 miles S of Heemskerckneset, the coast is indented by Ferskvassbukta, a bay, which affords anchorage, in depths of 8 to 15m.

From Kvadehuken, which shows an aero light, the steep-to E shore of Forlandsundet trends SE for about 9 miles to the N entrance point of Engelsbukta, which is about 2 miles wide at its entrance and extends about 2 miles SE to a glacier at its head. Engelsbukta has been reported to be one of the best anchorages on the W coast of Spitsbergen, being completely landlocked and free from incursions of polar ice. Within the bay, in its middle, are charted depths of about 61m.

Between the S entrance point of Engelsbukta and Sarstangen, about 7 miles SW, the entire coast is fringed with a shoal bank which, in places, extends about 3 miles offshore. Rocks. with depths between 4 and 7m. lie near the outer edge of this bank.

Kongsfjorden

11.26 Kongsfjorden (78°57'N., 12°00'E.) is entered between Kvadehuken and Kapp Guissez, 7 miles NNE. The fjord extends 13 miles ESE, terminating in a large bay of which the NW side is formed by a peninsula 6 miles SE of Kapp Guissez. The shores of the fjord are free from off-lying dangers, and in most places are steep-to. The fjord is usually ice-free, or almost so, from late May to late November. Kongsbreen, one of the largest glaciers in Svalbard, has a front 6 miles long, which forms the head of Kongsfjorden.

Brandalpynten (78°57'N., 11°53'E.), which shows an aero light, lies about 7 miles ESE of Kvadehuken. Kolhamna, the shallow bay between the promontory of Ny-Alesund and Brandalpynten, has depths of less than 5.5m. A rocky patch, with a depth of 2.3m, lies 0.75 mile SSE of Brandalpynten.

Ny-Alesund (78°55'N., 11°57'E.) (World Port Index No. 20580), situated on the promontory on the SE side of Kolhamna, serves as a fishing station.

There are two piers in the harbor. A T-head pier is 130m long and has a berthing face of 24m, with depths of 10m alongside. The other pier has depths alongside of 4.8m. A mooring buoy is situated between the heads of the piers.

Anchorage may be obtained by large vessels, in a depth of 27m, good holding ground, 0.25 mile NNW of the E pier. Take

care to avoid a rock, with a depth of 6.4m, lying 0.15 mile NNE of this pier, at the seaward end of a bank extending NW from the shore. Small craft can anchor near the head of Kolhamna. During N and W winds, vessels at anchor may be bothered by drift ice, in which case anchoring in Blomstrandhamna is preferable.

11.27 Blomstrandhamna (78°59'N., 12°06'E.), an inlet on the NW side of the peninsula of Blomstrandhalvoya, is entered between Tonsneset and Hansneset, about 1 mile S. Lights are shown from the W side of this inlet. Vessels should keep in mid-channel when entering the inlet. On the N side of the inlet is a small bight, in which vessels may obtain anchorage during N and E winds, in a depth of about 33m, good holding ground.

Peirsonhamna, a small inlet at the S extremity of Blomstrandhalvoya, is 0.15 mile wide at its entrance, from which it extends 0.15 mile NE. At its head is London, a former settlement used in the marble trade. Anchorage may be obtained 1 mile E of Peirsonhamna, in a depth of 35m, mud, about 0.4 mile offshore, and also 0.75 mile farther NE, in a depth of 30m, 0.3 mile offshore. A 9m patch lies about 1.25 miles ENE of Peirsonhamna.

Krossfjorden

11.28 Krossfjorden (79°09'N., 11°46'E.), entered between Kapp Guissez and Kapp Mitra, 6 miles WNW, extends 8.5 miles NNE to Cadiopynten, the S extremity of Kong Haakons Halvoy, where the fjord divides into Mollerfjorden and Lilliehookfjorden. Mountains enclose the fjord on either side and landing is difficult in most places.

Lilliehookbreen, an immense glacier at the head of Lilliehookfjorden, is a remarkable feature of Krossfjorden.

The large bergs which are frequently calved, many with heights of 12 to 15m, are the only real icebergs calved on the W coast of Spitsbergen. None of these bergs reach the open sea, having such a deep draft they ground on the shore of the fjord, or on the shoals near the entrance.

Mollerfjorden, entered between Kapp Thoulet and the SE extremity of Kong Haakons Halvoy, extends 3.5 miles N, where it divides into Kollerfjorden and Mollerhamna. Two dangerous shoals lie close off the W shore N of the W entrance point. With the exception of these dangers, the outer part of Mollerfjorden is free from shoals, but obstructions lie in the approach to Kollerfjorden and Mollerhamna, where the depths are very irregular. Kollerfjorden has not been thoroughly examined and should be entered with caution.

Mollerhamna, entered between Regnardneset and Kong Haakens Halvoy, to the W, is fringed on its NE side by a shore bank which extends from about 0.2 to 0.3 mile offshore. Anchorage is obtainable, in depths of 18 to 27m, 0.1 to 0.2 mile off its NE shore, with good holding ground. It is reported that the depths N of the anchorage are less than those charted. A conspicuous boulder on the shore 0.5 mile NW of Regnardneset may be useful as a mark when anchoring.

A hut stands on the shore between the boulder and Regnardneset. Due to the background, it is not easily seen from sea.

11.29 Ebeltofhamna (79°09'N., 11°39'E.), on the NW side of Krossfjorden, is a shallow inlet about 4 miles within the entrance to the fjord. Anchorage may be obtained off Ebeltofhamna, in depths of about 15m, good holding ground, 0.25 mile ENE of Enjalbalstranda, a sand spit.

Caution is necessary as the sand spit may have altered considerably in shape and extent. Anchorage is recommended for use in only early summer, before drift ice sets in from Lilliehookbreen.

Lilliehookfjorden (79°15'N., 11°40'E.) is entered between the S end of Kong Haakons Halvoy and the shore abreast Schottfjellet, a peak about 2 miles to the W. The fjord extends 6 miles NNW to Lilliehookbreen and is 1.5 miles wide throughout its length. It is usually ice-free in July, but towards the end of the summer, the ice from Lilliehookbreen may render navigation of the fjord impossible. The shores of the fjord are steep-to and free from dangers.

Signehamna (79°16'N., 11°35'E.) is a cove entered between Nilspynten, a point about 4 miles N of Schottfjellet, and Fridtjovneset, about 0.65 mile farther N. The head of the cove is divided by Gunnarpynten, a point about 0.3 mile WNW of Nilspynten.

Anchorage may be obtained midway between Gunnarpynten and Fridtjovneset, in depths of 15 to 18m, but this anchorage should only be used when Lilliehookbreen is not calving.

Krossfjorden to Smeerenburgfjorden

11.30 From Kapp Mitra, the N entrance point to Krossfjorden, the coast trends 28 miles N to Magdalenhuken, the S entrance point of Magdalenefjorden. This part of the coast is characterized by a series of glaciers, the deep valleys of which are backed by high mountains. The coastline is fringed with rocks, below-water and awash, which in places extend about 2 miles offshore; it should therefore be given a berth of at least 3 miles where the depths are 28m or greater.

Kvedfjordbukta (79°25'N., 10°55'E.) and Rekvedbukta are small indentations in the coast lying, respectively, about 19 and 23.5 miles N of Kapp Mitra. Nothing further is recorded of them and in the approaches below-water rocks make caution necessary.

Hamburgerbukta, a cove about 2 miles S of **Magdalenehuken** (79°34'N., 10°44'E.), extends about 0.5 mile E to the glacier at its head. The entrance is obstructed by a bar, over which the depths vary from 1.8 to 5.5m. The middle of the cove has general depths of 7.3 to 18.3m.

Magdalenefjorden (79°34'N., 10°54'E.) entrance lies between Magdalenehuken and Knattodden, about 3 miles NE. The fjord extends about 5 miles E to Waggonwaybreen, the extensive glacier at its head. Surrounding the fjord are high, rugged mountains which rise precipitously, the valleys between the ranges being filled either with snow or glaciers. Calvings are frequent during the summer months. Tidal currents at times attain a rate of 1.5 knots along the S shore of the fjord.

Magdaleneboen, a 6m rocky patch, lies 2.5 miles WSW of Knattodden, in the W approach to Magdalenefjorden. The N extremity of Gravneset, bearing 101° and in line with the middle of Waggonwaybreen, leads into deep water S of Magdaleneboen.

Gravneset, a small peninsula, is fringed on its N side by a group of islets and rocks extending 0.2 mile offshore. Trinityhamna, on the E side of Gravneset, affords anchorage when

clear of ice. A stone cairn stands near the head of Trinityhamna.

Anchorage can be obtained, in depths of about 20 to 27m, about 0.5 mile from the S shore in a position off Adambreen. Adambreen lies more than 2 miles W of Gravneset and is the outermost of the three glaciers on that side of the fjord.

Shannonboen (79°34'N., 10°56'E.), a rock with a depth of less than 2.0m, lies about 2 miles SE of Knattodden. Fugleholmen, about 2m high, lies about 0.2 mile N of Shannonboen, on a shoal with depths of less than 5.5m, on which lie several dangerous rocks. Another dangerous patch lies 0.4 mile E of Shannonboen, having a rock, awash, close off its SE end, and a rock, with a depth of less than 2m, off its NE end.

Smeerenburgfjorden

11.31 Smeerenburgfjorden (79°43'N., 11°06'E.) is an extensive fjord lying between the NW corner of the mainland of Spitsbergen on the E and two large islands, Danskoya and Amsterdamoya, on the W. It may be entered by Sorgattet, the sound between Danskoya and the mainland; or by Danskegattet, the strait between Danskoya and Amsterdamoya; or by Nordgattet, the N entrance between Amsterdamoya and the mainland. Anchorage is afforded on the E side of the fjord, about 3 miles from the entrance. This anchorage is best seen on the chart.

Danskoya (79°41'N., 10°55'E.) lies with Kapp Gurnerd, its SW extremity, about 3 miles N of Knattodden. The above cape and the coast N of it are fronted by many islets and rocks; the outermost danger is two rocks, awash, about 2 miles WNW of the cape. With the exception of Kobbefjorden, this stretch of coast has not been completely surveyed and should be given a wide berth.

Kobbefjorden lies about 3 miles N of Kapp Gurnerd; it is about 1 mile wide at its entrance and recedes E for about 2 miles. An islet lies off the S shore of the fjord, close within the entrance.

Anchorage.—Anchorage is afforded N of the islet, in depths of 6.5 to 9.1m, outside the sand bar off the islet. Small vessels able to cross the bar may anchor at the head of the fjord.

11.32 Amsterdamoya (79°46'N., 10°49'E.) lies 1 mile N of Danskoya and is separated from it by Danskegattet. Most of the island is mountainous and two high peaks form the summit. Ytterholmane consists of one large and several smaller islets lying between 0.75 mile and 1.5 miles NW of Bikuben, the W extremity of Amsterdamoya. There is a passage between these islets and the coast of Amsterdamoya. Hakluytodden, the NW extremity of Amsterdamoya, is a bold granite headland.

Danskegattet is entered from the W between Kapp de Geer and Bikuben, which is prominent from seaward. A conspicuous tower-shaped hill rises close SE of Kapp de Geer. This W entrance, which is partly blocked by shoal spits, has depths of 10 to 11m in its middle part. In the E entrance channel, about 0.1 mile wide, the depths are only about 6.9m. Virgohamna, a small bay on the SE side of Danskegattet, affords anchorage, in depths of 22m and 11m, about 0.15 mile E and SE of Ekholmpynten.

11.33 Nordgattet (79°45'N., 11°05'E.), the N end of Smeerenburgfjorden, forms the principal approach to the inner part of the fjord. The passage is bound on the W by the NE side of Amsterdamoya and on the E by the coast of the mainland between Fuglepynten and the front of Frambreen, a glacier about 3 miles S. About 1.25 miles S of Fuglepynten, a bay known as Kennedybukta recedes to the front of a glacier which lies between mountain peaks and Frambreen glacier.

Sorgattet (79°39'N., 11°00'E.), the S approach to Smeerenburgfjorden is entered between Knattodden and Kapp Gurnerd, 3 miles N, and extends for 3.5 miles NE; with a least width of about 1 mile; it is much encumbered with islets and shoals. Mesteinane, two islets, lie 1 mile N of Knattodden, in the entrance of Sorgattet. They are steep-to on their S and E sides. A beacon marks the E islet. The tidal currents run with great strength through the narrow part of Sorgattet.

Anchorage may be obtained 0.5 mile NE of Moseoya, 0.2 mile offshore, in a depth of about 18m. Anchorage is also obtainable 0.75 mile WSW of Danskeneset.

Smeerenburgfjorden—Inner Part

11.34 From abreast Smeerenburgodden, the fjord extends about 8 miles SSE to Smeerenburgbreen, a glacier at the E side of its head. South of Danskegattet, the middle approach to the fjord from seaward, foul ground lies off the W shore to a distance of about 0.6 mile. The islet of Albertoya is about 0.4 mile SE of Kapp Pike, the S point at the E end of Danskegattet.

Slaadbukta (79°42'N., 11°15'E.), an indentation on the E shore about 1 mile S of Frambreen, recedes to the front of a glacier. About 2 miles SSE of Slaadbukta is a small bay named Marbukta. Anchorage may be obtained 0.4 mile SSE of Smeerenburgodden, in depths of 24 to 33m.

Fugloya

Spitsbergen—North Coast

11.35 Fuglefjorden (79°47'N., 11°28'E.) is entered between Fuglepynten and Drottenneset, 3.25 miles ENE, and extends 3 miles SSE to two glaciers at its head. Fugloya, an island, lies about midway between the entrance points. The depths in Fuglefjorden are very irregular in places and it should be entered with caution.

Fair Haven (79°49'N., 11°29'E.) a sound lying N of Fuglefjorden, is partly sheltered by cliff islets and shoals. The depths in the sound are irregular and include a number of shoal patches. Cummingoya lies in the E part of the sound, on a detached shoal with depths of less than 5.5m up to 183m offshore. Steggholmen, 0.5 mile SSE of Cummingoya, lies close within the S edge of an extensive bank, having depth of less than 5.5m, and with several rocky patches. Holmiabukta, an inlet, is entered from the SE corner of Fair Haven, 1 mile E of Drottenneset.

Suitable anchorage is reported in the channel between Fuglesangen and Klovingen, close N of Fair Haven. The depths are from 16.5 to 46m, mud, free from hidden dangers, except for a 7m shoal spot that lies about 0.3 mile SW of Klovingen. Drift ice and bergs may be carried in from the N by the wind or the tidal current.

Raudfjorden

11.36 Raudfjorden (79°50'N., 12°00'E.) is entered between Flathukenand Jermaktangen, 4 miles E. The fjord extends 10.5 miles to the S and divides into two branches near its head. The fjord has deep water for the most part and the general depths off the entrance are 15.3m and greater. A shoal spot, with a depth of 3.4m, and a rock, with a depth of 4m, lies about 1 mile WNW and 1.25 miles NNW, respectively, of Jermaktangen. A rock, with a depth of less than 1.8m, lies approximately 1.5 miles W of Jermaktangen.

Between Jermaktangen and Velkomstpynten, the W entrance point of Woodfjorden, a bend on the coast forms a wide bay known as Breibogen, which recedes about 5 miles to its head at the W end. The NE shore of the bay is covered by deep-red limestone. Patches, with depths of 13.8m and 16m, lie within 2 miles seaward of the N extremity of Velkomstpynten. A shoal patch, with a depth of 5.8m, lies about 3 miles NNW of Velkomstpynten.

Moffen (80°02'N., 14°30'E.), an island, lies 12 miles NE of Velkomstpynten. It has an extensive bank, with depths from 17m to 102m, which extends more than 20 miles N. Two outlying shoals, with depths of 7m and 9m, lie, respectively, 15 miles NW and 12 miles N of Moffen; however, their exact positions are not known. A beacon stands at the S extremity of the island. The tidal currents off the island set NW and SE at a rate of about 1 knot. Anchorage may be taken about 0.5 mile SW of the beacon.

Woodfjorden and Liefdefjorden

11.37 Woodfjorden (79°40'N., 13°58'E.) is entered between Velkomstpynten and Grahuken, a point about 8 miles ESE. The fjord indents the coast for about 34 miles to the S. Grahuken, the E entrance point of Woodfjorden, is the N extremity of a mountainous promontory between Woodfjorden and Wijdefjorden. A beacon stands on a rock close N of Grahuken. From Velkomstpynten the W side of Woodfjorden trends about 11 miles S to a small peninsula which forms the N entrance point of Liefdefjorden.

Liefdfjorden is entered between Stasjonsoyane and Rooseneset, 6.5 miles SSW, and extends 13 miles WSW to Monacobreen at its head. The fjord contains numerous groups of islets and rocks, which can best be seen on the chart. Bockfjorden, entered between Roosneset and Kapp Kjeldsen, 6 miles S, extends 3 miles S of the latter point. A shoal, with a depth of 7m, lies 4 miles S; a dangerous shoal, with a depth of 1m, lies 6 miles SSE of Roosneset.

Wijdefjorden

11.38 Wijdefjorden (79°22'N., 15°37'E.) is entered between Grahuken and Bangenhuk, 14 miles ENE and extends 58 miles SSE to a glacier at its head. The depths in the fjord are deep; however a shoal, the exact position of which is not known, with a depth of 3m, lies about 17 miles SSE of Grahuken. The W side of the fjord is backed by mountain ranges separated by valleys running in a WSW direction. Some of these valleys are long and flat, others short and steep, but most have glaciers at their sides or heads and all are desolate.

Vestfjorden, about 6 miles long, branches SSW from the W shore of Wijdefjorden, about 35 miles within the entrance. It is, in reality, a side valley which is depressed below sea level and appears to be silting up rapidly. The depths in the fjord are somewhat shallow and its head dries for 2 miles offshore.

Anchorage in Wijdefjorden can be obtained on either side of Bratthuken, a small sandy projection on the E side of the fjord, about 11 miles S of Bangenhuk, in depths of 9.1m on the N side of the point and 7.3m on the S side. Anchorage is also reported on the W side of the fjord close N of Krosspynten, and also 14 miles SSE of Kapp Petermann.

Mosselbukta (79°53'N., 15°55'E.) is entered between Bangenhuk and the coast 3.5 miles NNE, and extends 3 miles SE. The bay apparently was used as an anchorage during former whaling times, but vessels experienced severe difficulties when they were beset by ice in the bay.

Verlegenhuken, about 13 miles NNE of Bangenhuk, forms the N extremity of Mosselhalvoya, the latter being the seaward end of the great peninsula Ny Friesland which terminates Spitsbergen to the NE and separates Wijdefjorden from Hinlopenstretet. A beacon stands on Verlegenhuken; a dangerous 5m patch lies about 3 miles ENE of the beacon.

Nordaustlandet—North Coast

11.39 Nordaustlandet (79°50'N., 23°00'E.), the largest island NE of Spitsbergen, is separated from the latter by Hinlopenstretet. The very irregular N coast of the island is broken by interspersed fjords, bays, and rugged peninsulas. Some of the latter being large and salient and in places the offing is encumbered by islands and dangers.

Langgrunnodden (80°09'N., 17°46'E.), the NW extremity of Nordaustlandet and the NE entrance point of Hinlopenstretet, lies at the NW end of Storsteinhalvoya. From Langgrunnodden to Marmorpynten, 11 miles ENE, the coast consists almost entirely of narrow strips of beach within which are extensive lagoons, most of the water near them being brackish. Lagoya, meaning low island, is separated from the N coast of Storsteinhalvoya by Franklinsundet, known to be foul and having a 10m patch in mid-channel, 3.5 miles WNW of Marmorpynten. Franklinsundet's narrowest width is 3 miles; however, it should be entered with great caution.

Lady Franklinfjorden (80°09'N., 19°11'E.) is entered be-

Courtesy of Olav Haugen, Norwegian Mapping Authority

Waldennoya from S

tween Marmorpynten and the coast of Botniahalvoya, which projects 13 miles NNW to form the E side of the fjord. From its entrance, the fjord penetrates about 9 miles SSE to a glacier at its head. There appear to be several shoals in the fjord and several above-water rocks are visible. At times, the fjord is unapproachable due to ice.

Brennevinsfjorden is entered between Kapp Hansteen and Depotodden, 5 miles ENE, and extends 11 miles SSE. Two shoal patches, with depths of 3m and 7m, lie about 5 miles NNW of Kapp Hansteen. Mariners approaching Brennevinsfjorden are advised to proceed with extreme caution.

Close within Depotodden are steep cliffs, on top of which is an almost snow-free plateau, from which rises Snotoppen, a mountain with a small ice cap on its summit.

The best anchorage in the fjord is reported to be in an inlet at the E corner of the head, which is said to be one of the best sheltered harbors in Nordaustlandet. In normal years, the fjord is reported to be ice-free between the end of July and early October.

11.40 Laponiahalvoya (80°25'N., 19°50'E.) is a large peninsula which projects about 18 miles N and separates Breenevinsfjorden from the large body of water to the E, known as Nordenskioldbukta. Kapp Rubin, the N extremity of the peninsula, lies about 12 miles NNE of Kapp Hansteen. The NW part of the peninsula is composed of gray granite.

Chermsideoya, a relatively large island, lies off the N end of Laponiahalvoya. The passage between the island and the mainland is narrow and its depths are moderate. About 1 mile E of Chermsideoya are the smaller islands of Castrenoya. In the channel between Chermsideoya and Castrenoya, the depths are greater than 146m, but a vessel has anchored, in about 9.1m, between the E and SE points of Chermsideoya, in a position about 0.5 mile offshore. A 3m shoal patch, the position of which is doubtful, was reported (1989) to lie 1.5 miles SE of South Castrenoya Island.

Beverlysundet (80°29'N., 19°52'E.) is entered between Kapp Rubin and a point on the NW side of Chermsideoya, 2 miles ENE. The sound extends 3 miles SSE, then 1.5 miles NE, with a least width of 0.4 mile. A small point, projecting 0.1 mile S from the middle of the S side of Chermsideoya, is fringed with foul ground, which extends nearly 183m offshore. A shoal, located 0.4 mile ESE of this point, with a depth of 1.8m, has passages on either side. Anchorage may be obtained 0.15 mile WNW of the above point.

11.41 Waldenoya (80°37'N., 19°46'E.), an island, lies 5.5 miles NNW of Nordkapp, the N extremity of Chermsideoya. The island consists of coarse-grain granite, most of which is flesh color, giving the rock a red hue. The depths around the island are considerable. Heclaskjeret, a dangerous rock, lies 1.5 miles S of the summit of Waldenoya. The rock at times is awash when a heavy sea is running.

Sjuoyane consists of three large islands and four smaller islands, which lie NE of Nordkapp. Rossoya, one of the smaller islands, is the northernmost island in Svalbard.

Nordenskioldbukta (80°25'N., 21°10'E.) is entered between Nordkapp and Kapp Platen, 28 miles E. The bay consists of nu-

merous inlets, some of which may be entered without danger and are suitable only for temporary anchorage. They are open to the N and may be filled with heavy ice without warning. Comparatively few soundings have been taken in the bay, but several shoals are known to exist. Fowl ground with many rocks, both below-water and awash, lies S of Scoresbyoya, an island about 15 miles SW of Kapp Platen.

Rijpfjorden, the longest inlet on the N coast of Nordaustlandet, is entered between Kapp Loven and Kapp Wrede, 10.5 miles NE, and extends 25 miles S from the latter point. Vindbukta, on the E shore of the fjord, lies 7 miles S of Kapp Wrede. Wordiebukta, entered N of a small projection 20 miles S of Kapp Wrede, is considered to be the safest harbor in Rijpfjorden. No soundings are available.

11.42 Zorgdragerfjorden (80°23'N., 22°40'E.), on the NW side of Prins Oscars Land, is entered between Kapp Wrede and Kapp Platen, and extends 12 miles S from the latter point. The head of the fjord is shoal and submerged rocks are reported to lie in the entrance. The fjord should not be used as a refuge and great caution is necessary in entering it. The entrance can be blocked very quickly by ice; the fjord frequently remains full of ice long after the surrounding waters are open.

Duvefjorden (80°17'N., 23°30'E.) is entered between the coast under Goodenoughtjellet, 6 miles SE of Kapp Platen, and the N extremity of Glenhalvoya, a peninsula 11 miles farther SE, and extends 18 miles S from its entrance. The W side of the fjord consists of steep headlands which form the E side of Prins Oscars Land. The E shore is lower and more undulating then the W.

A rock, with a depth of 8m, is reported to lie in position 80°21.3'N, 23°14.0'E.

Adlersparrefjorden, on the E side of Duvefjorden, extends about 4 miles SE and has three inlets at its head. The N inlet affords refuge to small vessels, but if blocked by ice, the inlet may remain closed for a year. Conwayfjellet, a mountain, rises steeply between the middle and S inlets. Close SW of Adlersparrefjorden is an unnamed bight, about 2 miles wide at the entrance; the E side of Duvefjorden trends about 10 miles S to the head of the fjord. Near the outer end of the E and longer of two promontories which project from the head is the dark and prominent Louise Richardfjellet, with a cairn on its flat summit. Duvebreen, a glacier, enters the fjord about 4 miles E of Louise Richardfjellet.

11.43 Finn Malmgrenfjorden (80°17'N., 24°31'E.) is entered between Glenhalvoya and Bergstromodden, the N extremity of a narrow whale-backed peninsula 6 miles in length. The fjord, 4 miles wide at the entrance, extends 7 miles SW. No soundings have been taken in the fjord or in its approaches and great care is necessary when entering. Sealing vessels report that a safe channel passes W of Alpinioya, the islet close NW of Bergstromodden. An islet, whose position is doubtful, lies about 2 miles W of Alpinioya.

Karl XII Oyane (80°39'N., 25°03'E.) lies 18 miles N of Bergstromodden. The island has steep sides and a truncated top. In clear weather, the island appears as a large black sail of a boat. Norde Repoya, an island, lies 7 miles N of Glenhalvoya and is 3 miles long in an E-W direction. Sore Repoya lies 2 miles S of Norde Repoya and is about 4 miles long in a N-S direction. No attempt should be made to pass between the latter island and the mainland, as both channels are foul.

Brochoya (80°27'N., 26°03'E.), which with Foynoya and Schubeleroya forms a triangular group, lies 14 miles ENE of Bergstromodden and is about 150m high. Foynoya lies about 2 miles E of Brochoya; Schubeleroya lies 1.5 miles S of Brochoya.

Albertinibukta (80°16'N., 25°00'E.), a bay, is entered between Bergstromodden and Kapp Bruun, the extremity of a small projection 6.5 miles SE, and extends 6 miles S to a glacier at its head. Between Kapp Bruun and the W end of Leighbreen are a large number of islets lying between 0.5 and 2 miles offshore. Shoals and submerged rocks surround these islets and a berth of at least 3 miles should be given to the coast in their vicinity.

The ice cliffs of Leighbreen extend 10 miles to Kapp Leigh Smith, and then 4 miles S to Kapp Laura, an outcrop of bare rock extending 2 miles E and 3 miles S, forming the E extremity of Nordaustlandet. Storoya, an island, lies 5 miles ENE of Kapp Laura. Foul ground with submerged rocks is charted extending 2 miles S from the E extremity of the island. The tidal currents between Kapp Laura and Storoya are reported to attain a velocity of about 4 knots; this is probably a very conservative estimate.

Hinlopenstretet

11.44 Hinlopenstretet (79°30'N., 19°20'E.) is entered from the N between Verlegenhuken, and **Langgrunnodden** (80°09'N., 17°46'E.). Lagunepynten, 3 miles ESE of Verlegenhuken, is a low point from which the coast extends 6.5 miles SSE to Eolusneset. The strait extends about 95 miles SE to Koristkabreen and Kapp Mohn. The narrowest part of the strait lies from 15 to 25 miles within the N entrance where the shores are only 5 miles apart. The strait in many places is encumbered by islands and islets, especially in its S entrance. In October, the whole strait is covered with ice. In July and August, the strait is navigable by most type vessels during normal years. The N part of the strait is affected by strong winds from adjacent ice-covered highlands in summer.

Sorgfjorden (79°54'N., 16°50'E.) is entered between Eolusneset and a small projection 1.5 miles ESE. The fjord extends 5 miles S to a glacier at its head. The fjord has not been completely sounded, but in most places both shores may apparently be approached in safety to within 183m.

Heclahamma, a landlocked cove, lies on the S side of Crozierpyten, a narrow promontory on the E shore about 1 mile within the entrance of Sorgfjorden. Anchorage may be obtained in Heclahamna, in depths of 5.5 to 13m, good holding ground. Anchorage is also obtainable under Eolusneset, in depths of 5.5 to 9m.

Lomfjorden (79°36'N., 17°54'E.) lies on the W side of Hinlopenstretet and is entered between Isrundingen and Kapp Fanshawe, 6 miles SSE. The fjord extends 17 miles SSW to a glacier at its head. It has been reported anchorage may be taken in a depth of 14m, clay, off the W shore, close S of Valhallfonna.

11.45 Tommelpynten (79°33'N., 18°42'E.) lies 7 miles SE of Kapp Fanshawe. Tommeloyane, a group of islets, lies be-

tween 1 and 2.5 miles offshore abreast of Tommelpynten. A detached islet is charted 3.5 miles N of Tommelpynten; a dangerous rock lies 5 miles E of the point.

Vaigattbogen, a wide open bay, lies between Tommelpynten and Kapp Freeden, which projects 2.5 miles NE from the coast 27 miles SSE of Tommelpynten. Numerous glaciers, some of them separated by mountains, form the coast for 19 miles S of Tommelpynten. Between Kapp Freeden and Kapp Weyprecht, 26 miles SE, many glaciers discharge into the strait; there are numerous off-lying islands and islets.

Wilhelmoya (79°03'N., 20°24'E.), a large island, lies 3.5 miles SE of Kapp Freeden. The island is high with a round snow top. The island is separated from the mainland by Bjornsundet. Bastianoyane and Ronnbeckoyane, two groups of islets SW of Wilhelmoya, obstruct the S approach to Bjornsundet. Koristkabreen, 5 miles S of Kapp Weyprecht forms the SW entrance point of Hinlopenstretet, and the E extremity of Spitsbergen.

Hinlopenstretet—East Side

11.46 Murchisonfjorden (80°00'N., 18°20'E.), an indentation on the E side of the strait, is entered between Tvillingneset and Sparreneset, 8 miles S, and extends 8 miles E. It is encumbered with islets and its shores are considerably indented. A detached shoal, with a depth of 9m, lies 3 miles WSW of Tvillingneset. When the inner part of the bay is icebound, vessels can anchor, in 9m, sand, close within the middle islet of the three outermost ones at the entrance. Otherwise anchorage is afforded close W of Kvalrosshalvoya, a peninsula at the inner end of the S side, or in a cove at the NE end of the bay.

Wahlenbergfjorden (79°40'N., 20°00'E.) is the largest fjord in Hinlopenstretet, lying about 35 miles within the N entrance, and extends about 25 miles ENE from the E side of the strait. A shoal, with a depth of 4.5m, was reported (1988) to lie 2.5 miles ESE of the SE extremity of Wahlenbergfjorden. Further shoal patches have been reported (1989) up to 4 miles N of this position. The fjord has a width of about 6 miles at the entrance, with the least width being about 5 miles. Gyldenoyane, an island with an islet close SW, lies in the middle of the entrance.

Palanderbukta indents the S shore of Wahlengberfjorden, 9 miles within its entrance. The inlet is about 5 miles wide at its entrance and extends about 11 miles SE to its head. Anchorage is available at the head of the inlet, close off the NE shore, in a depth of about 13m.

11.47 Vaigattoyane (79°20'N., 20°00'E.) is an extensive group of islands and islets which encumber the middle of Hinlopenstretet for a distance of about 15 miles, from 9 miles S of Selanderneset to 4 miles N of Kapp Freeden. Wahlbergoya, the largest island of the group, is 7 miles long, with its NW extremity 13 miles S of Selanderneset. Von Otteroya, the next largest island, lies about 2 miles S of Wahlbergoya.

Ulvebukta, an open bay, lies on the S side of Nordaustlandet, 13 miles E of Wahlbergoya. The bay is entered between Torellneset and Giaeverneset, 11 miles E. Anchorage may be obtained close S of Torellnesfjellet, in a depth of 11m, or in the same depth, close off Giaeverneset.

Kapp Mohn, a glacier point which forms the SE entrance point of Hinlopenstretet, lies 36 miles E of Giaeverneset. The point is subject to change due to the movement of the ice cliffs.

Spitsbergen—East Coast

11.48 Kikutodden (76°35'N., 17°00'E.), the SE extremity of Sorkapp Land, is a projection on the coast and lies 6 miles ENE of Sommerfeldbukta. Bettybukta is a slight indentation with low land at its head. It lies 4 miles NNE of Kikutodden. Isbukta, a bay, lies 7 miles NNW of Bettybukta.

Hedgehogfjellet, a steep mountain, rises close to the coast about 10 miles NNE of Isbukta. From abreast this mountain, the E coast of Spitsbergen, trends about 32 miles N to Kvalvagen. A number of glaciers discharge into the sea between Hedgehogfjellet and Kvalvagen. It has been reported Kvalvagen affords good anchorage, but is unreachable at times because of drift ice.

Storfjorden (78°00'N., 20°00'E.), entered between Kvalhovden and Kvalpynten, 35 miles E, extends 63 miles N to the entrance of Ginevrabotnen at its head. The whole of Storfjorden is filled with ice from January to May inclusive, in an average year, but in exceptional years there may be large openings in May. Vessels can usually navigate from July to September. Strong winds and currents may cause rapid changes in the ice in this region.

From Kvalhovden, the coast trends N for nearly 30 miles to Kapp Dufferin; this stretch is broken by the fronts of three glaciers between the coastal peaks. The glaciers are separated by coastal mountains. Agardhbukta, is entered between Kapp Dufferin and Revnosa, 6 miles NE, and extends 4.5 miles NW.

This bay has the reputation of being very foul, though the latest surveys indicate that its middle part is unencumbered. It has been stated that the bay is exposed to drift ice because of violent currents in the vicinity.

The coast continues N for about 25 miles from Revnosa; then for about 8 miles E it is formed by the S side of Negribreen Glacier. Kapp Antinori, the SE extremity of the glacier, is the W entrance point of Ginevrabotnen, which lies at the head of Storfjorden. Anchorage has been reported in Dunerbukta and Mohnbukta, two coves on the coast between Revnosa and Negribreen.

Storfjorden—East Side

11.49 North of Kvalpynten, the E coast of Storfjorden has been described as a continuous rocky wall, rising almost directly from the sea to a high plateau. Kapp Lee, the NW point of Edgeoya and the S entrance point of Freemansundet, lies about 40 miles N of Kvalpynten. Between the two points the coast is indented by Diskobukta, a wide bay with a valley at its head.

Barkhamodden (78°14'N., 20°41'E.), the SW point of Barentsoya, lies 7 miles NNW of Kapp Lee, with the entrance of Freemansundet being between them. The mountainous coast of Barentsoya continues in a N direction for about 16 miles to Mistakodden, the NW point of the island. Anchorage is available close N of Mistakodden in the position indicated on the chart. A dangerous rock lies about 2 miles WNW of Mistakodden. Anderssonbukta indents the coast between Barkhamodden and Duckwitzbreen, a glacier about 5 miles to the N. Vossebukta, a slight indentation in the coast, lies 5 miles SE of Mistakodden. A rock lies 3 miles SW of Anderssonoyane.

Courtesy of Olav Haugen, Norwegian Mapping Authority

Negerpynten from SE

A small unnamed islet and Sylen, a 3.5m patch, lie 3 miles and 5 miles NW, respectively, of Hassensteinbukta. Storfloskjeret, a rock which covers and uncovers, lies 12 miles WNW of this cove. Sletvoldgrunnen, a 5m patch, lies about 9 miles WSW of Kapp Lee, but its exact position is doubtful. Other dangers in Storfjorden are best seen on the charts.

Ginevrabotnen (78°37'N., 20°20'E.), at the head of Storfjorden, is entered between Mistakodden and Kapp Antinori. The bay extends about 15 miles NE to Heleysundet, the narrow passage connecting it with Olgastretet, and is encumbered by several off-lying islets. The ice in Ginevrabotnen remains throughout almost the entire year. At times it is clear of ice by the end of August, but new ice begins to form almost at once and the bay is quickly blocked again.

Edgeoya and Barentsoya—East Coasts

11.50 Edgeoya (77°45'N., 22°30'E.), the third largest island in Svalbard, lies E of the S part of Spitsbergen. The E coast of the island forms the W side of Olgastrete. The island is about 60 miles long between Negerpynten, the SW extremity of the island, and Kapp Heuglin, its N extremity. The approach to the SW coast of Edgeoya is one of the most dangerous parts of Svalbard, as the outermost known dangers lie a long way offshore, the tidal currents in this vicinity are very strong, and a number of uncharted dangers are reported to lie off the coast.

Tunsenoyane consists of several groups of islets some distance apart and as yet not accurately charted covering a large area S of the SW coast of Edgeoya. The outermost known dangers are the isolated drying rocks Brotskjer and Rumpetrollet, lying approximately 32 miles SW of Negerpynten. Breakers have been reported in this area. A 10m depth has been reported to lie about 12 miles W of this danger. Other dangerous submerged rocks lie between 10 and 12 miles WNW of the islet of Haoya.

Kong Luovigoyane and Menkeoyane are the principal groups of islets in the N part of Tusenoyane. The former, the farthest NW, lies 13 miles W of Negerpynten and has dangerous reefs rising out of deep water close S; the latter, the farthest NE, is situated 5 miles SSE of that point and is surrounded by rocky patches.

A below-water reef extends 1 mile S of Menkeoyane and a rock, with a depth of less than 2m, lies 2.5 miles SW of the group. A channel leads NW between these dangers towards Buolscheoya, a detached islet midway between Menkeoyane and Kong Ludvigoyane.

About 6 miles S of Kong Ludvigoyane lies Utsira, a low-lying rocky islet; the same distance S of Buolscheoya stands Meinickeoyane, a pair of islands steep-to except on their W side.

Halvmaneoya (77°16'N., 23°10'E.), an island, lies with its W extremity about 8 miles E of Negerpynten. The S point of the island is foul to a distance of about 2 miles offshore. Dianahamna, an indentation on the N side of the island, affords anchorage.

Ryk Yseoyane (77°47'N., 25°12'E.), a group of islets, lie about 10 miles E of the E extremity of Edgeoya. Seen from a position 10 miles to the E, the group has the appearance of one

long low island, with the S extremity sloping gradually into the sea and the N end finishing in an abrupt cliff.

Blafjorden, a large open bay, lies between Kapp Metchers and Kapp Pechuel Losche, 20 miles NW, and extends 7 miles SW of a line joining the entrance points. The NW part of the bay is shallow, with depths of 9m being found about 4 miles offshore. Submerged rocks, the exact position of which are doubtful, are reported to exist between 1 mile and 2 miles E of Kapp Pechuel Losche.

11.51 Freemansundet (78°14'N., 21°37'E.), 22 miles in length, has an E to SW direction and a least width of 2.5 miles. It separates Edgeoyn from Barentsoya. The sound was surveyed in 1987; depths of 15m were found in the center but is reported to be too shallow and rocky to admit passage of anything but small craft. The sound is entered from the E between Kapp Heuglin and Kapp Waldburg, 9.5 miles W.

Two islets lie in the middle of the E entrance, 4 miles WNW of Kapp Heuglin. Foul ground extends 2.5 miles N and NW from Kapp Heuglin and it has been reported that the area around Kapp Waldburg is foul.

Barentsoya (78°26'N., 21°20'E.) lies close N of Edgeoya and is separated from it by Freemansundet. Heleysundet, another narrow passage, leads between Barentsoya and the mainland to the N. The island is about 25 miles in extent and has glaciers which empty into the sea from each of its four sides.

Off-lying Islands

11.52 Hopen (76°35'N., 25°10'E.), an isolated island, is narrow and 17 miles long in a NNE-SSW direction; it lies about 54 miles SE of Negerpynten, the S extremity of Edgeoya. The island has been described as a tableland, the sides of which are cut up with gullies and which attain an elevation of 365m at Kapp Thor, the S point. Landing is at all times difficult because of the steep coasts and the shallow water close-in. There is usually a heavy swell on all sides of the island.

Hopen Radio station is located 5 miles NNE of Kapp Thor.

In an average year, Hopen is clear of ice from July to October. In a severe season, the island may be ice-free only from mid-August to mid-September. The current sets SW past Hopen at about 2 knots.

Anchorage.—The island has no sheltered bays which can serve as harbors. It is so shallow inshore around the entire island, that even at 200m from the shore, very little sea is required to form breakers, thus making landing difficult for a boat. On the E side of the island, in places, the shallow area can extend up to 0.7 mile or more out from land.

Today, both sides of the island are used as anchorages to avoid storms, or for reloading from fishing vessels to mother ships of up to 20,000 gt.

For those wishing to land, a boat channel should be found into the shore where it appears to be deepest and calmest without breakers over a long period. From experience, it appears to be best to go ashore is on the E side of the island, when vessels go in carefully and anchor, in 10 to 15m.

Vessels have anchored, in a depth of 11m, at a distance of 0.5 mile from land off the radio station.

11.53 Kong Karls Land (78°50'N., 28°10'E.) consists of a group of three main islands, Svenskoya, Kongsoya, and Abeloya, together with a number of islets. Olgastretet, a channel about 50 miles in width, separates the group from Edgeoya and Barentsoya. Erik Eriksenstretet, a channel entered from the NE, is 35 miles wide and separates the group from Nordaustlandet.

Svenskoya, the W island of Kong Karls Land, lies 50 miles ENE of Barentsoya. In August and September, the coast may, for the most part, be approached by most vessels through navigable ice. Kapp Hammerfest forms the S extremity of the island and is a tapering basalt ridge. The island is moderately free from snow, but N of Kukenthafjaellet, between it and the ridge, there exist a permanent cap of snow and ice. Patches of snow cling constantly to the upper edges of the plateau and the higher slopes of the hills. The lowlands of the island consist mainly of sand and clay washed down by melting snow.

A high flat-topped cliff extends NE from Kapp Hammerfest and is connected by a yellow sandy beach to Kapp Weissenfels, the E extremity of Svenskoya. This point, projecting about 1 mile ENE, consists of a mass of columnar basalt, with sand dunes in its vicinity. Anchorage has been obtained in a bight on the S side of Kapp Weissenfels, in a depth of 14m, poor holding ground, with some shelter from N winds.

11.54 Kongsoya (78°54'N., 28°13'E.), about 21 miles long in an E-W direction, is the middle island of Kong Karls Land. The island is separated from Svenskoya by Rivalensundet. The island is comparatively narrow, its greatest width being about 5 miles, and consists of three main parts. The three parts are the W plateau, the high land near the E end, and the low land connecting the two. From the offing SE, it appears as three separate islands; at a greater distance it resembles a group of four islands, because of the dip in the W plateau.

Kapp Altmann is the extremity of a narrow tongue of land which projects about 2 miles S from the S coast of Kongsoya, in a position about 3 miles E of Kapp Andreassen, the W extremity of the island. A dangerous reef extends about 1 mile S from the cape; about 1 mile farther in the same direction is a rock, awash. A shoal, with a depth of 2.7m, has been reported about 5 miles SE of the cape. It has been reported that anchorage may be obtained close inshore on the E side of Kapp Altmann, in a depth of 12m, fine sand.

Some shelter from N and W winds was obtained, but the holding ground is poor. At times, squalls from the N swept down from the hills with great violence.

11.55 Antarcticbukta (78°49'N., 28°03'E.) lies between Kapp Altmann and Kapp Andreassen, 4 miles W. Anchorage is obtainable here, in a depth of 11m, sand, but holding ground is poor. Anchorage has been reported in Andreebukta, the bight between Tommerneset and Nordaustpynten. The depth close inshore in the SW part of the bight is 61m, clay.

Abeloya (79°00'N., 30°10'E.) is the smallest and farthest E island of the Kong Karls Land group. The island is reported to be barren and of basaltic formation and is located 6 miles ENE of Kongsoya. The island is 3 miles long by 2.5 miles wide.

11.56 Kvitoya (80°09'N., 32°38'E.) is about 23 miles long in an E-W direction. The island is located at the E extremity of Nordaustlandet; about 45 miles E of Kapp Laura. Kvitoya is al-

most completely covered by ice; the only ice-free areas are Andreeneset, its SW point, and Kraemerpynten, near the NE end of the island.

The ice cap covering the island is divided into three domes which reflect the topography of the underlying rocks. The island has been described as being glittering white from its summit down to the water's edge, from which it rises in a steep icy wall.

A rock, awash, lies 6 miles SSE of Andreeneset. Another rock, awash, lies 1.5 miles WSW of Andreeneset. A shoal spit extends 2 miles S from a point on the S coast, 9 miles E of Andreeneset.

Norwegian

NORWEGIAN	English
A	
a	rivulet, stream
aker	field
aksel, aksla	shoulder of a hill or mountain
alltid synlig	above water
ankerplass	anchorage
as	hill, ridge
atte	eight
aust	east
austre	eastern
avfallsplass	spoil ground
avlopsledning	outfall pipe, sewer
B	
babord	port (side, hand)
bae i vannflaten	rock, awash at low water
bae	rock (usually submerged)
bak	astern
bake	beacon
bakke	hill
ballast plass	spoil ground
banke	bank
basseng	basin
bathavn	boat harbor
beholderskap	pedestal
bekk	stream beck
berg, bierg, bjerg	mount, hill
betong	concrete
bla	blue
bo	farm
boe	rock (usually submerged)
borg	castle, mansion
botn	head (of fjord)
boye	buoy
boyestake	spar buoy
brat	rock, (usually a group of rocks)
bratt	steep, cliffy, abrupt
bre	glacier
bred	wide
brott	rock (usually group of rocks)
bru	bridge
brudd	quarry
brygga, brygge	wharf
bukt, bukta	bay, bight
bunn	bottom
bunnkjetting	bottom chain, trot
by	town, village
bygd	district, parish
bygning	framework structure, pylon
D	
dag	day
dal	valley
dalfore	extended valley
djup	deep
dor, dora	door, gate, passage
drikkevand	fresh water
dumpefelt	dumping ground
dyb, dyp	deep
dybde	depth
dykdalb	dolphin
E	
ebbe	ebb tide
egg	edge (of a bank or mountain range)
eid	isthmus
elv, elva	river
elvmunning	river mouth
en	one
etterretninger for sjofarende	notices to mariners
F	
fabrikk	factory
fall	fall (of a rock of cliff)
famn	fathom
farled, farlei	channel, fairway
fartoy, fartyg	vessel
farvann	waters, sea, fairway
fastland	mainland
favn	fathom
fem	five
ferje	ferry
festning	fort, fortress
fire	four
fiskevaer	fishing station
fjaere	ebb tide
fjell	hill, mountain, rocky bottom
fjellplata	plateau
fjellrygg	mountain ridge
fjellvegg	mountain wall
fjord	firth, arm of the sea
flae, flak, flat	flat or bank
flesa	rock (generally above-water)
flo	flood tide
flu, flua	rock (submerged)
flyplasser	airport
flytedokk	floating dock
foran, forud	ahead
forberg	promontory
forbudt	prohibited
forbudt sjoomrade	restricted sea area
fortoyningsboye	mooring buoy
foss	cascade, waterfall
fot	foot, base
fylke	country
fyr	light
fyrhus, fyrtarn	lighthouse, light-tower
fyrlampe	light (unwatched)
G	
gamle, gammel	old
gap, gat	mouth, channel, deep
gard	farm, village, estate
gjennom	through
godt synlig	conspicuous

NORWEGIAN	English
gra	gray
grend	hamlet
grense	limit, boundary
gron, gront, grun	green
grube	mine, quarry
grunn	shoal, shallow
gul	yellow
H	
hake	strip or hook of low lang
hals	isthmus, neck
halvoy	peninsula
hamn	harbor, haven
haug	hillock
haus	headland
hav	sea
havn	harbor, haven
havnedistrikt	(civil) harbour district
havnekontor	harbor office
hei, heia	hill or height, hummock
heim, hejm	homestead
heller	rocky cave
hode	head
hol	deep hole
hole	cavern
holm	islet
hop	small cove
horn	hill, peak
hovde, hoved	head
hoy, hogd	hill or height, hummock
hoyere	higher
hoyvann	high water
huk	strip or hook of low land
hule	cavern
hump	hummock
hundre	hundred
hus	house
hvit, hvitt	white
I	
i land	ashore
indre, inre, inste	inner
innlop, innseiling	entrance
innsjo	lake
is	ice
isbre	glacier, ice-field
J	
jern	iron
jernbane	railway
jokel	glacier, ice-field
jord	earth, land
K	
kabel	submarine cable
kai	quay
kalv	calf (small rock or islet near a larger one)
kanal	canal, channel
kapell	chapel
kapp	cape
kil	creek, inlet
kirke	church
kjegle, kjegleformede	cone; conical
klett	bluff, cliff
klippe	reef, pinnacle
kloakkledning	outfall pipe, sewer
klokkeboye	bell-buoy
klova, kloft	cleft
klubb	headland
klump	clump
knaus	crag, rock
knop	knot
koll	knoll, rounded summit
kort	short
kraftstasjon	power station
kran	crane
kreppa, kreppen	narrows
krigshavn	naval harbor
kulp	deep hole
kyst	coast
L	
ladested	loading place
lagerhus	warehouse
land	land, shore
lang	long
langgrunn	shelving bottom, either froa shoal or the shore, which may be shallow water to be avoided or an anchorage to be used
lav, lave, lavt	low
lavvann	low water
led, leia	channel, lead track
leir (-bunn)	clay (-bottom)
li	mountain side
lille, lite, litla, litle	little
livbat	lifeboat
lodret	vertical
lop	channel, passage
los	pilot
loskontor	pilot office
lufspann, luftspenn	overhead cable
lykt	light
lysboye	light-buoy
M	
mellom	between
merke	mark
midt	middle
mindre	smaller
molle	mill
molo	mole, breakwater
mork	obscured (of a light)
munn, munning	mouth
mur, murverk	brick, brickwork
myr	marsh
N	
nakke	neck
natt	night
naust	hut, fishing hut
nearing	high entrance point of a fjord
mederst	beneath
nedre	lower

NORWEGIAN	English
nes	ness
ni	nine
nip	neap (tide)
nodhavn	distress or refuge harbor
nord	north
nordenom	northward
nordre	northern
norske los, den	norway pilot (sailing directions)
nut	mountain top, peak
ny; nytt	new
O	
o	island
odde	point
olje	fuel oil
opphalings rampe	slipway, ramp
oppmudret	dredged
orgelboye	whistle-buoy
orlogshavn	(naval) harbor area
os	river mouth, basin or area of water between islands or at fjord junctions
ovenfor	above, higher
overettlinjen	leading-line
oversvommet	submerged
ost	east
ostenom	eastward
ostre	eastern
ovyvelsefelt, ovelsesomrade	exercise or practice area
overst	above
ovre	upper
oy, oya	island
oygard, oygruppe	archipelago
oyr, oyra, ora	delta, sandbank
P	
pa	at, on
pa grunn	aground
pakhus	storehouse
peiling	bearing
pele	post
pelebukk	dolphin
peleverk	piling, groyne
pir	pier
platta	plateau
poll	cove, inlet, basin
pynt	point
R	
rabbe	rocky or stony ridge
radiofyr	radiobeacon
ras	landslip
rasa	race (used in conjunction with names of channels, through which, or of rocks, past which, the streams run with strength)
red	roadstead
redning	rescue
renna, renne	channel
rev	reef
rod, rodt	red
rorledning	pipeline
ros, roys	stone heap, rocky ground

NORWEGIAN	English
rund	round
rygg	back, ridge
S	
sadel	saddle
sagbruk	sawmill
sand (-bunn)	sand (-bottom)
sata, sate	haycock, hillock
seater	hill farm
seks	six
singel (-bunn)	shingle (-bottom)
sjo	sea
sjoflyhavn	seaplane harbor
sjohus	warehouse
sjomerke	beacon, seamark
sju	seven
skalle	head, hill
skar, skar	crevice, rocky outcrop, gap, glen
skip	ship
skipsverft	shipyard
skjaer, skjer	above-water rock, skerry
skjaergard	archipelago, skerries
skjell (-bunn)	shell (-bottom)
skog	wood, forest
skolt	headland; head (of shoal)
skorstein	chimney
skra	diagonal
skvalpeskjaer	rock, awash
slaggrunn	see langgrunn
slam (-bunn)	mud (-bottom)
slepebat	tug
slette	flat, plain
slik	ooze
slipp	patent slip
slott	castle
slua	rock
slus, sluse	lock, sluice
sma	small
smal	narrow
sole (-bunn)	mud (-bottom)
sondre	southern
sonnenom	southward
sore	south
sorte	black
soyle	pillar
spiss	point, spit
stad	city, town
stake	pole, spar buoy
stakk	heap, stack
stang	perch, column
stativ	pile structure
staur	pinnacle rock
stein, sten	rock, stone
sto	hard, landing place
stolpe	post
stor, stora, store	large
storre	larger
styrbord	starboard
strand	beach, shore

NORWEGIAN	English
straum, strom	current, tidal stream; also used for channel with strong streams
stromsjo	overfalls
sund	channel, sound
sva	ridge of rock
svart	black
syd	south
sykchus	hospital
T	
tang	tongue, spit
tare	submerged rock (usually large and flat); seaweed
takesignal	fog signal
tarn	tower
ti	ten
tind	summit, peak
to	two
toll-bod, -bu-stasjon, -kammer, -sted	custom house office, etc.
tonne	buoy, cask, barrel
topp	summit
torr	dry
torrdokk	dry dock
torrfall, torrflu	drying bank, drying rock
trafikkregulertomrade	traffic separation scheme
trang, trange	narrow
tre	three
tre	wooden
tue, tuva	hillrock, knoll, mound
tung	tongue of land
tusen	thousand
tvers	abeam
tydelig	conspicuous
U	
uklar	foul
undervanns	submerged
ur	rock-strewn slope; rock-falls
utlop	mouth, outlet
utstikker	projecting pier, jetty
V	
vaer	place, village; fishing station
vag	bay, cove, creek, inlet
vaker	beacon; buoy; vane
val	coast, very shallow cove
vandret	horizontal
vann, vatn	water, lake
vannfall	cascade, waterfall
varde	beacon-tower, hill
vassdrag	river, water-course
vat	wet
vegg	wall, cliff
vei	road (on land)
verft	dockyard, shipyard
vest	west
vestenom	westward
vestre	western
vik, vika, viki	bay, cove, creek, inlet
vindmolle	windmill
vogn	slipway
voll	mound; dike; grassy plain; cove, inlet
vrak	wreck
Y	
ytre, ytste, yttre	outer

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.

Index—Gazetteer

	Position °	'	°	'	Sec. Para
A					
A	67	53 N	12	59 E	8.4
AADNESET	60	38 N	4	50 E	4.15
ABELOYA	79	00 N	30	10 E	11.55
ABELVAER LIGHT	64	43 N	11	10 E	7.17
ADLANDSFJORDEN	60	15 N	5	38 E	3.58
ADVENTFJORDEN	78	15 N	15	37 E	11.18
AERSTEINEN LIGHT	62	48 N	6	36 E	6.15
AGDENESET	63	39 N	9	46 E	6.65
AGNHOLMEN	58	16 N	6	50 E	1.25
AGOTNES	60	24 N	5	01 E	4.27
AKREHAMN	59	16 N	5	11 E	3.6
AKSELSUNDET	77	45 N	14	36 E	11.11
AKSNESET	62	57 N	8	20 E	6.46
ALBERTINIBUKTA	80	16 N	25	00 E	11.43
ALDEN	61	19 N	4	48 E	5.17
ALESUND	62	28 N	6	10 E	5.30
ALESUND HAVN	62	28 N	6	09 E	5.60
ALESUNDAKSLA	62	28 N	6	11 E	6.4
ALFARTANGEN	63	19 N	8	34 E	6.61
ALLMENNINGSFLUENE	61	54 N	5	16 E	5.46
ALMENINGSKOLLEN	64	11 N	10	01 E	6.57
ALNES LIGHT	62	29 N	5	58 E	6.4
ALSTADOYA	67	54 N	15	11 E	8.18
ALTA	69	58 N	23	15 E	9.11
ALTAFJORDEN	70	05 N	23	06 E	9.11
ALTFJORDEN	65	56 N	12	19 E	7.30
ALVERSTRAUMEN	60	34 N	5	14 E	4.30
ALVNESTANGEN LIGHT	67	16 N	15	02 E	7.62
ALVOYVAG	60	21 N	5	11 E	4.19
ALWYN NORTH OIL FIELD	60	48 N	1	44 E	5.2
AMBORNES LIGHT	63	34 N	10	26 E	6.71
AMSTERDAMOYA	79	46 N	10	49 E	11.32
ANASIRA	58	17 N	6	26 E	1.33
ANDA	61	51 N	6	05 E	5.47
ANDA	69	04 N	15	11 E	8.43
ANDALSNES	62	34 N	7	41 E	6.19
ANDENES	69	20 N	16	08 E	8.44
ANDERSBAKKEN	66	16 N	12	18 E	7.48
ANDERSBOSKALLEN	68	46 N	13	33 E	8.1
ANDFJORDEN	69	00 N	16	03 E	8.45
ANDOYA	69	05 N	15	45 E	8.40
ANGERSHOLMEN LIGHT	66	46 N	13	16 E	7.56
ANGVIK	62	53 N	8	06 E	6.43
ANNOYSKJERET LIGHT	61	36 N	4	56 E	5.15
ANSNESET	64	28 N	11	24 E	7.11
ANTARCTICBUKTA	78	49 N	28	03 E	11.55
ARALDEN	61	41 N	4	46 E	5.21
ARAMSUND LIGHT	62	12 N	5	29 E	5.50
ARASVIKFJORDEN	63	09 N	8	25 E	6.49
ARDAL	61	14 N	7	43 E	5.33
AREBROTSNESET LIGHT	61	38 N	5	00 E	5.22
ARHOLMEN	63	06 N	7	53 E	6.36
ARNESKLUBBEN LIGHT	62	40 N	6	41 E	6.16
ARNOYA	68	46 N	16	37 E	8.32
ARNOYFJORDEN	64	46 N	11	15 E	7.19
AROYA	63	11 N	8	36 E	6.49
ARSFLESA	65	01 N	10	41 E	7.26
ARSGRUNN	59	08 N	5	26 E	2.9
ARSUNDBAEN	63	07 N	8	02 E	6.45
ARSUNDOYA	63	06 N	7	59 E	6.40
ARVIKSUNDET	59	16 N	5	33 E	2.22
ASBRAKEN	66	30 N	12	32 E	7.63
ASKROVA LIGHT	61	31 N	5	00 E	5.40
ASNESET	61	56 N	5	28 E	5.46
ASPA	62	28 N	6	09 E	5.60
ASPENESET	68	25 N	15	47 E	8.11
ASTAFJORDEN	68	44 N	17	00 E	8.48
ASVAER	66	14 N	12	12 E	7.48
AUSTBAEN	59	08 N	5	17 E	2.9
AUSTDJUPET	59	16 N	5	24 E	2.21
AUSTEROY	59	17 N	5	27 E	2.21
AUSTERVAG,	74	30 N	19	12 E	11.3
AUSTKLAKKANE	63	23 N	8	24 E	6.63
AUSTNESFJORDEN	68	17 N	14	43 E	8.10
AUSTRE FUGLOYGRUNNEN	63	06 N	7	47 E	6.35
AUSTRE REIFLUA	63	27 N	8	13 E	6.54
AUSTRE VAGHOLMFLUA	59	13 N	5	31 E	2.22
AUVAER	69	52 N	18	00 E	8.55
AVEROYA	63	00 N	7	30 E	6.38
B					
BAANE	61	29 N	4	59 E	5.39
BAEFLUA	63	14 N	7	52 E	6.60
BALLANGEN	68	22 N	16	55 E	8.26
BALLSFJORDEN	69	32 N	18	55 E	8.59
BALLSTAD	68	04 N	13	42 E	8.5
BANGSUND LIGHT	64	25 N	11	21 E	7.13
BARENTSBURG	78	04 N	14	14 E	11.16
BARENTSOYA	78	26 N	21	20 E	11.51
BARKHAMODDEN	78	14 N	20	41 E	11.49
BAROYA	68	21 N	16	07 E	8.24
BASUNDSKJERA	61	56 N	5	00 E	5.20
BATALDFLUENE	61	54 N	4	48 E	5.19
BATNFJORDEN	62	56 N	7	45 E	6.42
BATSFJORDEN	70	41 N	29	51 E	9.24
BEISFJORDEN	68	24 N	17	30 E	8.29
BELLSUND	77	39 N	14	00 E	11.10
BEREFJORDEN	58	16 N	6	28 E	1.33
BERG	65	22 N	12	12 E	7.33
BERGEN	60	24 N	5	19 E	4.31
BERGSHEIA	69	03 N	17	24 E	8.51
BERGSNESET	68	07 N	13	04 E	8.34
BERGSOYA	62	20 N	6	38 E	5.27
BERGSOYHOLMEN	62	58 N	7	53 E	6.42
BERLEVAG	70	52 N	29	06 E	9.23
BERYL OIL FIELD	59	33 N	1	32 E	3.3
BESSFJORDNESET	68	12 N	16	07 E	8.21
BEVERLYSUNDET	80	29 N	19	52 E	11.40
BIGGANES	70	07 N	28	36 E	9.31
BILLEFJORDEN	78	34 N	16	28 E	11.21
BISPEFLUA	69	01 N	17	14 E	8.52
BJERKA	69	24 N	16	08 E	8.43
BJOGNA	63	03 N	7	17 E	6.26
BJORNAFJORDEN	60	06 N	5	25 E	3.53

	Position °	'	°	'	Sec. Para
BJORNHOLMEN	65	37 N	12	18 E	7.38
BJORNOY LIGHT	67	25 N	14	26 E	8.12
BJORNOYA	74	27 N	19	04 E	11.2
BJORNOYNI	60	29 N	4	56 E	4.11
BJORNSUND	62	54 N	6	50 E	6.20
BJORNSUND LIGHT	62	54 N	6	49 E	6.23
BJOROYVAER	64	36 N	10	48 E	7.8
BJUGNSKJAER LIGHT	63	46 N	9	33 E	7.5
BLEIK	69	16 N	15	58 E	8.44
BLEIKJE	59	15 N	5	27 E	2.20
BLOMSTRANDHAMNA	78	59 N	12	06 E	11.27
BODO	67	17 N	14	23 E	7.68
BOFJORDEN	61	07 N	5	20 E	5.32
BOGAVIK	60	16 N	5	35 E	3.59
BOGVIKA	68	14 N	16	05 E	8.21
BOKFJORDEN	69	50 N	30	07 E	9.34
BOKFJORDEN LIGHT	69	53 N	30	11 E	9.34
BOKNAFLAEET	59	16 N	5	26 E	2.21
BOLGSVAET	63	06 N	7	44 E	6.34
BOLGVAGEN	63	05 N	7	47 E	6.35
BOLSOYGALTEN	67	57 N	15	24 E	8.20
BOMLAFJORDEN	59	34 N	5	14 E	3.11
BOMLO	59	40 N	5	12 E	3.13
BONETSKJERET	66	29 N	12	58 E	7.53
BOROYA	64	16 N	10	17 E	7.3
BOROYA	68	34 N	14	57 E	8.41
BOROYFJORDEN	59	40 N	5	17 E	3.20
BOVIKI	59	22 N	5	18 E	3.31
BRANDAL	62	24 N	6	01 E	5.53
BRANDALPYNTEN	78	57 N	11	53 E	11.26
BRANDSHOLMEN	68	05 N	13	39 E	8.6
BRASETHAMMEREN	63	50 N	11	04 E	6.74
BRATTHOLMEN	60	21 N	5	10 E	4.20
BREIDLIA	58	13 N	6	34 E	1.31
BREIDVIK	59	13 N	6	03 E	2.26
BREIFIND	66	15 N	12	48 E	7.49
BREIGTAREN	65	45 N	12	21 E	7.40
BREILIEN	58	13 N	6	34 E	1.31
BREISUNDET	62	27 N	5	59 E	5.49
BREISUNDET	62	27 N	6	00 E	5.29
BREISUNDET	67	54 N	14	43 E	8.17
BREIVIK	70	35 N	22	08 E	9.13
BREKKE	59	17 N	5	16 E	3.7
BREKNEHOLME	58	06 N	6	35 E	1.22
BREKNEHOLMEN LIGHT	58	05 N	6	36 E	1.24
BREMNESET	68	17 N	16	09 E	8.21
BREMNESSKJAER	68	17 N	16	08 E	8.21
BREMSNESFJORDEN	63	06 N	7	41 E	6.32
BRENT OIL FIELD	61	05 N	1	43 E	5.2
BRETTESNES	68	14 N	14	51 E	8.9
BRIELLETARNET	70	58 N	8	42 W	10.10
BROCHOYA	80	27 N	26	03 E	11.43
BRONNOYSUND	65	28 N	12	12 E	7.35
BRONNOYSUNDET	65	27 N	12	10 E	7.34
BROSVIKSATA	61	02 N	5	10 E	5.9
BRUKJEOY	59	02 N	5	40 E	2.10
BRUNESET	66	08 N	12	50 E	7.50
BRUNFLESAN LIGHT	65	03 N	11	17 E	7.28
BRUNTVEIT	60	02 N	5	26 E	3.54
BRUSEN	63	00 N	7	52 E	6.41
BUD	62	54 N	6	55 E	6.21
BUEFJORDEN	61	15 N	4	40 E	5.11
BUGOYFJORDEN	69	56 N	29	36 E	9.32
BUHOLMEN	64	25 N	10	26 E	7.7
BUHOLMEN LIGHT	62	10 N	5	05 E	5.25
BUHOLMRASA LIGHT	64	24 N	10	27 E	7.4
BUKKEGRUNNANE	58	04 N	6	51 E	1.15
BUKKEGRUNNANE	58	06 N	6	49 E	1.16
BUKKETJUVANE	62	11 N	5	04 E	5.25
BUNESET	67	13 N	14	42 E	7.62
BUSHOLMEN	68	07 N	13	14 E	8.35
BUSSESUNDET	70	22 N	31	02 E	9.27
BUVIKA	63	18 N	10	11 E	6.67
BYGDEN	68	50 N	17	08 E	8.49

C

COLESBUKTA	78	08 N	14	57 E	11.17
CRAWFORD OIL FIELD	59	07 N	1	30 E	2.2

D

DANSKOYA	79	41 N	10	55 E	11.31
DICKSONFJORDEN	78	42 N	15	20 E	11.22
DIGERFLESA LIGHT	66	58 N	13	38 E	7.58
DIGERMULEN	64	47 N	11	43 E	7.17
DINGENES	61	02 N	5	02 E	5.10
DJONNO	60	28 N	6	45 E	3.47
DJUPTARSKJERET	64	58 N	11	22 E	7.28
DOLMSUND LIGHT	65	00 N	11	39 E	7.31
DOLMSUNDET	65	00 N	11	37 E	7.31
DONNA	66	06 N	12	33 E	7.47
DRAG	68	03 N	16	05 E	8.21
DRAGJASKJAERFLU LIGHT	61	39 N	4	59 E	5.22
DRIVSUND	59	10 N	5	25 E	2.9
DRONENHOLMEN LIGHT	62	38 N	6	31 E	6.16
DUNOYANE	77	04 N	15	00 E	11.9
DUSAVIK	59	00 N	5	40 E	2.11
DUVEFJORDEN	80	17 N	23	30 E	11.42
DYRNESET	59	37 N	5	10 E	3.13
DYROY	58	28 N	5	52 E	1.47
DYROY	59	45 N	5	11 E	3.16
DYSJALANDSVAG	59	05 N	5	40 E	2.10

E

EBELTOFHAMNA	79	09 N	11	39 E	11.29
EDGEOYA	77	45 N	22	30 E	11.50
EGDEHOLMEN	58	17 N	6	23 E	1.34
EGERSUND	58	27 N	6	00 E	1.44
EGGLOYA	68	11 N	15	38 E	8.20
EGGOYA	70	58 N	8	24 W	10.6
EGGUM	68	19 N	13	41 E	8.36
EIDEMBUKTA	78	21 N	12	45 E	11.24
EIDFJORD	60	28 N	7	04 E	3.48
EIDFJORDEN	60	25 N	6	43 E	3.47
EIDSFJORDEN	60	43 N	5	47 E	4.33
EIDSFJORDEN	68	40 N	14	53 E	8.41
EIGEROY	58	27 N	5	58 E	1.41
EIGEROY LIGHT	58	26 N	5	52 E	1.46
EINARSNESET	58	03 N	6	47 E	1.12
EITLANDSKJAERA	58	03 N	6	59 E	1.9
EKREMSHOLMANE	63	00 N	8	02 E	6.42
ELDOYANE	59	45 N	5	30 E	3.18
ELTRANESET	62	26 N	6	03 E	5.53
ENGELVAER	67	53 N	14	34 E	8.3
ENGENES	68	56 N	17	07 E	8.51
ENGESUNDSLEID	59	52 N	5	17 E	3.20
ERKNA LIGHT	62	33 N	5	56 E	6.6
ERSFJORDEN	59	19 N	6	08 E	2.37
ESPE	60	12 N	6	36 E	3.51
ESPENES LIGHT	63	21 N	8	43 E	6.62
ESPEVAER	59	35 N	5	09 E	3.13

F

FAIR HAVEN,	79	49 N	11	29 E	11.35
FALDET	68	12 N	13	15 E	8.36
FALKEIDFLAEET	59	14 N	5	31 E	2.33
FALSKENESET	64	50 N	11	39 E	7.18
FAUSKANE	62	34 N	5	45 E	6.5
FAUSKE	67	16 N	15	24 E	7.62
FEDJE	60	46 N	4	43 E	5.3
FEDJEFJORDEN	60	45 N	4	47 E	4.23
FEDJEOSEN	60	44 N	4	44 E	4.22
FEISTEIN	58	50 N	5	30 E	2.4
FEOY	59	23 N	5	10 E	3.8
FERKINGSTADOYANE	59	14 N	5	04 E	3.4
FERKINGSTADVAG	59	14 N	5	11 E	3.5
FIBORGTANGEN	63	43 N	11	09 E	6.72
FINKONNA	66	07 N	12	44 E	7.50
FINN MALMGRENFJORDEN	80	17 N	24	31 E	11.43
FINNKONA	66	07 N	12	44 E	7.50
FINNOYFJORDEN	59	10 N	5	54 E	2.26
FINNSNES	69	14 N	17	58 E	8.52
FINNSNESRENNA	69	14 N	17	58 E	8.53
FINNSNESSKJAER	69	14 N	17	58 E	8.53
FINNVAER LIGHT	64	04 N	9	07 E	6.53
FINSKJERSLUA	64	46 N	11	00 E	7.20
FISKANESET	58	54 N	5	45 E	2.14

	Position °	'	°	'	Sec. Para
FISKHOLMEN	61	46 N	4	56 E	5.22
FISTERFJORDEN	59	09 N	6	00 E	2.27
FJELLSPOLLEN	60	18 N	5	03 E	4.8
FJORDAFLU	60	01 N	5	07 E	3.24
FJORDGRUNNSKJERET	63	48 N	11	19 E	6.73
FLAGSUNDET	67	55 N	15	00 E	8.18
FLAMA	58	04 N	6	50 E	1.18
FLATEGRUNNANE	61	35 N	4	50 E	5.15
FLATFLESA LIGHT	62	50 N	6	41 E	6.15
FLATHOLME	58	55 N	5	34 E	2.3
FLATHOLMEN	59	56 N	5	51 E	3.37
FLATOY	67	55 N	14	46 E	8.3
FLATOYFLU	61	19 N	5	03 E	5.37
FLATSTADBUKTA	58	05 N	7	07 E	1.6
FLAVAER LIGHT	62	19 N	5	35 E	5.58
FLEINVAER	67	10 N	13	45 E	7.60
FLEKKEFJORDEN	58	18 N	6	40 E	1.29
FLESA	62	52 N	8	35 E	6.47
FLESA LIGHT	63	39 N	9	14 E	6.59
FLESENE	62	17 N	5	27 E	5.59
FLESSA	64	06 N	9	54 E	6.57
FLOHOLMAN	66	10 N	11	42 E	7.47
FLOHOLMAN	67	01 N	13	42 E	7.59
FLORO	61	36 N	5	02 E	5.16
FLORO LIGHT	61	36 N	5	01 E	5.42
FLOTTRA	64	40 N	11	04 E	7.17
FLOVIKA	68	15 N	14	57 E	8.10
FLUSTEIN	59	08 N	5	39 E	2.25
FOGNAFJORDEN	59	07 N	5	56 E	2.27
FOLDOY	59	20 N	5	58 E	2.24
FOLLAFOSS	63	59 N	11	07 E	6.75
FOLVAGFLUENE	61	25 N	4	58 E	5.40
FORDESFJORDEN	59	20 N	5	23 E	2.32
FORDESPOLLEN	59	39 N	5	25 E	3.19
FORHJELMO	60	40 N	4	48 E	4.15
FORLANDSUNDET	78	30 N	12	40 E	11.24
FOROYA	68	01 N	15	07 E	8.19
FOROYA	68	54 N	17	41 E	8.50
FOSNAHOLMEN	59	18 N	5	23 E	2.32
FOSSE	60	16 N	6	02 E	3.42
FOYNFJORDEN	59	21 N	5	11 E	3.8
FREEMANSUNDET	78	14 N	21	37 E	11.51
FREIFJORDEN	63	03 N	7	55 E	6.39
FREIKOLLEN	63	03 N	7	46 E	6.25
FREINES LIGHT	63	01 N	7	49 E	6.39
FRIARFJORDEN	70	28 N	26	57 E	9.20
FRIDTJOVHAMNA	77	46 N	14	39 E	11.12
FRIGG GAS FIELD	59	53 N	2	04 E	3.3
FRITHJOFHAMN	77	46 N	14	39 E	11.12
FROHOLMAN	69	04 N	16	19 E	8.46
FROM ARSUNDFJORDEN	63	07 N	8	00 E	6.45
FROSKJERET	63	25 N	10	07 E	6.66
FROYFJORDEN	63	40 N	8	40 E	6.55
FRUHOLMEN LIGHT	71	06 N	24	00 E	9.13
FUGLEFJORDEN	79	47 N	11	28 E	11.35
FUGLEHUKEN	78	53 N	10	30 E	11.23
FUGLEN	63	03 N	7	09 E	6.26
FUGLESANGEN	66	59 N	13	38 E	7.59
FUGLOYA	67	04 N	13	50 E	7.46
FUGLOYA	70	16 N	20	15 E	9.4
FUGLOYA LIGHT	67	04 N	13	52 E	7.59
FUGLOYHAMN	60	10 N	5	01 E	4.5
FURUHOLMEN	58	16 N	6	28 E	1.33
FUSAFJORDEN	60	10 N	5	32 E	3.57
FYKSESUNDET	60	25 N	6	15 E	3.45

G

	Position °	'	°	'	Sec. Para
GALTAHOLMEN	59	09 N	5	37 E	2.25
GALTTAREN	65	09 N	10	41 E	7.25
GANDAFJORDEN	58	55 N	5	46 E	2.14
GAPAFJORDEN	59	15 N	5	55 E	2.29
GAPET	68	09 N	13	28 E	8.5
GARSUNDSFJORDEN	59	13 N	6	00 E	2.26
GARTEN	63	39 N	9	32 E	6.64
GASAHOLME	59	15 N	5	32 E	2.33
GASHOLMEN	61	55 N	5	06 E	5.45
GASVAER	66	53 N	13	29 E	7.58
GAUKVAEROY	68	37 N	14	21 E	8.40
GAUPHOLMEN	60	22 N	5	42 E	3.60
GAUSNESET	62	28 N	6	46 E	5.54
GAVLFJORDEN	68	56 N	15	22 E	8.39
GEIRANGER	62	06 N	7	12 E	5.56
GEITUNGANE	59	08 N	5	15 E	2.8
GEITUNGEN	59	08 N	5	15 E	2.22
GIBOSTAD	69	21 N	18	05 E	8.54
GILDRENESET LIGHT	62	30 N	6	11 E	6.9
GIMSOYSTRAUMEN	68	16 N	14	15 E	8.7
GIMSOYSTRAUMEN	68	20 N	14	19 E	8.36
GINEVRABOTNEN	78	37 N	20	20 E	11.49
GIPLINGOYA	63	54 N	11	01 E	6.74
GISKE	62	30 N	6	03 E	6.6
GISKESUNDET	62	30 N	6	01 E	6.4
GISLOYA	68	57 N	15	16 E	8.39
GISUNDET	69	18 N	17	58 E	8.53
GJELBUNESET	67	11 N	15	24 E	7.62
GJEMNESSUNDET	62	58 N	7	48 E	6.41
GJERDINGGALTEN	64	56 N	11	28 E	7.22
GJERMUNDSHAMN	60	04 N	5	55 E	3.40
GJESLINGENE LIGHT	64	44 N	10	51 E	7.20
GJESLINGSKJER LIGHT	63	15 N	7	48 E	6.31
GLOMFJORD	66	49 N	13	59 E	7.56
GLOMSTADHOLMEN LIGHT	63	19 N	8	38 E	6.62
GOLDNES LIGHT	62	22 N	5	34 E	5.27
GOLTASTEINEN	60	13 N	4	58 E	4.7
GOTEBERGHAMAREN	61	57 N	5	08 E	5.23
GRANDEVIKA	63	41 N	9	29 E	7.2
GRANEBAEN	61	23 N	5	01 E	5.37
GRANVINFJORDEN	60	28 N	6	37 E	3.46
GRASOYANE LIGHT	62	26 N	5	46 E	5.28
GRATANGEN	68	45 N	17	18 E	8.49
GRAVODDEN KOBBEBUKTA	74	31 N	18	54 E	11.4
GREIPSTAD	69	31 N	18	13 E	8.56
GRIMESKJARET LIGHT	60	51 N	4	45 E	5.4
GRIMO	60	23 N	6	39 E	3.51
GRIMSTADFJORDEN	60	19 N	5	14 E	4.18
GRIP LIGHT	63	14 N	7	37 E	6.30
GRIPNESVAG	60	04 N	5	40 E	3.53
GRONESTADVAG	59	12 N	5	23 E	3.28
GRONFJORDEN	78	03 N	14	11 E	11.15
GRONHOLMEN	61	02 N	4	53 E	5.9
GRONHOLMEN LIGHT	63	41 N	9	09 E	6.59
GRONNA	67	01 N	13	10 E	7.57
GRONNA	67	01 N	13	11 E	7.47
GRONSFJORDEN	58	02 N	7	02 E	1.5
GRONSTABBEN	65	16 N	11	56 E	7.32
GROTHOLM	58	02 N	6	58 E	1.8
GROTOY	67	50 N	14	46 E	8.17
GROTOYA	70	10 N	18	52 E	9.4
GROTOYSUNDET	67	50 N	14	46 E	8.17
GROVFJORDEN	68	42 N	17	05 E	8.49
GRUNNREISASKJAER	69	11 N	18	02 E	8.52
GRUTLEFJORDEN	59	38 N	5	10 E	3.14
GRUTLEFJORDEN	59	40 N	5	10 E	3.15
GULGOFJORDEN	70	41 N	28	36 E	9.22
GULLFAKS OIL FIELD	61	12 N	2	12 E	5.2
GUNNARSKJAERSHALET	59	33 N	5	08 E	3.11
GUNNARSKJERSHOLET	59	33 N	5	08 E	3.11
GURSKOYA	62	15 N	5	40 E	5.27
GUTVIKFJELLET	65	08 N	11	56 E	7.29
GYLTEFJORDEN	64	39 N	11	22 E	7.16

H

	Position °	'	°	'	Sec. Para
HADSELOYA	68	33 N	14	49 E	8.37
HADYRET	58	20 N	6	10 E	1.39
HAESHOLMAN	68	14 N	13	26 E	8.36
HAJA	69	44 N	18	05 E	8.55
HALHOLMEN LIGHT	65	32 N	12	05 E	7.37
HALSEFJORDEN	63	04 N	8	12 E	6.46
HALSFJELL	64	19 N	10	37 E	7.7
HALSNE	59	11 N	5	57 E	2.26
HALTEN LIGHT	64	10 N	9	25 E	6.53
HALVMANEOYA	77	16 N	23	10 E	11.50
HAMARHAUGFLU	60	00 N	5	44 E	3.36
HAMMERFEST	70	40 N	23	40 E	9.6
HAMMERFEST	70	41 N	23	35 E	9.7
HAMMERSNES	60	33 N	5	20 E	4.32
HAMNESHOLMEN	68	25 N	16	35 E	8.24
HAMNVIK	68	32 N	17	34 E	8.29
HANASKJAER	59	44 N	5	10 E	3.16
HANSNESET	61	07 N	5	06 E	5.10

	Position °	'	°	'	Sec. Para
HAREID	62	22 N	6	02 E	5.53
HAROYSUND	62	54 N	6	58 E	6.21
HARSTAD	68	48 N	16	33 E	8.33
HARTVIKGRUNNEN LIGHT	67	49 N	14	44 E	8.17
HASKALLEN	61	18 N	4	57 E	5.36
HASTEIN	58	57 N	5	26 E	2.3
HASTEINFJORDEN	59	00 N	5	30 E	2.3
HATBOEN	66	48 N	13	21 E	7.56
HAUGBERGET	63	26 N	10	41 E	6.69
HAUGESUND	59	25 N	5	16 E	3.10
HAUGNESET	62	37 N	6	20 E	6.10
HAUGNESET LIGHT	62	37 N	6	20 E	6.10
HAUGSNESET	65	53 N	12	24 E	7.43
HAUKEDALSHOLMEN LIGHT	61	52 N	5	16 E	5.22
HAUKOMKIN LIGHT	63	09 N	8	16 E	6.48
HAUKOYA	68	12 N	16	24 E	8.22
HAUSEN	67	17 N	14	12 E	8.12
HAUSVIGODDEN	58	03 N	6	59 E	1.7
HAVBOEN	68	30 N	14	28 E	8.37
HAVEROY	60	24 N	4	56 E	4.8
HAVFRUSKALLEN	62	03 N	4	51 E	5.20
HAVIK	58	04 N	6	44 E	1.21
HAVSTEINEN LIGHT	62	29 N	6	04 E	5.61
HEGGNESET	62	43 N	6	56 E	6.20
HEIKENESET	69	48 N	30	44 E	9.37
HEIMDAL GAS FIELD	59	35 N	2	15 E	3.3
HEISSAFJORDEN	62	27 N	6	08 E	5.60
HEKKINGEN	69	36 N	17	50 E	8.56
HELBERGOTAREN	65	20 N	12	03 E	7.32
HELGELANDSFLESA	65	13 N	11	54 E	7.31
HELGELANDSFLESA LIGHT	65	13 N	11	53 E	7.29
HELGESTONES LIGHT	62	36 N	7	22 E	6.18
HELKLAKKEN	63	09 N	7	38 E	6.29
HELLA	62	41 N	5	59 E	6.10
HELLANDNESET	68	02 N	16	09 E	8.22
HELLESYLT	62	05 N	6	53 E	5.56
HELLEVIK	62	38 N	6	10 E	6.10
HELLIGVAER	67	25 N	13	55 E	8.3
HELLOYSKJERET	67	37 N	14	47 E	8.14
HELMOYA	65	12 N	11	00 E	7.27
HELNES LIGHT	71	04 N	26	14 E	9.16
HEMMINGFJORDEN	69	12 N	18	04 E	8.52
HEMNESBERGET	66	13 N	13	36 E	7.51
HENGSOY	58	53 N	5	26 E	2.4
HENNINGSVAER	68	09 N	14	13 E	8.7
HERAND	60	20 N	6	23 E	3.43
HERDLEFJORDEN	60	32 N	5	05 E	4.28
HERDLESUND	60	4 N	4	58 E	4.26
HERJANGSFJORDEN	68	30 N	17	27 E	8.29
HEROYSUND	59	55 N	5	47 E	3.35
HERREHOLMEN	58	02 N	6	58 E	1.7
HESTEBAEN	68	56 N	16	16 E	8.47
HESTOYFLUA	63	43 N	11	04 E	6.72
HESTSKJER LIGHT	63	05 N	7	30 E	6.25
HETSKJER LIGHT	63	05 N	7	30 E	6.28
HEVNSKJELOVA	63	29 N	9	08 E	6.64
HIDLEFJORDEN	59	04 N	5	49 E	2.17
HIDSNESET LIGHT	62	17 N	5	33 E	5.59
HILBAANE	63	12 N	7	44 E	6.30
HILBAREN	63	12 N	7	44 E	6.30
HILLE KJEOY	59	02 N	5	48 E	2.11
HILLEROEN	64	46 N	10	25 E	7.7
HINLOPENSTRETET	79	30 N	19	20 E	11.44
HISSFJORDEN	60	12 N	6	03 E	3.42
HJARTOYA	67	39 N	15	05 E	8.14
HJELMEHOLSEN	60	25 N	4	56 E	4.10
HJELMSOYA	71	04 N	24	43 E	9.14
HJELTEFFJORDEN	60	35 N	4	55 E	4.23
HJELTEFJORDEN	60	35 N	4	55 E	4.23
HJELTENESET	61	51 N	5	47 E	5.47
HJORINGNES LIGHT	62	21 N	6	07 E	5.53
HJORUNGNESET LIGHT	62	21 N	6	07 E	5.53
HODDOYA	64	28 N	11	14 E	7.11
HOGBRAKEN	65	24 N	11	02 E	7.25
HOGGSTEINEN LIGHT	62	28 N	6	02 E	5.61
HOGSFJORDEN	58	56 N	6	00 E	2.16
HOGSNES LIGHT	62	50 N	6	58 E	6.20
HOKSTAREN	65	24 N	11	58 E	7.36
HOL	68	33 N	16	24 E	8.31
HOLA	68	14 N	14	39 E	8.10
HOLDOYA	68	27 N	14	54 E	8.37
HOLEN	68	14 N	14	39 E	8.10
HOLLENDARANE	61	41 N	4	56 E	5.22
HOLMEFJORDEN	60	17 N	5	40 E	3.59
HOLMEFLU	59	57 N	5	58 E	3.37
HOLMENGRA	60	51 N	4	39 E	5.4
HOLMENGRAFJORDEN	69	51 N	30	19 E	9.36
HOLMENVAER	69	18 N	16	45 E	8.46
HOLSOYANE	59	39 N	5	07 E	3.14
HOLVIKTAREN	64	36 N	11	18 E	7.15
HOMENGRA	60	51 N	4	37 E	5.49
HOMMELVIK	63	25 N	10	48 E	6.69
HOMNNESET	70	45 N	25	42 E	9.19
HONNINGSVAG	70	59 N	26	00 E	9.15
HOOYA	63	54 N	11	05 E	6.75
HOPEN	76	35 N	25	10 E	11.52
HORGEFJORDEN	59	01 N	5	50 E	2.16
HORGEFJORDEN	60	06 N	5	05 E	3.26
HORNBAEN	64	59 N	11	35 E	7.24
HORNELEN	61	51 N	5	14 E	5.18
HORNELSFLUA	61	52 N	5	16 E	5.48
HORNNESET	68	10 N	13	20 E	8.35
HORNSNESET	65	35 N	12	18 E	7.37
HORNSTAREN	65	35 N	12	19 E	7.38
HORR FARM	58	33 N	5	40 E	1.51
HORTAFJORDEN	65	10 N	11	30 E	7.29
HOVDEBUKTA	58	04 N	7	06 E	1.6
HOVDENES LIGHT	62	33 N	7	31 E	6.18
HOVDENESET LIGHT	61	56 N	5	01 E	5.43
HOVEDEHAMMAREN LIGHT	63	12 N	8	51 E	6.50
HOVEN	68	21 N	14	06 E	8.36
HOYANGER	61	13 N	6	04 E	5.32
HOYLANDSNESET	59	07 N	5	59 E	2.28
HUGLNESET	66	10 N	12	51 E	7.53
HULDRA GAS FIELD	60	50 N	2	40 E	4.2
HULLOYNESET	68	03 N	16	11 E	8.23
HUMULRASA	64	57 N	11	23 E	7.23
HUMULRASA LIGHT	64	55 N	11	22 E	7.22
HUNDERAVAG	59	20 N	5	49 E	2.23
HUNDHOLMEN	68	10 N	13	27 E	8.36
HUNDVAKOSEN	60	07 N	5	12 E	3.25
HUSAVAGEN	60	00 N	5	48 E	3.38
HUSEVIKFLUA	62	46 N	6	32 E	6.15
HUSNES	59	52 N	5	46 E	3.34
HUSVAERFJORDEN	65	58 N	12	05 E	7.30
HUSVAERSUNDET	65	56 N	12	12 E	7.30
HYENESE	61	51 N	5	59 E	5.47
HYLSFJORDEN	59	31 N	6	16 E	2.37

I

	Position °	'	°	'	Sec. Para
IDSEFJORDEN	59	01 N	5	58 E	2.17
IMARSUNDET	63	12 N	8	18 E	6.49
INDRE FOLDFJORDEN	64	53 N	11	44 E	7.18
INDRE HAROY LIGHT	62	53 N	6	56 E	6.20
INDRE HAUGOYTAREN	64	56 N	11	22 E	7.23
INDRE SKARBERGNESET	68	13 N	16	12 E	8.22
INDRE SOLVAERREVET	66	24 N	12	41 E	7.63
INDROY	60	09 N	5	25 E	3.54
INGELSFJORDEN	68	29 N	15	14 E	8.37
INGOYA	71	04 N	24	04 E	9.13
INNHOLMEN LIGHT	62	38 N	6	07 E	6.9
INNVIK	61	51 N	6	37 E	5.47
ISFJORDEN	78	18 N	15	00 E	11.15

J

	Position °	'	°	'	Sec. Para
JAERENS REV	58	45 N	5	30 E	1.51
JAEVA	68	32 N	15	04 E	8.37
JAKOBSELV	69	47 N	30	50 E	9.37
JARSTEINEN	59	09 N	5	11 E	2.8
JASUNDET	58	04 N	7	09 E	1.5
JELSAFJORDEN	59	19 N	6	02 E	2.35
JELSAVAG	59	20 N	6	02 E	2.35
JENDEMSFJELLET	62	48 N	7	03 E	6.8
JERVIKA LIGHT	64	38 N	11	09 E	7.15
JONDAL	60	16 N	6	15 E	3.42
JORPELAND	59	01 N	6	02 E	2.17
JOSENFJORDEN	59	15 N	6	10 E	2.36
JOSSINGFJORDEN	58	19 N	6	20 E	1.35
JUKLEBAEN	62	22 N	5	24 E	5.27
JULEDAGENE LIGHT	65	51 N	12	23 E	7.43

	Position °	'	°	'	Sec. Para
JULHOLMEN LIGHT	62	44 N	6	58 E	6.20

K

	Position °	'	°	'	Sec. Para
KALSHOLMEN LIGHT	66	55 N	13	06 E	7.64
KALSOYANE	60	19 N	4	56 E	4.9
KALVOYA	68	33 N	16	27 E	8.31
KAMOYFJORDEN	71	04 N	26	04 E	9.14
KAPP BULL	74	21 N	19	05 E	11.3
KAPP DUNER	74	29 N	18	46 E	11.5
KAPP LINNE	78	04 N	13	37 E	11.13
KAPP NATHORST	78	47 N	15	25 E	11.22
KAPP RUDSEN	70	56 N	8	53 W	10.10
KARHOLMEN	65	55 N	12	23 E	7.43
KARISKJER LIGHT	61	55 N	5	07 E	5.49
KARL XII OYANE,	80	39 N	25	03 E	11.43
KARLEBOTN	70	07 N	28	45 E	9.31
KARLSOYFJORDEN	67	31 N	14	40 E	8.13
KARSTO GAS TERMINAL	59	16 N	5	30 E	2.22
KARTVEIT	60	23 N	5	00 E	4.9
KAURA	64	14 N	10	08 E	7.3
KIKUTODDEN	76	35 N	17	00 E	11.48
KINN	61	34 N	4	46 E	5.17
KINSARVIKBUKTA	60	23 N	6	43 E	3.51
KIRKEHAMN	58	14 N	6	32 E	1.32
KIRKENES	69	44 N	30	03 E	9.35
KIRKGRUNNEN	67	15 N	14	14 E	7.67
KIRKNESTANGEN LIGHT	63	55 N	11	12 E	6.75
KJEFALLET	63	16 N	7	40 E	6.30
KJEHOLMEN LIGHT	62	42 N	6	15 E	6.11
KJELDEBOTN	68	25 N	16	41 E	8.26
KJENGBAEN	67	29 N	14	01 E	8.3
KJEOY LIGHT	64	48 N	11	35 E	7.18
KJEOYA	68	52 N	16	34 E	8.47
KJEPSOY	58	01 N	7	00 E	1.7
KJERGRONESET	62	58 N	8	28 E	6.48
KJERRINGA	62	11 N	5	08 E	5.18
KJERRINGHOLMEN	61	24 N	4	58 E	5.39
KJERRINGNESET	69	19 N	16	55 E	8.55
KJERRINGOY	67	31 N	14	46 E	8.13
KJERRINGSKJERET	66	20 N	12	53 E	7.53
KJERRKLUBBEN	68	02 N	16	19 E	8.23
KJERRVIKA	68	01 N	16	20 E	8.23
KJOFJORDEN	69	50 N	29	47 E	9.33
KJOLIBAEN	67	45 N	14	23 E	8.3
KJOLLEFJORDEN	70	57 N	27	20 E	9.20
KJOLNES LIGHT	70	51 N	29	14 E	9.23
KJOLVA	69	36 N	17	30 E	8.55
KJOPMANNEN	67	39 N	14	43 E	8.16
KJOPSVIK	68	06 N	16	21 E	8.23
KLAKKEN	62	57 N	6	43 E	6.22
KLAKKEN	64	40 N	10	27 E	7.8
KLAKKSBROREN LIGHT	63	21 N	8	25 E	6.63
KLAUVA LIGHT	61	07 N	5	02 E	5.34
KLAUVA LIGHT	69	11 N	17	58 E	8.52
KLEVEBOEN	62	16 N	5	30 E	5.57
KLOKKARVIK	60	13 N	5	10 E	4.17
KLOVNINGEN	61	56 N	4	57 E	5.22
KLUBBEN LIGHT	62	19 N	5	37 E	5.59
KNAPHOLMENE	64	36 N	11	02 E	7.9
KNAPPEN	62	38 N	6	02 E	6.7
KNARRHOLME	59	13 N	5	28 E	2.19
KNUTSTAREN	65	26 N	11	55 E	7.36
KOBBALEIDA	60	19 N	5	09 E	4.19
KOBBHOLMFJORDEN	69	47 N	30	44 E	9.37
KOKODDEN	58	14 N	6	39 E	1.26
KOLBEINSFLU	62	58 N	6	53 E	6.26
KOLTREPYNTEN	59	19 N	5	20 E	3.31
KONG KARLS LAND	78	50 N	28	10 E	11.53
KONGSFJORDEN	70	45 N	29	24 E	9.23
KONGSFJORDEN	78	57 N	12	00 E	11.26
KONGSMOEN	64	53 N	12	26 E	7.19
KONGSOYA	78	54 N	28	13 E	11.54
KONGSVIKTIND	68	35 N	16	16 E	8.31
KOPERVIK	59	17 N	5	19 E	3.29
KORNSTADFJORDEN	62	57 N	7	25 E	6.38
KORSNES	68	15 N	16	04 E	8.21
KORSNESODDEN LIGHT	63	35 N	10	50 E	6.70
KRAAKENES	62	02 N	4	59 E	5.17
KRABBEN LIGHT	62	52 N	6	43 E	6.23
KRAKA	59	09 N	5	25 E	2.9
KRAKA LIGHT	63	01 N	7	18 E	6.27
KRAKENES	62	02 N	4	59 E	5.17
KRAKHOLMEN LIGHT	62	59 N	7	47 E	6.41
KRAKVAGFJORDEN	63	40 N	9	15 E	6.58
KRIGSBORNTAREN	64	54 N	11	20 E	7.22
KRISTIANSUND	63	07 N	7	44 E	6.37
KRISTIANSUNDSLEIA	63	09 N	7	42 E	6.24
KROKSHAVN	62	41 N	8	32 E	6.44
KROKVIK	64	31 N	11	04 E	7.10
KROPPEN	63	03 N	6	59 E	6.26
KROSSFJORDEN	79	09 N	11	46 E	11.28
KROSSHAVNSUND	60	09 N	5	12 E	3.25
KULESEIDVAG	59	44 N	5	14 E	3.16
KUNNA	66	57 N	13	31 E	7.47
KUNNA	68	00 N	13	14 E	8.5
KVAEFJORDEN	68	50 N	16	00 E	8.47
KVAEREKNAPP	60	59 N	4	42 E	5.9
KVALBAKSKJER LIGHT	64	52 N	11	41 E	7.19
KVALHOLMEN LIGHT	66	25 N	12	28 E	7.63
KVALOSEN	60	34 N	4	50 E	4.13
KVALTYVAN	69	39 N	17	45 E	8.57
KVALVAGHOLMEN	62	59 N	8	00 E	6.42
KVALVAGHOLMEN LIGHT	62	59 N	8	00 E	6.42
KVANFLESSVEET	65	58 N	12	03 E	7.30
KVANHOLMEN	67	27 N	14	40 E	8.13
KVANHOVDEN LIGHT	61	42 N	4	50 E	5.17
KVEDFJORDBUKTA	79	25 N	10	55 E	11.30
KVELDSUND	58	04 N	6	54 E	1.19
KVERNESFJORDEN	62	57 N	7	37 E	6.38
KVERVEN	63	07 N	7	40 E	6.32
KVINA	66	28 N	13	10 E	7.53
KVISVIKHOLMANE	63	03 N	7	57 E	6.40
KVITBERGET	67	14 N	14	36 E	7.61
KVITHOLM	59	23 N	6	03 E	2.34
KVITHOLMEN LIGHT	63	01 N	7	14 E	6.25
KVITNES LIGHT	63	08 N	7	48 E	6.36
KVITOYA	80	09 N	32	38 E	11.56
KVITSOYA	59	04 N	5	25 E	2.7
KVITSOYA BDOADCAST STATION	59	04 N	5	24 E	2.7
KYA	63	46 N	8	19 E	6.56
KYA	64	28 N	10	13 E	7.7
KYSNES	60	12 N	6	07 E	3.42

L

	Position °	'	°	'	Sec. Para
LADY FRANKLINFJORDEN	80	09 N	19	11 E	11.39
LAEDERSHOLME	58	29 N	5	50 E	1.48
LAKSELY	67	22 N	15	36 E	8.15
LAKSSHOLMBAEN	58	56 N	5	34 E	2.5
LAMANNSKJERET	66	36 N	13	05 E	7.54
LAMHOLME	59	20 N	5	12 E	3.7
LAMHOLME	59	20 N	5	45 E	2.23
LANDEGODE	67	24 N	14	20 E	7.46
LANDEGODE	67	25 N	14	20 E	8.12
LANDEGODE LIGHT	67	27 N	14	23 E	8.12
LANGENESET	59	31 N	5	14 E	3.9
LANGESKALLEN	67	57 N	12	43 E	8.35
LANGESKJERET	62	32 N	5	52 E	6.5
LANGESTRAUMEN	59	41 N	5	15 E	3.20
LANGGRUNNEN	68	42 N	16	38 E	8.32
LANGGRUNNODDEN	80	09 N	17	46 E	11.39
LANGHOLM	58	02 N	6	58 E	1.7
LANGHOLMEN	65	49 N	12	27 E	7.41
LANGKVITNESET	68	38 N	16	35 E	8.31
LANGNESET	69	41 N	18	54 E	8.61
LANGODBAEN	65	58 N	12	07 E	7.30
LANGOY	58	04 N	6	52 E	1.12
LANGOYSUND	60	37 N	4	48 E	4.15
LANGOYSUNDET	68	35 N	14	55 E	8.41
LANGRO LIGHT	64	29 N	10	30 E	7.4
LANGSTEIN	63	33 N	10	54 E	6.70
LANGSUNDET	65	14 N	11	58 E	7.31
LAPONIAHALVOYA	80	25 N	19	50 E	11.40
LATREVIKKLUBBEN	60	04 N	5	59 E	3.39
LAUKHAMARSUND	59	52 N	5	36 E	3.33
LAUVOY	63	56 N	9	56 E	7.5
LAUVOYFJORDEN	63	00 N	7	20 E	6.38
LAUVOYFJORDEN	64	35 N	11	20 E	7.15
LAUVOYTAREN	64	33 N	11	20 E	7.15
LAVANGEN	68	47 N	17	37 E	8.50
LEIRFJORDEN	67	32 N	15	37 E	8.15

	Position °	'	°	'	Sec. Para
LEIRVIK	59	47 N	5	31 E	3.19
LEITNES LIGHT	63	02 N	7	41 E	6.39
LEKAFJORDEN	65	05 N	11	47 E	7.31
LEPSOYA	62	37 N	6	11 E	6.7
LEPSOYKLOVNINGEN	62	38 N	6	03 E	6.7
LEPSOYREVET	62	36 N	6	15 E	6.10
LEROYOSEN	60	14 N	5	10 E	4.17
LEVANGER	63	45 N	11	18 E	6.72
LEVRA LIGHT	64	32 N	11	28 E	7.14
LILAND	68	29 N	16	53 E	8.27
LILAND LIGHT	68	28 N	16	55 E	8.26
LILANDSGRUNNEN	68	27 N	16	50 E	8.25
LILLE EKKEROYA	70	05 N	30	14 E	9.29
LILLE LAUGAROY	60	09 N	5	15 E	3.27
LILLE MOLLA	68	12 N	14	46 E	8.9
LILLEOYA LIGHT	63	20 N	8	44 E	6.62
LILLESVEET	66	06 N	11	31 E	7.47
LILLETAREN	65	10 N	11	50 E	7.29
LILLIEHOOKFJORDEN	79	15 N	11	40 E	11.29
LINDESNES	57	59 N	7	03 E	1.4
LINDHOLMEN	58	03 N	6	52 E	1.14
LINDOY	59	17 N	5	42 E	2.23
LINESFJELL	64	01 N	9	54 E	6.52
LINESOYA	64	01 N	9	54 E	7.6
LINFLUA	63	06 N	7	44 E	6.34
LISTA	58	07 N	6	34 E	1.22
LISTAFJORDEN	58	11 N	6	37 E	1.24
LITLE BALLANGEN	68	20 N	16	51 E	8.26
LITLE EKKEROYA	70	05 N	30	14 E	9.29
LITLE SKJELBREIDA	63	10 N	7	10 E	6.29
LITLEGRUNNEN	63	28 N	10	46 E	6.69
LITLOYA	68	35 N	14	19 E	8.40
LODINGEN	68	25 N	16	00 E	8.30
LOFOTODDEN	67	50 N	12	50 E	8.34
LOFOTODDEN	67	50 N	12	51 E	8.4
LOKKAREN	64	30 N	11	26 E	7.14
LOKKSUNDET	60	03 N	5	43 E	3.36
LOMFJORDEN	79	36 N	17	54 E	11.44
LONEVAGEN	60	33 N	5	27 E	4.34
LONGYEARBYEN	78	14 N	15	39 E	11.19
LONTARANE	63	11 N	7	31 E	6.29
LOPPHAVET	70	30 N	21	00 E	9.5
LOPSFELLET	67	19 N	14	29 E	8.12
LOPSHOLMEN	67	20 N	14	24 E	8.12
LOSBATEN	70	56 N	8	40 W	10.5
LOVOFJORDEN	63	00 N	7	20 E	6.38
LOVUNDEN	66	22 N	12	20 E	7.46
LUNDANES	62	07 N	6	58 E	5.56
LUNDENES	63	00 N	7	44 E	6.39
LUNDEVIKEN	58	26 N	5	55 E	1.45
LUNDSNESET	63	20 N	10	02 E	6.67
LUNEKEVIKA	74	28 N	18	47 E	11.5
LUREF JORDEN	60	42 N	5	07 E	4.30
LYGREPOLLEN	60	04 N	5	46 E	3.56
LYKLINGFJORDEN	59	42 N	5	11 E	3.15
LYNGHOLMEN	64	35 N	11	24 E	7.15
LYNGSFJORDEN	69	40 N	20	25 E	9.10
LYNGVAER	65	16 N	11	58 E	7.32
LYNGVAERFJORDEN	65	15 N	12	05 E	7.33
LYNGVAERGALTEN LIGHT	65	16 N	12	03 E	7.33
LYRODDANE	60	10 N	4	59 E	4.5
LYSEFJORDEN	58	54 N	6	05 E	2.30
LYSEFJORDEN	60	12 N	5	19 E	4.16

M

MADSOYGALTEN	65	02 N	11	41 E	7.29
MADSOYGALTEN LIGHT	65	03 N	11	41 E	7.31
MAGDALENEFJORDEN	79	34 N	10	54 E	11.30
MAGDALENEHUKEN	79	34 N	10	44 E	11.30
MAGEROYA	71	03 N	25	40 E	9.14
MAGNILLEN	63	06 N	8	05 E	6.25
MAGNILLEN	63	08 N	8	05 E	6.27
MAGNUS OIL FIELD	61	37 N	1	20 E	5.2
MAHOLMEN	65	00 N	10	58 E	7.26
MAHOLMRASA	65	00 N	10	55 E	7.26
MAKKAUR LIGHT	70	42 N	30	05 E	9.25
MALANGSGRUNNEN	69	58 N	17	30 E	9.2
MALM	64	04 N	11	14 E	6.75
MALOY	61	56 N	5	07 E	5.23
MALOY SKARHOLMEN	67	46 N	14	24 E	8.3
MALSNES	69	21 N	18	34 E	8.58
MANGERSFJORDEN	60	37 N	5	00 E	4.25
MARFLESA LIGHT	64	10 N	10	08 E	7.3
MARIASUNDET	77	41 N	14	51 E	11.11
MARKUSSUNDET	63	06 N	7	45 E	6.35
MARNESSKAGEN	67	10 N	14	05 E	7.59
MARSTEINSBAEN	60	08 N	4	59 E	3.22
MASOYA	71	01 N	25	00 E	9.14
MASOYSUND	70	59 N	25	01 E	9.18
MASTRAFJORDEN	59	06 N	5	39 E	2.18
MAURANGERFJORDEN	60	06 N	6	10 E	3.41
MEBAEN	60	54 N	4	42 E	5.9
MEFALDTAREN	64	37 N	11	00 E	7.10
MEFALLSTAREN	64	46 N	11	29 E	7.17
MEFJORDBAEN	65	08 N	11	12 E	7.28
MEFJORDINGEN	68	55 N	16	05 E	8.47
MEFJORDSHOLMAN	66	12 N	12	50 E	7.53
MEHAMNFJORDEN	71	04 N	27	52 E	9.21
MEKGRUNNA	62	43 N	7	06 E	6.16
MELINGSVAG	59	47 N	5	07 E	3.17
MELOY	66	04 N	11	37 E	7.25
MELOY LIGHT	62	48 N	8	18 E	6.44
MELOYNESET LIGHT	66	50 N	13	35 E	7.57
MELSTEINEN	63	58 N	9	35 E	6.58
MELSTEINEN	65	11 N	11	51 E	7.31
MESJOYGRUNNEN	67	12 N	13	59 E	7.66
MESKFJORDEN	70	10 N	28	40 E	9.31
MESOYA	66	51 N	13	40 E	7.57
MIA	62	40 N	6	38 E	6.8
MIDFJORDEN	62	38 N	6	40 E	6.16
MIDFJORDENSKJAER	58	02 N	6	54 E	1.10
MIDFJORDFLU	61	19 N	4	49 E	5.38
MIDTERKUKEN	77	39 N	14	46 E	11.10
MIDTFJORDSKJER	61	16 N	4	54 E	5.35
MIMERBUKTA	78	39 N	16	25 E	11.21
MJOSUNDET	68	54 N	17	27 E	8.51
MJOSUNDHOLMEN	68	53 N	17	28 E	8.51
MOFFEN	80	02 N	14	30 E	11.36
MOKALASSET	60	18 N	4	56 E	4.8
MOKALASSET	61	18 N	5	01 E	5.36
MOKSTER	60	04 N	5	06 E	3.24
MOKSTRA GRONINGEN	60	03 N	5	07 E	3.25
MOLDE	62	44 N	7	10 E	6.17
MOLDTU	62	18 N	5	38 E	5.59
MOLDTUSTRANDA	62	18 N	5	39 E	5.59
MONGSTAD	60	49 N	5	02 E	5.7
MORKEDALSTUA	63	30 N	8	31 E	6.52
MOSJOEN	65	51 N	13	11 E	7.42
MOSSELBUKTA	79	53 N	15	55 E	11.38
MOSTERHAMN	59	42 N	5	24 E	3.18
MOSTEROYA	59	05 N	5	38 E	2.9
MUKEN	66	45 N	12	29 E	8.2
MULTIND	68	00 N	16	30 E	8.23
MUNKHOLMEN LIGHT	63	27 N	10	23 E	6.67
MURCHISONFJORDEN	80	00 N	18	20 E	11.46
MURUVIK	63	26 N	10	51 E	6.70
MYKEN	66	45 N	12	25 E	7.47
MYKEN	66	46 N	12	29 E	7.64
MYRBOEN	69	12 N	16	30 E	8.46
MYRFLESAN	69	06 N	16	04 E	8.46

N

NAEROYSUNDET	64	50 N	11	11 E	7.20
NALAUVIKEN	58	23 N	6	04 E	1.40
NAMSOS	64	28 N	11	30 E	7.12
NAPPHOLMEN	68	08 N	13	28 E	8.5
NARVIK	68	26 N	17	25 E	8.28
NEDSTRANDSFJORDEN	59	15 N	5	44 E	2.23
NEDSTRANDSVAG	59	20 N	5	52 E	2.24
NEKKOYOSEN LIGHT	61	35 N	4	57 E	5.41
NERLANDSOY	62	21 N	5	33 E	5.27
NESNA	66	12 N	13	01 E	7.51
NEVERNES LIGHT	65	26 N	12	35 E	7.38
NINIAN OIL FIELD	60	51 N	1	28 E	5.2
NOGVAFJORDEN	62	41 N	6	20 E	6.11
NORDAUSTLANDET	79	50 N	23	00 E	11.39
NORDENSKIOLDBUKTA	80	25 N	21	10 E	11.41
NORDFJORDEID	61	54 N	5	59 E	5.47
NORDFJORDEN	58	20 N	6	15 E	1.38
NORDFJORDEN	78	30 N	15	00 E	11.22

	Position °	'	°	'	Sec. Para
NORDFOLD	67	46 N	15	14 E	8.14
NORDFOLLA	67	45 N	15	17 E	8.14
NORDGATTET	79	45 N	11	05 E	11.33
NORDHAMN	74	31 N	18	59 E	11.4
NORDKAPP	71	10 N	25	47 E	9.2
NORDKAPP	71	10 N	7	57 W	10.8
NORDKAPP	74	31 N	19	07 E	11.4
NORDOERNE LIGHT	64	48 N	10	33 E	7.1
NORDOY	60	43 N	4	44 E	4.15
NORDOYANE	59	36 N	5	07 E	3.14
NORDRE BRATTHOLME	60	24 N	5	06 E	4.26
NORDRE FAUSKEN	63	14 N	7	33 E	6.30
NORDRE NEKKOYA	61	35 N	4	56 E	5.41
NORDRE OYGARDSKJERET	67	32 N	15	08 E	8.15
NORDRE TJORNOY	60	22 N	4	55 E	4.9
NORDRE VAGAHOLME	59	13 N	5	31 E	2.33
NORDREGAPET	58	27 N	5	52 E	1.46
NORDSTANDSKJAER	68	30 N	16	09 E	8.31
NORDTAREN	65	34 N	12	11 E	7.37
NORESKALLEN	62	03 N	4	52 E	5.20
NORHEIMSUND	60	22 N	6	09 E	3.43
NORTH CORMORANT OIL FIELD	61	15 N	1	09 E	5.2
NUPEN	67	08 N	13	43 E	7.65
NY-ALESUND	78	55 N	11	57 E	11.26
NYHAMNA	62	51 N	6	57 E	6.13
NYLANDSKJERET	64	41 N	10	33 E	7.7

O

OBRESTADBREKRA	58	40 N	5	33 E	1.51
ODDA	60	05 N	6	33 E	3.52
ODDANE	61	33 N	5	00 E	5.40
ODDANE	62	54 N	6	53 E	6.20
ODDEN	60	26 N	4	56 E	4.9
ODOYFLUA	66	21 N	12	55 E	7.53
OEN	58	06 N	6	47 E	1.20
OFFERSOY	68	19 N	15	37 E	8.11
OGNABUKTI	58	31 N	5	45 E	1.49
OKSBASHEIA	64	25 N	10	31 E	7.7
OKSEBAASEN	69	51 N	30	07 E	9.35
OKSEBASEN LIGHT	62	31 N	6	09 E	6.9
OKSENDAL	62	43 N	8	26 E	6.44
OKSFJORD	70	14 N	22	21 E	9.9
OKSFJORDEN	70	12 N	22	18 E	9.9
OKSNESODDEN	68	03 N	15	14 E	8.19
OKSREVLTAREN	65	01 N	10	51 E	7.26
OKSSUNDET	68	00 N	15	18 E	8.19
OKSTRAFJORDEN	59	20 N	6	06 E	2.36
OLA-PERSOYA LIGHT	67	40 N	14	43 E	8.16
OLASKJAER LIGHT	61	44 N	4	57 E	5.22
OLDEN	61	50 N	6	49 E	5.47
OLSFLUA	62	30 N	5	51 E	6.4
OMBOFJORDEN	59	17 N	6	07 E	2.19
ONA LIGHT	62	52 N	6	33 E	6.22
ONARHEIM	59	57 N	5	38 E	3.35
ONARHEIMSFJORDEN	59	57 N	5	41 E	3.33
ONGLESUNDET	60	43 N	4	52 E	4.22
OPPLOYFJORDEN	64	48 N	11	45 E	7.17
ORKANGER	63	19 N	9	53 E	6.67
ORMOYA	65	26 N	12	09 E	7.34
ORNES	66	52 N	13	42 E	7.57
ORSTA	62	12 N	6	08 E	5.52
ORSTAFJORDEN	62	14 N	6	00 E	5.52
ORSVAG	68	12 N	14	25 E	8.8
OS	60	11 N	5	28 E	3.57
OSAFJORDEN	60	30 N	6	55 E	3.49
OSNESGAVLEN	59	25 N	5	14 E	3.9
OSPA	61	13 N	4	45 E	5.12
OSTHOLMEN	66	53 N	13	31 E	7.58
OSTMARKTANGEN	63	27 N	10	27 E	6.69
OSTRE STOLEN	58	13 N	6	43 E	1.25
OSUNDER	60	33 N	4	51 E	4.13
OTEREN	64	58 N	11	31 E	7.23
OTNESET	63	08 N	8	31 E	6.49
OTTOY	59	24 N	6	06 E	2.34
OVSKALLEN	66	25 N	11	58 E	7.48
OYENSVE	67	35 N	14	17 E	8.14
OYNAFJORDEN	60	06 N	5	55 E	3.40
OYSTESEVAGEN	60	23 N	6	12 E	3.44

P

PASVIKHAMN	69	49 N	30	35 E	9.36
PENNINGFLU	62	19 N	5	33 E	5.59
PERSFJORDEN	70	26 N	30	48 E	9.25
POLLATIND	61	06 N	4	52 E	5.5
PORSANGEN	70	30 N	25	30 E	9.19
PRESTEID	68	05 N	15	40 E	8.20
PRINS KARLS FORLAND	78	30 N	11	06 E	11.23

R

RABBAROSEN	60	18 N	4	57 E	4.8
RADOYFJORDEN	60	35 N	5	11 E	4.29
RAEVOYSUND	58	02 N	7	00 E	1.6
RAFTSUNDET	68	23 N	15	05 E	8.10
RAMBERG	68	05 N	13	14 E	8.35
RAMBERGHOLMEN	64	02 N	11	14 E	6.75
RAMSNES	59	38 N	6	20 E	2.38
RAMSOY	60	26 N	5	03 E	4.26
RAMSUNDET	68	29 N	16	31 E	8.25
RANDABERGVIGA	59	02 N	5	37 E	2.10
RANSKJERET	66	09 N	12	52 E	7.51
RASVAGEN	58	14 N	6	34 E	1.30
RASVAGHOLMANE	58	13 N	6	35 E	1.31
RAUDFJORDEN	79	50 N	12	00 E	11.36
RAUDHOLMANE	60	10 N	5	28 E	3.57
RAUDHOLMANE	62	38 N	6	24 E	6.15
RAUDHOLMENE	59	33 N	5	09 E	3.11
RAUDOY	61	18 N	4	55 E	5.39
RAUDOY LIGHT	62	14 N	5	59 E	5.52
RAUDSANDNES LIGHT	63	04 N	7	41 E	6.32
RAUNA	58	04 N	6	40 E	1.21
RAUNEFJORDEN	60	16 N	5	10 E	4.17
REIMANE	63	31 N	7	50 E	6.53
REINE	67	56 N	13	06 E	8.4
REINSFJELLET	62	56 N	7	56 E	6.25
REKEFJORDEN	58	20 N	6	16 E	1.37
REKVEDBUKTA	70	57 N	8	34 W	10.4
REMMINGSKJER LIGHT	63	22 N	8	17 E	6.63
REVINGEN	59	00 N	5	49 E	2.11
REVOY	58	03 N	6	48 E	1.13
REVSHOLMEN	63	01 N	7	47 E	6.40
RIBBA	61	54 N	5	00 E	5.44
RINGOY	60	27 N	6	47 E	3.48
RINGVASSOY	69	55 N	19	10 E	9.3
RINNOYVAG	68	22 N	15	46 E	8.11
RISAVIKI	58	56 N	5	35 E	2.5
RISHOLMEN LIGHT	63	09 N	8	32 E	6.49
RISHOLMFLUA	61	38 N	4	53 E	5.21
RISHOLMSUNDET	58	14 N	6	40 E	1.26
RISKAFJORDEN	58	56 N	5	49 E	2.15
RISVAER	64	55 N	11	32 E	7.22
RISVAER	68	15 N	15	09 E	8.11
RISVAERSUNDET	64	58 N	11	31 E	7.23
ROBBEGANSTANGEN	60	41 N	4	48 E	4.15
RODBERG	63	29 N	10	00 E	6.66
RODBERGSODDEN	69	27 N	18	08 E	8.54
RODOY	66	39 N	13	05 E	7.54
RODSUNDA	64	38 N	11	10 E	7.15
ROEDVIKA	74	24 N	19	13 E	11.3
ROGNAN	67	06 N	15	25 E	7.62
ROGNAN LIGHT	63	34 N	9	17 E	6.59
ROGNANNES LIGHT	63	23 N	8	39 E	6.62
ROHOLME	58	02 N	6	52 E	1.10
ROKKEM LIGHT	62	53 N	8	30 E	6.47
ROLVSOYA	70	58 N	24	00 E	9.13
ROMBAKEN	68	28 N	17	36 E	8.29
RONELDEN	61	55 N	5	01 E	5.43
RONGEVAER	60	49 N	4	47 E	5.5
RONGEVAERSKALLEN	60	50 N	4	46 E	5.5
RONGOYNI	60	30 N	4	55 E	4.11
RONGSUND	60	30 N	4	56 E	4.26
RONVIKSKJERANE	66	40 N	13	11 E	7.55
RORSUND	60	31 N	4	53 E	4.13
RORVIK	64	52 N	11	14 E	7.21
ROSANESET	68	24 N	17	12 E	8.27
ROSENDAL	59	59 N	6	00 E	3.37
ROSOK HAVFLUA	62	49 N	6	13 E	6.22
ROSOYTAREN	65	52 N	12	22 E	7.43
ROSSHOLMEN	62	36 N	6	03 E	6.7

	Position °	'	°	'	Sec. Para
ROSSOY	60	59 N	4	48 E	5.10
ROST	67	31 N	12	07 E	8.4
ROTVAER	68	22 N	15	56 E	8.10
ROVDESKJERET LIGHT	62	11 N	5	45 E	5.51
ROYKENESBOEN	68	51 N	16	39 E	8.32
ROYTINGKALVEN	60	52 N	4	47 E	5.8
RUMPENNESET	63	11 N	8	35 E	6.50
RUNDE	62	25 N	5	35 E	5.26
RUNDOY LIGHT	62	25 N	5	36 E	5.28
RUTLETANGEN	61	05 N	5	10 E	5.31
RUTLETANGEN LIGHT	61	05 N	5	10 E	5.10
RYK YSEOYANE	77	47 N	25	12 E	11.50
RYSSLANDSVIK	59	52 N	5	44 E	3.33
RYSTRAUMEN	69	33 N	18	43 E	8.57
RYVARDEN	59	32 N	5	14 E	3.11

S

	Position °	'	°	'	Sec. Para
SAEBOSUNDET	59	10 N	5	56 E	2.18
SAEBUOY	63	30 N	8	15 E	6.54
SAEVAREID	60	11 N	5	45 E	3.55
SAGFJORDEN	67	38 N	15	16 E	8.15
SAGFJORDEN	67	58 N	15	36 E	8.20
SAGFJORDEN	69	49 N	30	32 E	9.36
SAGVAG	59	46 N	5	23 E	3.21
SAKRISSKJER	61	14 N	4	57 E	5.35
SAKSA LIGHT	64	24 N	10	26 E	7.4
SAKSNES LIGHT	63	02 N	8	14 E	6.46
SALANGEN	68	53 N	17	34 E	8.50
SALANGSVERKET	68	55 N	17	44 E	8.51
SALFJELLET	78	14 N	12	03 E	11.23
SALHUSSTRAUMMEN	59	22 N	5	18 E	3.30
SALSBRUKET	64	48 N	11	52 E	7.18
SALTOYA	63	33 N	10	54 E	6.70
SALTRAK	58	03 N	6	49 E	1.18
SALTVIKHAMN LIGHT	63	47 N	11	00 E	6.73
SAMSKALLEN	66	22 N	11	58 E	7.63
SAND	59	29 N	6	15 E	2.35
SANDHOLMEN	69	25 N	18	06 E	8.54
SANDNES	58	51 N	5	45 E	2.13
SANDNESSJOEN	66	01 N	12	38 E	7.45
SANDNESSUNDET	69	41 N	18	54 E	8.61
SANDOY LIGHT	61	18 N	4	36 E	5.13
SANDOYA	70	02 N	18	32 E	9.3
SANDOYA LIGHT	61	33 N	4	46 E	5.33
SANDOYNI	60	27 N	4	53 E	4.9
SANDOYTAREN	65	23 N	12	00 E	7.36
SANDSFJORDEN	59	21 N	6	00 E	2.34
SANDSFJORDEN	62	15 N	5	31 E	5.57
SANDSHAMN LIGHT	62	15 N	5	30 E	5.57
SANDSKJER	70	05 N	29	33 E	9.31
SANDSORA LIGHT	63	45 N	11	03 E	6.72
SANDSOY	62	15 N	5	26 E	5.27
SANDVAER	65	21 N	11	58 E	7.36
SANDVAERODTAREN	65	22 N	12	03 E	7.32
SANDVEHAMN	59	11 N	5	11 E	3.5
SANDVERKEN	66	39 N	13	06 E	7.55
SANNA	66	30 N	12	03 E	7.46
SARNESFJORDEN	70	58 N	25	45 E	9.16
SARSTANGEN	78	44 N	11	29 E	11.24
SASSENFJORDEN	78	23 N	16	30 E	11.20
SAUDA	59	39 N	6	21 E	2.39
SAUDAFJORDEN	59	33 N	6	17 E	2.38
SAUDEFJORDEN	59	33 N	6	17 E	2.38
SAUDEHOLMEN LIGHT	62	11 N	5	36 E	5.50
SAUEHORNET	62	14 N	6	09 E	5.26
SAWGRUNNEN	65	09 N	10	56 E	7.27
SEIOSKALLEN	67	17 N	13	31 E	7.66
SEIRSTADFJORDEN	64	37 N	11	22 E	7.16
SELSOYA	68	09 N	15	29 E	8.20
SELVAER	66	36 N	12	18 E	7.63
SELVBUKTA	63	37 N	9	43 E	6.66
SENDINGANE	61	39 N	4	34 E	5.18
SHANNONBOEN	79	34 N	10	56 E	11.30
SHEMSHESTEN	62	58 N	7	11 E	6.24
SIGGJA	59	45 N	5	18 E	3.12
SIGNEHAMNA	79	16 N	11	35 E	11.29
SILDA	70	20 N	21	45 E	9.5
SILDSKJERET	67	48 N	14	44 E	8.16
SIMADALSFJORDEN	60	30 N	7	05 E	3.49
SIRAGRUNNEN	58	15 N	6	20 E	1.33
SIREVAG	58	30 N	5	48 E	1.49
SJOVEGAN	68	53 N	17	50 E	8.51
SKAFTENES LIGHT	64	57 N	12	01 E	7.19
SKAGSTADSUNDET	67	58 N	15	10 E	8.19
SKALEVIK	60	24 N	5	14 E	4.21
SKALLEFLUENE	61	35 N	4	46 E	5.15
SKARDHOLMEN	60	24 N	5	13 E	4.20
SKAREKINNA	61	42 N	4	51 E	5.21
SKARHOLMAN	67	39 N	14	28 E	8.14
SKARNESET	67	12 N	14	17 E	7.60
SKARVBERGNES LIGHT	63	05 N	7	58 E	6.40
SKARVHAUSBAEN	68	57 N	16	10 E	8.46
SKARVOY	60	30 N	4	50 E	4.12
SKARVOYA	65	53 N	12	20 E	7.43
SKARVOYSUND	60	27 N	4	56 E	4.10
SKATEN LIGHT	61	52 N	5	13 E	5.44
SKATEN LIGHT	67	51 N	14	47 E	8.17
SKIVEN	67	58 N	12	56 E	8.34
SKJAHOLMEN	67	43 N	14	43 E	8.16
SKJEGGENE	62	16 N	5	20 E	5.27
SKJELHOLMEN	63	54 N	9	51 E	7.5
SKJELJANGER LIGHT	60	37 N	4	57 E	4.25
SKJELJAVAG	60	22 N	5	40 E	3.59
SKJELVA	65	43 N	12	19 E	7.39
SKJERVHEIM	59	28 N	5	45 E	2.40
SKJOMGRUNNEN	68	25 N	17	13 E	8.25
SKJORAFJORDEN	64	06 N	10	10 E	7.6
SKLINNA	65	12 N	11	00 E	7.25
SKLINNA BANKEN	65	16 N	10	10 E	7.25
SKLINNA LIGHT	65	12 N	11	00 E	7.27
SKLINNAFLESAN	65	08 N	10	59 E	7.27
SKOLMNESET	68	15 N	13	31 E	8.34
SKOLTAFJORDEN	60	02 N	5	00 E	3.23
SKOLTEN	62	16 N	6	00 E	5.52
SKOMVAER LIGHT	67	25 N	11	52 E	8.4
SKONGSNES LIGHT	62	02 N	5	08 E	5.24
SKORPA	62	20 N	5	30 E	5.27
SKORPA	66	02 N	12	33 E	7.44
SKORPEFLUENE	61	55 N	4	46 E	5.22
SKORPEGAVLEN	59	56 N	5	48 E	3.37
SKORPERAUVA	61	46 N	4	40 E	5.22
SKORPESUND	59	55 N	5	38 E	3.33
SKOTAMEDGRUNN	58	48 N	5	26 E	1.52
SKRAEDDEREN	58	28 N	5	51 E	1.48
SKROVA	68	10 N	14	41 E	8.8
SKROVA HAVN	68	10 N	14	40 E	8.8
SKROVKJOSEN	68	15 N	16	19 E	8.22
SKUDENESFJORDEN	59	00 N	5	15 E	2.6
SKUDENESHAVN	59	09 N	5	16 E	2.8
SKULEN	62	41 N	6	19 E	6.11
SLAADBUKTA	79	42 N	11	15 E	11.34
SLETRINGEN LIGHT	63	40 N	8	16 E	6.53
SLETTEBAKKEN LIGHT	68	31 N	16	58 E	8.26
SLETTNES LIGHT	71	05 N	28	14 E	9.21
SLETTNESET	69	23 N	18	06 E	8.54
SLOVAER	67	36 N	14	39 E	8.14
SMASKJAER	59	17 N	5	57 E	2.24
SMEERENBURGFJORDEN	79	43 N	11	06 E	11.31
SMITSKJAERLEIEN	68	20 N	15	25 E	8.11
SMORSUNDNES	59	30 N	5	14 E	3.9
SNERTHOLMEN LIGHT	65	43 N	12	28 E	7.39
SOGNDALSSTRANDA	58	19 N	6	18 E	1.36
SOGNEUKSEN	60	57 N	4	46 E	5.8
SOLAVIKI	58	53 N	5	34 E	2.4
SOLBERGFJORDEN	59	15 N	5	55 E	2.29
SOLBERGFJORDEN	69	08 N	17	38 E	8.52
SOLBJORG	60	18 N	5	37 E	3.59
SOLEMSUNDET	63	12 N	8	11 E	6.49
SOLOYET	62	57 N	8	26 E	6.47
SONDRE SOROYHOLME	65	55 N	12	22 E	7.44
SONDREGAPET	58	26 N	6	00 E	1.42
SONOYOSEN	59	35 N	5	07 E	3.14
SORAGAPET	58	26 N	6	00 E	1.42
SORAUSTKAPP	71	01 N	8	00 W	10.7
SORE GUTVIK LIGHT	65	05 N	11	49 E	7.31
SORE RAMNEN	63	08 N	7	24 E	6.28
SOREIDSVIK	60	03 N	5	28 E	3.54
SORFJORDEN	60	24 N	6	42 E	3.50
SORFJORDEN	60	31 N	5	22 E	4.32
SORFOLLA	67	32 N	15	16 E	8.15
SORGATTET	79	39 N	11	00 E	11.33
SORGFJORDEN	79	54 N	16	50 E	11.44

	Position °	'	°	'	Sec. Para
SORGRUNNEN	63	33 N	8	00 E	6.54
SORHAUGOY	59	25 N	5	14 E	3.9
SORHUNDEN	64	39 N	10	53 E	7.20
SORKAPP	70	50 N	8	59 W	10.3
SORKAPP LAND	76	50 N	16	25 E	11.8
SORNES	65	58 N	12	52 E	7.41
SORSKJOMEN	68	12 N	17	19 E	8.27
SORSUNDET	63	06 N	7	44 E	6.33
SORTLAND	68	42 N	15	25 E	8.39
SORTLANDSUNDET	68	42 N	15	26 E	8.38
SORVAER	70	38 N	21	59 E	9.13
SPANNHOLMANE	59	17 N	4	51 E	3.4
SPILDEROYA	69	25 N	18	29 E	8.58
SPINDSFJORDEN	58	05 N	6	56 E	1.10
SPITSBERGEN BANK	75	00 N	21	00 E	11.2
SPRANGBUKT	58	27 N	5	56 E	1.45
SPRINGEN LIGHT	65	55 N	12	13 E	7.30
STABBEN	63	08 N	7	16 E	6.28
STABBEN LIGHT	61	36 N	4	57 E	5.41
STABSAET	58	24 N	5	59 E	1.43
STAFLUA	62	54 N	6	51 E	6.23
STAKNES LIGHT	63	01 N	8	21 E	6.46
STALLEN	60	17 N	4	57 E	4.6
STAMSUND	68	07 N	13	51 E	8.6
STANGHOLMGALTEN	64	56 N	11	28 E	7.24
STANGNESODDEN	68	48 N	16	37 E	8.32
STATFJORDEN OIL FIELD	61	15 N	1	51 E	5.2
STATPIPE PLATFORM NO. 1	58	11 N	2	28 E	1.2
STATTHAVET	62	12 N	5	06 E	5.26
STATTLANDET	62	12 N	5	08 E	5.26
STAVANGER	58	59 N	5	45 E	2.12
STAVENES LIGHT	61	25 N	4	59 E	5.39
STAVENES LIGHT	63	07 N	7	40 E	6.29
STAVSUNDET	67	01 N	13	56 E	7.60
STEET	63	00 N	7	48 E	6.40
STEGLEHOLME	60	09 N	5	41 E	3.54
STEINAN	65	36 N	11	17 E	7.25
STEINHOLMEN LIGHT	63	17 N	8	20 E	6.61
STEINKJER	64	01 N	11	30 E	6.77
STEINODDEN	58	07 N	6	33 E	1.23
STEINSFLESA	65	09 N	11	31 E	7.29
STEINSHOLMEN	67	44 N	14	43 E	8.16
STJERNDALEN	68	02 N	13	14 E	8.5
STJERNSUND	70	14 N	22	44 E	9.9
STOKHOLMEN	66	29 N	12	21 E	7.63
STOKKGRUNNEN	64	39 N	11	00 E	7.17
STOKKMARKNES	68	34 N	14	55 E	8.42
STOKKSUND	59	45 N	5	23 E	3.20
STOLSFJORDEN	58	14 N	6	41 E	1.27
STORANESET	59	45 N	5	08 E	3.16
STORDALSVIKA	62	23 N	6	58 E	5.55
STORE BERGSHOLME	58	56 N	6	07 E	2.31
STORE GRINDOY	69	38 N	18	51 E	8.61
STORE HISKJO	59	44 N	5	09 E	3.15
STORE KLAKKSOY	59	50 N	5	16 E	3.20
STORE KOPPEREN	63	48 N	8	44 E	6.52
STORE KVITHOLME	65	01 N	11	36 E	7.29
STORE LAGMANSVIKA	67	55 N	15	53 E	8.20
STORE MARSTEIN	60	08 N	5	01 E	4.3
STORE OIL TERMINAL	60	37 N	4	52 E	4.24
STORE OTERHOLMEN	64	58 N	11	32 E	7.24
STORE ROGLA	68	44 N	16	39 E	8.32
STORE SORTNA	63	05 N	7	24 E	6.28
STORE SOTRA	60	20 N	5	05 E	4.6
STORE STEINEN	66	00 N	12	01 E	7.30
STORE SVARTOKSEN	67	16 N	14	14 E	7.67
STORE VERNOY	60	05 N	5	26 E	3.53
STOREGRUNNEN	63	30 N	10	26 E	6.69
STORFJELLET	67	28 N	11	56 E	8.4
STORFJORDEN	78	00 N	20	00 E	11.48
STORGRUNDEN	65	09 N	11	07 E	7.28
STORHOLMANE	62	39 N	5	56 E	6.6
STORHOLMEN	61	01 N	4	47 E	5.9
STORHOLMEN	62	39 N	5	56 E	6.6
STORHOLMEN	68	43 N	16	46 E	8.32
STORHOLMEN LIGHT	62	39 N	5	56 E	6.22
STORMBUKTA	76	41 N	16	18 E	11.8
STORNESORA LIGHT	63	59 N	11	18 E	6.75
STORSUNDET	59	57 N	5	53 E	3.37
STORTAREN	65	08 N	11	01 E	7.28
STORTAREN	65	09 N	11	50 E	7.29
STORVIKA	67	31 N	15	36 E	8.15
STOTT	66	55 N	13	28 E	7.58
STOTT LIGHT	66	57 N	13	28 E	7.58
STOTTVAER	66	56 N	13	20 E	7.64
STOVHOLME	60	03 N	5	06 E	3.24
STOVIKA	58	15 N	6	31 E	1.32
STRANDA	62	18 N	6	57 E	5.55
STRANDANES LIGHT	62	59 N	7	42 E	6.40
STRANDSFJORDEN	58	13 N	6	39 E	1.26
STRANDVIK	60	10 N	5	41 E	3.55
STRAUMEN	68	26 N	17	42 E	8.29
STRAUMSUNDI	60	35 N	4	51 E	4.14
STROMOYA	64	52 N	11	16 E	7.22
STUSVIK	58	00 N	7	02 E	1.6
SUFFOLKPYNTEN	76	52 N	15	34 E	11.8
SULA LIGHT	63	51 N	8	27 E	6.56
SULA LIGHT	63	51 N	8	28 E	6.53
SUNDALSORA	62	41 N	8	33 E	6.44
SUNDSODDEN LIGHT	67	05 N	14	04 E	7.60
SURVIKSUNDET	64	33 N	11	24 E	7.14
SVAHOLMANE	58	23 N	6	03 E	1.41
SVANEFLU	58	03 N	6	45 E	1.21
SVARTESKJAER	62	11 N	5	21 E	5.49
SVARTSKJERET	63	18 N	8	18 E	6.61
SVEABUKTA	77	52 N	16	45 E	11.12
SVEFJORDEN	64	23 N	10	30 E	7.6
SVEHOLMEN LIGHT	63	17 N	8	29 E	6.50
SVEIO BROADCASTING STATION	59	37 N	5	19 E	3.11
SVELEDEN	68	11 N	14	42 E	8.9
SVELEIA	68	11 N	14	42 E	8.9
SVELLINGEN	68	18 N	15	18 E	8.11
SVENSSKJERET	66	06 N	12	41 E	7.49
SVERTINGANE	58	15 N	6	30 E	1.32
SVESKALLEN	64	33 N	10	15 E	7.8
SVINEFLU	61	20 N	4	33 E	5.14
SVINOY	62	20 N	5	16 E	5.27
SVINOYA	68	03 N	13	33 E	8.5
SVINVAER	66	45 N	13	10 E	7.55
SVOLVAER	68	14 N	14	35 E	8.9
SYKKYLVFJORDEN	62	24 N	6	33 E	5.55
SYLEN	74	22 N	19	02 E	11.6
SYNESFJELLET	62	33 N	6	02 E	6.6

T

	Position °	'	°	'	Sec. Para
TA	59	14 N	5	27 E	2.19
TAFJORDEN	62	14 N	7	25 E	5.57
TAKNESET	63	09 N	8	20 E	6.49
TALGJEFJORDEN	59	08 N	5	49 E	2.25
TALSGRUNNANE	63	10 N	7	46 E	6.36
TALVIK	70	03 N	22	58 E	9.12
TANAFJORDEN	70	45 N	28	25 E	9.22
TANGEFLU	59	56 N	5	44 E	3.35
TANNOYA	68	09 N	15	48 E	8.20
TARMEVIKODDEN	58	13 N	6	41 E	1.24
TARVFJORDEN	63	46 N	9	25 E	7.5
TAU	59	04 N	5	55 E	2.17
TAUTRA LIGHT	63	35 N	10	37 E	6.71
TAUTREFLUA	62	41 N	6	56 E	6.16
TEINEGRUNNEN	61	24 N	4	29 E	5.14
TEISTEN	66	22 N	12	56 E	7.53
TEKSLO	60	09 N	5	01 E	4.4
TELAVAG	60	15 N	4	59 E	4.7
TEMPLEFJORDEN	78	24 N	17	00 E	11.20
TENNHOLME	59	17 N	5	52 E	2.29
TENNHOLMEN	67	18 N	13	30 E	7.65
TENNHOLMEN LIGHT	67	18 N	13	30 E	8.12
TENNSKJERHOLMEN	69	29 N	18	19 E	8.58
TERNEHAUG	61	35 N	4	41 E	5.15
TERNEHOLMEN	58	14 N	6	41 E	1.27
TERNESKJERFLU LIGHT	62	11 N	5	24 E	5.49
TERNHOLMEN LIGHT	65	00 N	11	07 E	7.26
TERNINGEN LIGHT	63	30 N	9	03 E	6.63
TERNINGEN LIGHT	64	13 N	10	15 E	7.3
TERNNESET	60	14 N	4	59 E	4.6
TEROY	58	03 N	6	56 E	1.8
THAMSHAMN	63	19 N	9	53 E	6.67
TINGVOLLVAGEN	62	54 N	8	11 E	6.43
TISNES	69	36 N	18	50 E	8.57
TJELDODDEN	68	23 N	16	08 E	8.24
TJELDSUNDET	68	31 N	16	10 E	8.31
TJOTTA	65	50 N	12	26 E	7.40

	Position °	'	°	'	Sec. Para
TJUVAHOLMEN	60	22 N	6	16 E	3.44
TJUVHOLMEN	63	04 N	7	42 E	6.39
TODALSFJORDEN LIGHT	62	50 N	8	38 E	6.47
TOFTEVAG	60	29 N	4	56 E	4.12
TOMMELPYNTEN	79	33 N	18	42 E	11.45
TOPPSUNDET	68	53 N	16	23 E	8.47
TORSFLU	62	04 N	4	57 E	5.25
TORSKJAER LIGHT	63	46 N	9	28 E	7.5
TORSVAG LIGHT	70	15 N	19	30 E	9.4
TORVIKNESET	62	57 N	8	26 E	6.48
TOVIK	68	41 N	16	53 E	8.48
TOVIKHOLMEN LIGHT	62	59 N	7	21 E	6.38
TRAENA	66	25 N	12	00 E	7.63
TRAETHOLMEN	65	56 N	12	12 E	7.30
TRANOY	68	11 N	15	40 E	8.20
TRANOYFJORDEN	69	04 N	17	19 E	8.51
TROLL GAS FIELD	60	44 N	3	33 E	4.2
TROMSO	69	39 N	18	57 E	8.60
TROMSOYA	69	40 N	18	57 E	8.58
TRONDEN	62	19 N	5	38 E	5.59
TRONDHEIM	63	26 N	10	24 E	6.68
TROSNAVAG	59	13 N	5	23 E	3.28
TROYTAROSEN	59	44 N	5	13 E	3.16
TUNGENESET	59	02 N	5	35 E	2.3
TUNSOY	58	59 N	5	49 E	2.11
TUROY	60	27 N	4	55 E	4.10
TUSSEN	61	23 N	4	50 E	5.38
TYRHAUG LIGHT	63	19 N	8	14 E	6.60
TYSFJORDEN	68	06 N	16	15 E	8.21
TYSNESVIK	60	03 N	5	32 E	3.53
TYSSEDAL	60	07 N	6	34 E	3.51
TYSSEFJORDEN	59	21 N	6	14 E	2.37

U

ULA GAS FIELD	57	06 N	2	51 E	1.2
ULLENSVANG	60	19 N	6	39 E	3.51
ULLEROYSUND	58	03 N	6	55 E	1.11
ULLSFJORDEN	69	50 N	19	52 E	9.10
ULVEN LIGHT	61	58 N	5	09 E	5.24
ULVUNFJORDEN	62	54 N	8	22 E	6.47
URBERGET	68	04 N	13	43 E	8.6
URTER	59	22 N	5	02 E	3.4
USKEDAL	59	56 N	5	52 E	3.37
UTGRUNNEN	67	42 N	14	17 E	8.3
UTNE	60	26 N	6	37 E	3.46
UTNEFJORDEN	60	26 N	6	38 E	3.46
UTOYBAEN	66	14 N	12	36 E	7.49
UTSIRA	59	18 N	4	53 E	3.4
UTSKARPEN	66	15 N	13	35 E	7.51
UTTORGFLESSA LIGHT	65	26 N	11	57 E	7.36
UTVAER LIGHT	61	02 N	4	31 E	5.11

V

VABERGET	63	31 N	10	46 E	6.70
VADSO	70	04 N	29	44 E	9.30
VAEROY	61	18 N	4	44 E	5.13
VAEROY	67	40 N	12	40 E	8.4
VAGEN	58	58 N	5	44 E	2.12
VAGEN	62	13 N	5	39 E	5.57
VAGENE	58	20 N	6	13 E	1.39
VAIGATTOYANE	79	20 N	20	00 E	11.47
VAKSDAL	60	29 N	5	44 E	4.32
VALLABAANE	62	28 N	5	41 E	5.58
VALLOYGALTEN	65	57 N	12	24 E	7.43
VALSHOLMSKJAER LIGHT	63	49 N	9	36 E	7.5
VALSOYA	63	52 N	9	44 E	7.2
VARANGERFJORDEN	70	00 N	30	00 E	9.28
VARDHOLMEN	60	46 N	4	52 E	4.22
VARDO	70	22 N	31	07 E	9.26
VARGSUND	70	22 N	23	30 E	9.12
VARNES	58	11 N	6	38 E	1.23
VASKINNKVIGA	68	53 N	16	26 E	8.47
VATLESTRAUMEN	60	19 N	5	12 E	4.18
VATNEMOHOLMENE	58	29 N	5	49 E	1.49
VEANESET	60	03 N	5	29 E	3.53
VEAVAGEN	59	18 N	5	13 E	3.7
VEINESBOTN	70	05 N	28	47 E	9.32
VELFJORDEN	65	35 N	12	21 E	7.38
VEMMELSVIKHOLMEN	61	54 N	5	10 E	5.49
VENNESODDEN LIGHT	63	53 N	11	03 E	6.74
VERDAL HAVN	63	47 N	11	27 E	6.73
VESTERALSFJORDEN	68	35 N	14	32 E	8.41
VESTERHOLMEN	63	43 N	11	00 E	6.71
VESTKLEPPEN	63	18 N	7	21 E	6.30
VESTPYNTEN	78	15 N	15	27 E	11.17
VESTRE BRADSTEINEN	58	02 N	6	52 E	1.10
VETEGJOGRASKJAER LIGHT	60	49 N	4	45 E	5.8
VETEN	60	01 N	5	15 E	3.22
VETRUNGANE	61	56 N	4	49 E	5.22
VEVLAN	65	01 N	11	19 E	7.29
VIKAFJORDEN	59	38 N	5	11 E	3.14
VIKAHOLMEN LIGHT	63	06 N	7	46 E	6.35
VIKANESET	63	12 N	8	36 E	6.50
VIKANESFLU LIGHT	62	28 N	6	07 E	5.60
VIKEVAG	59	06 N	5	42 E	2.18
VIKHOLMEN	65	57 N	12	26 E	7.44
VIKINGEN LIGHT	66	32 N	12	58 E	7.54
VIKINGNESET	60	51 N	4	56 E	5.8
VIKNA	64	55 N	11	00 E	7.26
VIKSOY	60	10 N	5	03 E	4.4
VIKUM	61	10 N	5	43 E	5.32
VIKVAGEN	65	18 N	12	07 E	7.33
VILNESFJORDEN LIGHT	61	18 N	5	04 E	5.36
VINDAFJORDEN	59	20 N	5	56 E	2.40
VINDNESKARVEN	60	27 N	5	00 E	4.6
VINGLEIA LIGHT	63	55 N	8	41 E	6.53
VOLDSFJORDEN	62	12 N	5	56 E	5.52
VOLONGOYA	63	08 N	8	09 E	6.45
VORDNESHOLMEN	59	45 N	5	13 E	3.16
VOTLOY	60	28 N	5	28 E	4.32

W

WAHLENBERGFJORDEN	79	40 N	20	00 E	11.46
WALDENOYA	80	37 N	19	46 E	11.41
WIJDEFJORDEN	79	22 N	15	37 E	11.38
WILHELMOYA	79	03 N	20	24 E	11.45
WOODFJORDEN	79	40 N	13	58 E	11.37

Y

YLVINGEN	65	36 N	12	10 E	7.37
YSTESTEINEN	58	01 N	6	53 E	1.10
YTRE ALVIK	60	25 N	6	23 E	3.45
YTRE ASAROY	59	25 N	6	08 E	2.34
YTRE KIBERG	70	17 N	31	00 E	9.28
YTRE LANGHOLMEN LIGHT	63	11 N	7	52 E	6.31
YTRE LANGOYFLUI	60	47 N	4	49 E	5.8
YTRE LOGRUNNEN	64	01 N	11	24 E	6.76
YTRE POLLEN	58	11 N	6	42 E	1.25
YTRE SAMLAFJORDEN	60	21 N	6	18 E	3.43
YTRE SKALLEN	67	28 N	14	25 E	8.12
YTRE SMASTRAUMNESET	69	48 N	30	41 E	9.37
YTREHOLMEN	66	01 N	11	42 E	7.25
YTREHOLMEN LIGHT	66	01 N	11	42 E	7.1
YTSTE TAREN	61	17 N	4	55 E	5.35
YTSTEBOEN	62	09 N	5	04 E	5.25
YTSTEFLU	62	12 N	5	27 E	5.50
YTTERHOLMEN	66	01 N	11	42 E	7.25
YTTEROYANE	61	35 N	4	41 E	5.15
YTTEROYANE LIGHT	61	35 N	4	41 E	5.17
YTTERTUVEN	67	50 N	12	52 E	8.4

Z

ZORGDRAGERFJORDEN	80	23 N	22	40 E	11.42