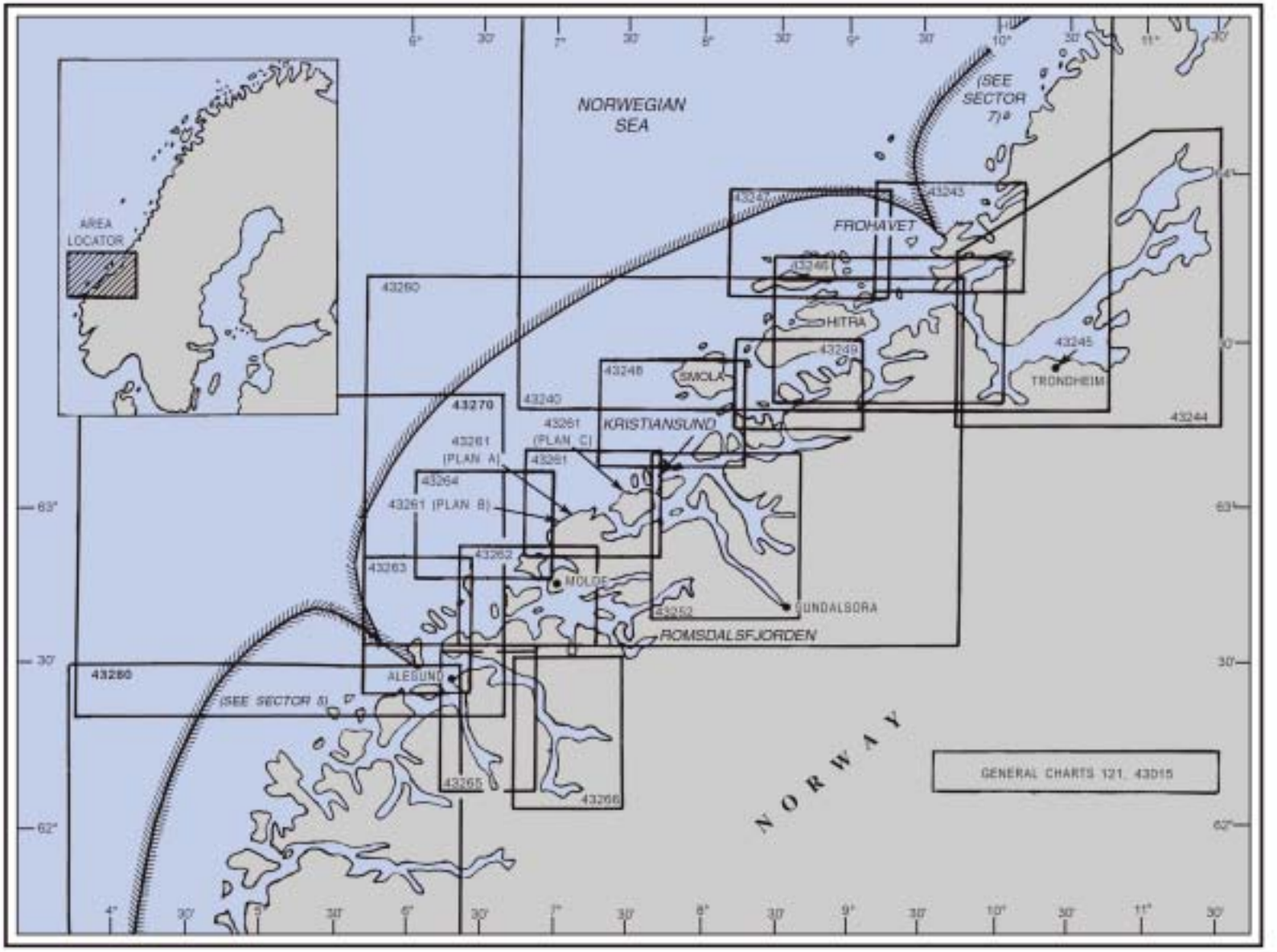
Click on "See Sector" to be hotlinked to that Sector.



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR **6** — CHART INFORMATION

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SECTOR 6

THE COAST OF NORWAY FROM 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 situated 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.

Breidsund-Djupet to Buadjupet (Buddjupet)

6.2 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, in a position 7 miles W of Godoya. Keipbaane lies 0.6 mile NNW of the 2.4m depth.

6.3 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.

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.

6.4 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.

6.5 **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.

6.6 **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.

6.7 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.

6.8 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.

6.9 **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.

Sore Kverna Light stands on the reef on the NW side of the fairway, about 0.5 mile W of Lepsoyrevet Light. A racon is located at the light tower.

The fairway across Lepsoyrevet is entered about 0.3 mile SSW of Sore Kverna Light. 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.

6.10 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.

Direcxtions.—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 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.

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.

6.13 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.

6.14 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.

6.15 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.

Tides—Currents.—The tide rises about 2m at springs and 1.6m at neaps.

The tidal stream within the harbor is hardly noticeable. Winds between SE and SW can be troublesome, and raise a considerable sea.

Depths—Limitations.—The main quay in the harbor is Storkaia. It has lengths of 70m on the NW side, 192m on the SW part, and 73m on the NE part. Depths of 5.1 to 6.3m exist on the NW side, with 6.8 to 10.3m in the SW part, and 6.3 to 6.8m in the NE part. Moldegard has two quays 130 and 100m long with depths of up to 15m and 6m, respectively, alongside.

There are facilities for ferry, cargo, ro-ro, container, cruise, and passenger vessels. Tankers up to 5,000 dwt can be accommodated. Vessels up to 35,000 grt berth at Storkaia.

Moldegard Haven can accommodate passenger vessels of any size. It is reported that the largest vessel handled was 70,200 grt and 10.4m draft.

Pilotage.—Pilotage is compulsory. Pilots may embark at Runde for inbound vessels. Harbor pilots are obtainable at Molde and pilots for outward bound vessels may be obtained from Alesund, provided that ample time is given.

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.

Anchorage.—Vessels can anchor off Molde in depths of 30 to 35m, sand and clay.

6.16 Romsdalfjorden is entered E of **Tautra** (62˚40'N., 6˚4'E.) 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.

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 Helge stones 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.

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. There are a number of berths that range in length from 22 to 183m, and have a depth alongside to 14m.

An obstruction was reported (1996) 2.5 miles NE of the end of Andalsnes.

Anchorage is available over the whole of Isfjorden from Andalsnes to Stein, 2.5 miles E, in depths of 35m, mud.

6.17 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.) 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.

6.18 **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

6.19 From the seaward entrance to Nogvafjorden, the off-lying dangers run for a distance of about 22 miless 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.

6.20 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 Krabben 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

6.21 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.

6.22 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.) is situated at the N end of the Grip group on the S side of the seaward entrance to Gripholen. A racon is located at the light tower ,which is 44m in height and prominent.

Approaches to Kristiansund

6.23 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, 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.

6.24 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.

6.25 **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 Litle 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.

6.26 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.

6.27 Grip Light (63˚14'N., 7˚37'E.) is situated on the N island of Grip, which is an extensive group of islets and rocks from 5 to 9 miles NNW of Kristiansund. 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.

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.

6.28 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.

Sorsundet (63˚06'N., 7˚44'E.) is entered between Baltserneset, the SW extremity of Innlandet, and Smorvikneset, 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.

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.

Sorsundet

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.

6.29 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.

6.30 **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.

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 which is laid across the W part of the bay.

6.31 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 mileand 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.

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.).

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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6.32 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 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.

Approach to Kristiansund

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.

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

Kristainsund—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.—There is about 900m of quayage available for steamer traffic. There are 12 main berths, with lengths of 80 to 175m and depths alongside of 4.9 to 11m. There are three private berths for coastal tankers, with depths of 5.7 to 7.6m alongside. The harbor has facilities for ferries and ro-ro vessels.

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.

Pilotage.—Pilotage to and from sea is available. The sea pilot is embarked 1 mile NNW of Grip Light; 24 hours notice is required.

Sea pilots are stationed at Kristiansund. They also act as harbor pilots, however, harbor pilotage is not compulsory for merchant ships.

Regulations.—Within the harbor limits the speed of a vessel is to be no more than good seamanship and maneuverability require.

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

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.

6.33 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 outgoing currents. In these circumstances, the entrance channels are difficult 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.

6.34 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.

6.35 **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

6.36 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.

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˚58.6'N., 7˚46.8'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.

6.37 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.

6.38 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.

6.39 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.

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.

6.40 From **Arsundfjorden** (63˚07'N., 8˚00'E.), Halsefjorden and Trangsfjorden, which lie E of the Tingvoll Penins,ula, 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 Arsundfjorden, 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 **Haukomkin Light** (63˚09'N., 8˚16'E.) leads through Arsundfjorden to the entrance of Halsefjorden and into Korsnesfjorden.

6.41 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.

6.42 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.

6.43 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 veretical 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.

6.44 **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.

6.45 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

6.46 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 NE of Froya.

The tidal currents usually set ENE with the rising tide and WSW with the falling tide, following the trend of the coast.

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 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.

6.47 **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. **Skalmen Light** (63˚28'N., 7˚46'E.), situated on a small islet 3.5 miles off the NW coast of Smola and equipped with a racon; **Haugjegla Light** (63˚'N., 7˚58'E.), 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.

Return to Paragraph 6.54

6.48 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.

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.

Sorgrunnen (63˚33'N., 8˚00'E.) and Nordgrunnen, patches 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.

6.49 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 mid-way 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 entrance 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 fjorden.

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.

6.50 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.

6.51 **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.

6.52 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 mid-way 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

6.53 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 swt 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.

6.54 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 mid-channel course.

Auresundet, previously described in paragraph 6.45, 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.

6.55 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.

6.56 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.

6.57 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

6.58 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.

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 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.

6.59 Thamshamn (Orkanger) (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. Information on berthing facilities is given in the accompanying table.

Quay	Length	Depth
Thamshamn		
No. 1	95m	10m
No. 2	70m	8m
No. 3	96m	7m
Orkanger		
No. 1	48m	5m
No. 2	80m	12m
No. 3	23m	10m

It is reported that vessels up to 200m in length can be handled.

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 8.5m alongside;a quay on the E side is 65m long, with 3 to 4m 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

6.60 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.

The limits of the harbor area are charted.

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.

Depths—Limitations.—Several berths are available at the port.

Berth	Length	Depth
Pier 1	275m	8m
Pier 2	940m	9m
Strandveikaia	230m	9m
Kullkranpiren Coal Pier	610m	11m
Transittkaia	210m	9m
Ila Grain Pier	877m	11m
Ytre Haven	489m	9m

In addition, there is more than 1,500m of quayage for coastal vessels and fishing craft.

Tanks and other installations with alongside berths are situated about 1 mile SW of Munkholmen. The five tanker berths range in length from 61 to 198m. The alongside depths range from 5.5 to 12m.

There are facilities for container, ro-ro, and cruise vessels.

Vessels of up to 65,000 dwt, 132m in length, and 11.3m draft can be handled at the port.

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 not compulsory; however, pilots are available if required. They normally embark on the landward side of Munkholmen, or, in bad weather, off the appropriate harbor entrance.

A pilot station, with State Pilots, who do outward 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 listens on VHF channel 16.

The 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 GMT and advising all requirements and other information pertinent to the turn-around of the vessel. Confirm the ETA via Kristiansund Radio 12 hours before arrival at Grip.

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.

6.61 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.

Anchorage may be taken, in 25 to 35m, sand, on the W side of Hommelvik, near its head.

Trondheim

6.62 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.

There is anchorage near the entrance to the bay, in 22 to 30m, clay. A submarine cable lies across the entrance to the bay.

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.) (World Port Index No. 23070) 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.

6.63 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.

6.64 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 grt.

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 preallocated 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.

6.65 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.

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.

6.66 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.

6.67 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.

6.68 **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.

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.

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.