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SECTOR 3 — CHART INFORMATION

SECTOR 3

DENMARK AND GERMANY—LILLE BAELT, FLENSBORG FJORD, AND KIELER BUCHT

Plan.—This sector describes the approaches to and the passage through Lille Baelt. The coast extending W of Fyn Hoved (55°37'N., 10°35'E.), including Odense Fjord, and the coast extending W of Bjornsknude (55°42'N., 10°02'E.), including Vejle Fjord, are described first. This is followed by the passage through Lille Baelt, which is divided into N, central, and S parts. The fairways lying S of Fyn and Flensburg Fjord are then described. This is followed by the shores of Kieler Bucht as far as a line extending N between Markelsdorfer Huk (54°32'N., 11°04'E.), the NW extremity of Fehmarn, and Kappel Church (54°46'N., 11°02'E.), on Lolland. The main shipping routes through this area are then described. The descriptive sequences are N to S through Lille Baelt and then W to E along the coasts.

General Remarks

3.1 Lille Baelt (Little Belt) is the westernmost of the three passages that connect the Kattegat with the Baltic Sea. This passage is entered at the N end between Bjornsknude (55°42'N., 10°02'E.) and the island of Aabelo (55°39'N., 10°10'E.). It is entered at the S end between Pols Huk (54°53'N., 10°04'E.), on the island of Als, and Vejnaes Nakke (54°49'N., 10°26'E.), on the island of Aero.

The coastal terrain in the vicinity of Lille Baelt is generally low. The area is extensively cultivated with occasional large wooded tracts interrupting the farm lands.

In general, the bottom within Lille Baelt consists of sand, mud, and gravel, which is underlaid with clay and forms a good holding ground.

The Danish-German boundary runs approximately through the middle of Flensburg Fjord.

Kieler Bucht, at the W end of the Baltic Sea, is considered to include the waters lying between Die Schlei (54°40'N., 10°02'E.) and the NW side of Fehmarn (54°32'N., 11°04'E.), 35 miles ESE.

Winds—Weather.—Weather conditions in Lille Baelt and in the rest of the area covered by this sector are similar to those in Store Baelt, The Sound, and the Kattegat.

In the Baltic Sea proper the land drainage due to rains and melting snow is greatest in the spring. However, the water level does not reach its maximum during this season, as expected. In fact the lowest water level occurs during April and May and the highest during August and September. The cause of this phenomena may be attributed to the prevailing winds over the North Sea and Baltic Sea areas. These prevailing winds are from E during March, April, and May and from W at the end of June or early July. During April and May the water level may fall by as much as 0.1 to 0.3m below the mean level and during September it may rise by as much as 0.1 to 0.2m above the mean level. The area is also affected by notable changes in the density of the water.

Ice.—Ice conditions in Lille Baelt vary with the severity of the winter. In the N part of the passage, strong currents usually

prevent the formation of ice. However, in the S part, S of Assens (55°16'N., 9°53'E.), drift ice from the Baltic Sea may be encountered.

For details of Danish icebreaker services, see [paragraph 2.1](#).

Germany provides icebreaker services during the winter in the Baltic Sea area from three Ice Service Centers.

The center at Kiel-Holtenau covers the area from Flensburg to the W coast of Fehmarn and the Kiel Canal. It can be contacted on VHF channel 22 (Kiel Traffic).

The center at Lubeck covers the area from the W coast of Fehmarn to the meridian of 11°42'E. It can be contacted on VHF channel 13 (Trave Traffic).

The center at Stralsund covers the area from the meridian of 11°42'E to the German-Poland border. It can be contacted on VHF channel 14 (Stralsund Traffic).

Requests for ice breaking assistance should be usually directed to the appropriate Ice Service Center. In exceptional circumstances, vessels may directly contact an ice breaker working in the corresponding area. The requests should include the vessels's name, call sign, nationality, size, ice class, engine power, position, and destination.

Tides—Currents.—The tidal range in these waters is negligible. However, fluctuations in sea level are caused by changes in wind force and direction.

The currents in Lille Baelt may set quite strongly, particularly within the narrows at the N end of the passage. The currents generally follow the direction of the fairways but eddies are formed along the shores in certain places. Where there are sharp bends in the narrower parts, the currents may set strongly toward the shore.

In general, the direction of the current is governed by the wind. Winds from ENE through S to SW produce a N current; winds from other directions cause a S current. In the spring when land drainage into the Baltic Sea is heaviest, the prevailing current sets N. Sometimes this current may set in the same direction for several days regardless of the wind conditions. In the succeeding months, the duration and strength of this current are more dependent on the prevailing winds.

Depths—Limitations.—The main channel through Lille Baelt is 68 miles long and has a controlling depth of 11m.

East Lille Baelt Bridge, with a vertical clearance of 44m, and West Lille Baelt Bridge, with a vertical clearance of 33m, span the passage in the N part and connect the peninsula of Jylland with the island of Fyn.

Pilotage.—Pilotage is not compulsory in Lille Baelt, but is advised for vessels without local knowledge. Vessels requiring pilotage for this passage can obtain pilots for the southbound transit at Skagen (57° 47'N., 10° 44'E.) or from the main station at Frederica (55° 34'N., 9° 45'E.). For the northbound transit, as far as Vejle Fjord (55° 39'N., 9° 50'E.), pilots can be obtained 4.5 miles SW of Assens (55° 16'N., 9° 53'E.) or 5 miles ESE of Gammel Pol Light (54°53'N., 10°04'E.). Pilots for Lille Baelt can be contacted by E-mail at littlebelt@pilotage.dk.

The main station at Frederica also provides deep-sea pilots for routes N to Skagen, E to Helsingor, to Skaebaekvaethet, and to other ports in the Store Baelt located N of 55°20'N.

Caution.—Large vessels, which do not employ the services of a pilot, should attempt to navigate the passage through Lille Baelt only under good radar conditions or during good visibility.

Due to the strong currents in the narrow parts of the passage, vessels navigating at night are advised to continuously operate their depth-sounding instruments.

High-speed ferries may be encountered crossing the main fairway routes within Lille Baelt and its approaches.

Lille Baelt—North Approach and Entrance

3.2 The N approach to Lille Baelt, which extends W as far as Aebelo, is bounded, on the E side, by a line extending between Fyns Hoved (55°37'N., 10°35'E.) and the island of Samsø, 9 miles N.

Vessels may approach from E via the channels leading through the dangers lying between Fyns Hoved and the S end of Samsø. Vessels may also approach from N by passing W of Samsø.

The S shore between Fyns Hoved and Aebelo, 14 miles W, is generally low and barren, with several small wooded areas lying near the coast.

The N side of the approach, which lies between Samsø and Bjornsknude (55°42'N., 10°02'E.), is described in Pub. 193 Sailing Directions (Enroute) Skagerrak and Kattergat, Sector 8.

Fyns Hoved (55°37'N., 10°35'E.), [previously described in paragraph 2.3](#), is the E entrance point of the bight which curves S to form the approach to Odense Fjord. This bight is entered between Fyns Hoved and Agernaes, a wooded point located 10 miles W. There are general depths of less than 18m within the bight, but the 10m curve lies up to 1.5 miles offshore in most parts.

The E side of the bight between Fyns Hoved and Skoven, 5.5 miles S, is irregular and mostly consists of a beach, backed by bare hills. The coast at the W side of the bight is low and bare.

A small and shallow bay lies close S of Fyns Hoved.

Korshavn Light (55°36'N., 10°37'E.) is shown from a tower, 3m high, standing on a low point extending S from the inner side of Fyns Hoved. A small and shallow bay lies close S of this light.

Skoven (55°32'N., 10°34'E.), located at the E side of the entrance to Odense Fjord, is formed by a bare, rocky peninsula, 15m high. A light is shown from a prominent framework tower, 7m high, standing on the N part of the peninsula.

Dalby Bugt, a small bay lying close E of Skoven, provides sheltered anchorage to small vessels, in depths of 5 to 8m, good holding ground.

Enebaerodde Light (55°31'N., 10°34'E.) is shown from a prominent tower, 14m high, standing at the SE end of Hals, a long and narrow peninsula forming the W side of the entrance to Odense Fjord.

3.3 Odense Fjord (55°31'N., 10°34'E.) is entered through Gabet, a narrow passage lying between Hals and Skoven. This extensive fjord is mostly shallow with several small islands lying within it.



Enebaerodde Light

A narrow, winding channel, about 7 miles long, leads through the shallows to the outer entrance of the Odense Kanal. This canal continues in a SSW direction for about 4 miles to the port of Odense.

Bregnor (55°29'N., 10°36'E.), a small fishing harbor, is situated 2.3 miles SE of the entrance to the fjord. It consists of a basin connected to the shore by a causeway. The entrance is 15m wide and has a controlling depth of 2m.

Lindo Skibsværft (55°28'N., 10°32'E.), a private shipyard, is situated on the S side of the channel, about 2.7 miles SSW of the entrance. The facilities include a fitting-out quay, 650m long, with a depth of 7.5m alongside and three drydocks. The largest drydock, which can handle vessels up to 650,000 dwt, is 415m long and 89.9m wide. Vessels up to 400m in length, 70m beam, and 8.4m draft have been accommodated at this yard.

Odense (55°25'N., 10°23'E.)

[World Port Index No. 29880](#)

3.4 Odense, a port serving the industrial area of the island of Fyn, is situated at the head of Odense Fjord.

Ice.—Ice may occur in the fjord between January and March but the entrance channel is kept open by ice-breaking tugs.

Tides—Currents.—The tidal range in the fjord varies up to 0.6m. Gales from W to NE may raise the water level by up to 1.8m and gales from E to SW may lower it by as much as 1.5m.

During settled weather, the regular flood and ebb currents in the fjord change every 6 hours. In Gabet the flood current runs strongly, being increased by gales from the W. The strength and direction of the ebb current depend on the prevailing wind.

Depths—Limitations.—The N part of the channel between the entrance and Lindoe Terminal Quay has a controlling depth of 11m. The S part of the channel between this quay and the port, including the canal, has a controlling depth of 7.5m.

The fairway of the channel has a bottom width of 30 to 40m. In the straight sections of the canal the fairway has a surface width of about 60m and a bottom width of 25m. At the bends in the canal the fairway has a surface width of about 70m and a bottom width of up to 32m.

Three main harbor basins and several facilities alongside the canal provide about 4,200m of total quayage, with depths of 4.5 to 7.5m alongside. A tanker wharf, 420m long, is located outside the harbor, at the S side of the canal. It serves a power station and has depths of 7.5m alongside. There are facilities for general cargo, bulk, tanker, and LPG vessels. Vessels up to 160m in length and 6.8m draft can be accommodated at Odense.

The Lindo Terminal Quay is situated close NE of Lindo Skibsværft shipyard, about 2.7 miles SSW of the entrance to the fjord, and is operated by the port. It is 280m long and has a dredged depth of 11m alongside. Bulk vessels up to 250m in length, 35m beam, and 9.9m draft can be accommodated at this quay.

Aspect.—An outer approach lighted buoy is moored about 1.9 miles NW of Skoven Light. A shoal, with a depth of 6.9m, lies near the edge of the bank extending NE from Hals. It is located about 0.7 mile NW of Skoven Light and marked by a buoy moored close E. The white sector of Skoven Light indicates the approach track, which leads SSE from the outer approach lighted buoy and passes ENE of the shoal.

A lighted range, which may best be seen on the chart, then indicates a track leading SW toward the fjord entrance.

The fairway channel leading SSE through Gabet, the narrow entrance of the fjord, is indicated by the white sector of Enebaerodde Light and also marked by lighted buoys.

The fairway channel within the fjord is indicated by lighted ranges and is marked by beacons and buoys, which may best be seen on the chart. The sides of the canal are illuminated by sodium lights.

A conspicuous church stands 0.8 mile inland at Hasmark, about 4 miles WNW of Enebaerodde Light. A prominent wooded area is located near the root of Hals, about 2.8 miles NW of Enebaerodde Light. Several conspicuous silos are situated in the port area.

Pilotage.—Pilotage is compulsory for vessels, as follows:

1. Loaded tankers of less than 1,500 dwt and all vessels with uncleaned tanks which are not safeguarded by inert gas.
2. All vessels of 1,500 dwt and over and all vessels over 100 dwt not equipped with VHF.
3. All vessels of 4,000 dwt and over and all vessels over 100 dwt not equipped with VHF bound for the Lindo Terminal.

Vessels should send an ETA and a request for pilotage through the agent, by telephone, or through the pilot station, by VHF, at least 6 hours before arrival. A confirmation message must be sent 1 hour before arrival.

Inbound vessels should report by VHF to the pilot station upon crossing a line extending between Agernaes (55°38'N., 10°18'E.) and Fyns Hoved (55°37'N., 10°35'E.).

Pilots board inbound vessels in the vicinity of the outer approach lighted buoy, in the vicinity of Lighted Buoy No. 23 (55°39'N., 10°46'E.) at Route T and Lille Baelt, or about 4



Odense



Odense—Lindo Terminal

miles ENE of Lushage Light (55°46'N., 10°37'E), at the SE extremity of Samsø.

Regulations.—In addition to the regulations for navigating in Danish inland waters, vessels must not exceed a speed of 6 knots in the channel or canal. In addition, anchoring in the channel or canal is prohibited.

A Reporting System operates in the fjord and applies to all vessels over 20m in length that are equipped with VHF. It covers the area between the outer approach lighted buoy and Odense.

All vessels within the area must keep a continuous listening watch on VHF channel 12. They must also issue a position report on VHF channel 12 when passing the outer approach lighted buoy (latitude 55°33.5'N.), Lindo Terminal (55°28.5'N., 10°32.4'E.), Klintebjerg Havn (55°28.7'N., 10°27.2'E.), and Odense.

The broadcast language used should be English. The report must include the vessel name, direction (inbound/outbound), position, and draft.

Vessels hearing a transmission must reply providing the same information. The two meeting vessels should mutually agree a safe passage.

Vessels at the port must keep a listening watch on VHF channel 12 for 30 minutes before departure.

Anchorage.—Vessels can anchor, in depths of 10 to 14m, in the vicinity of the outer approach lighted buoy.

Caution.—Some sections of the fairway channel are subject to silting.

A small passenger ferry crosses the canal at Stige, about 2 miles below the port. It is propelled by hand along a cable that extends across the canal. Vessels should signal in time for the cable to be lowered.

Two power cables, with a vertical clearance of 45m, span the canal at Fynsværket, 0.7 mile SW of Stige. Another power cable, with a vertical clearance of 53m, spans the canal, 0.5 mile N of the harbor basins.

A target firing range area is situated in the S part of the fjord. A flashing light is shown from a signal mast standing 0.7 mile E of Stige when firing is in progress.

A nature reserve area lies in the NW part of the fjord and entry is subject to numerous restrictions.

3.5 Agernaes (55°37'N., 10°18'E.) is a low, wooded point located at the W end of the approach to Odense Fjord. A prominent church stands about 1.5 miles inland at Krogsbolle, 3.8 miles SE of the point.

Aebelo (55°39'N., 10°11'E.) is located about 2 miles offshore, 4.5 miles WNW of Agernaes. This island, which forms the S entrance point of the N part of Lille Baelt, lies on the shallow shorebank that fronts the N coast of Fyn. It is connected at the S end by a narrow neck of land to Aebelo Holm, an islet lying 1.3 miles S. Aebelo Holm, along with two other islets, lies on a large sand flat fringing the coast.



Aebelo Light

Aebelo is wooded and has several steep, light-colored bluffs on its seaward side. A main light is shown from a prominent tower, 18m high, standing on the NW extremity of the island.

Aebelo Rev, a shoal area with depths of less than 10m, extends up to about 1 mile N of the island and is marked by a lighted buoy. A large shoal bank, which dries in places, extends between the SE end of the island and Agernaes.

Vessels with local knowledge can anchor, in depths of 9 to 13m, about 1 mile SW of Aebelo Light. This roadstead is sheltered from all winds except those from NW.

Bjornsknude (55°42'N., 10°02'E.), a low and sandy point, forms the N entrance point of the N part of Lille Baelt. Bjornsknude Rev, a shoal bank with depths of less than 5m, extends about 1.5 miles SE from the point and is marked by a buoy. A sanitarium building stands near the point and is prominent from seaward.

A prominent church is situated 1.2 miles inland at Klakring, about 2.8 miles WNW of Bjornsknude. A conspicuous radio mast stands at an elevation of 110m about 1.2 miles NW of this church.

Lille Baelt—North Part

3.6 The N part of Lille Baelt as defined by this sector comprises the area W of Aebelo, the area W of Bjornsknude, Tragten, and Snaevringen. Tragten is the area lying close E of Fredericia, where the passage becomes narrow, and Snaevringen includes the narrows S of Fredericia. The S limit of Snaevringen area is situated adjacent to Stenderup Hage (55°28'N., 9°42'E.). Vejle Fjord and Kolding Fjord are also included in the description of the N part.

Bogense (55°34'N., 10°05'E.) ([World Port Index No. 29890](#)), a small port, is situated 5.5 miles SW of Aebelo Light. The harbor, which is protected by a breakwater, consists of a narrow basin formed by two wide moles and a yacht basin.

A lighted range leads SSE and indicates the main approach from seaward through the off-lying dangers. From a position about 0.6 mile NNE of the harbor, the outer reach of the dredged entrance channel leads SSW. This reach is indicated by the white sector of the light shown from the head of the E mole and is marked by lighted buoys. The inner reach of the entrance channel then leads SSE into the harbor. A prominent church stands in the town and three conspicuous chimneys are situated in the vicinity of the harbor. The harbor entrance is 20m wide and has a controlling depth of 4.2m.

The harbor is used by coasters and small craft. Vessels up to 55m in length, 10m beam, and 3.5m draft can be accommodated.

Baring Vig (55°32'N., 9°55'E.) lies between Fogense Pynt, located 1.5 miles WSW of Bogense, and Stavrshoved, 6.5 miles W. This bay has general depths of 11 to 16m seaward of the 10m curve, which lies less than 1 mile from the shore in the greater part of the bay. At the E side of the bay, the shorebank, with depths of less than 5m, extends up to 1.5 miles N of Fogense Pynt.

Vessels with local knowledge can anchor within this bay during S winds, in depths of 10 to 14m, clay and mud.

Stavrshoved, the W entrance point, is 29m high and steep. The land to the S and W of the bay is comparatively high and rises to a height of about 70m.

3.7 Vejle Fjord (55°39'N., 9°50'E.) is entered between Bjornsknude and Trelde Naes, 7.2 miles SW. It extends about

14 miles W to the port of Vejle. The land is high and wooded on both sides of the fjord and there are no detached dangers lying outside the fringing shorebanks. The bottom within the fjord is mostly mud, with a large amount of weed near the head.

Trelde Naes (55°38'N., 9°52'E.), the S entrance point, consists of a wooded peninsula that rises from a low point to a height of 46m. A main light is shown from a prominent framework structure, 21m high, standing at the E extremity of this point.

Kasserodde Flak, a shoal area with depths of 2 to 9m, extends up to about 2 miles E of the point and is marked by a buoy.

Hvidbjerg, 28m high, is a prominent white sandhill, which rises 4 miles WNW of Trelde Naes Light. A conspicuous water tower stands near a mental hospital at Brejninge, about 6.5 miles WNW of Trelde Naes Light.

A conspicuous manor house is situated on Rosenvold Point, 7.4 miles WSW of Bjornsknude. A prominent disused light tower, 16m high, stands on Traeskohage Point, 2.5 miles WNW of Rosenvold Point.

Caution.—Yacht racing marks may be moored within the fjord from April to November.

Vejle (55°43'N., 9°33'E.)

World Port Index No. 30190

3.8 The harbor at Vejle serves an industrial center and consists of a single basin fronting the town.

Ice.—Icebreakers keep the port open as long as the The Sound and Lille Baelt are open to navigation.

Tides—Currents.—The tidal range is about 0.6m. Gales from NW to NE may raise the water level by up to 1.6m and gales from S to SW may lower it by as much as 1.4m. Winds from E may cause a strong current in the inner part of the approach channel.

Depths—Limitations.—A dredged approach channel, at the head of the fjord, leads 1.3 miles W and then 1.2 miles WNW to the harbor. It has a dredged depth of 7m over a bottom width of about 30m.

A road bridge, with a vertical clearance of 40m, spans the fjord, 0.5 mile E of the harbor.

A quay, 1,100m long, is located at the S side of the main basin and a quay, 500m long, is located at the N side. Both quays have a depth of 7m alongside. There are facilities for general cargo, bulk, ro-ro, and tanker vessels. A pleasure boat basin is situated at the NE end of the harbor. Vessels up to 165m in length, 30m beam, and 6.8m draft can be accommodated.

Aspect.—The dredged approach channel is marked by stakes and buoys. Its seaward entrance is marked by a lighted buoy. The inner fairway reach is indicated by a lighted range.

Several prominent silos stand on the S side of the main harbor basin.

Pilotage.—Pilotage is provided by the Lille Baelt pilot station at Juelsminde (55° 43'N., 10° 01'E.). Pilots may be contacted by VHF and board about 2.4 miles NE of Trelde Naes Light.



Vejle

Regulations.—Vessels within about 0.4 mile of the harbor entrance must not exceed a speed of 4 knots. Vessels inside the harbor basin must not exceed a speed of 3 knots.

Prior to departure from the harbor, vessels must ascertain that no large ships are entering through the dredged approach channel.

Anchorage.—Vessels can anchor as convenient within the fjord. Small vessels can anchor, in a depth of 5m, clay, close W of Bjornsknude. Temporary anchorage can be taken by large vessels, in a depth of 9m, close W of Rosenvold Point (55°40'N., 09°49'E.), but the bottom is soft with poor holding ground.

Caution.—A designated nature reserve area extends across the fjord and up to 1 mile E of the road bridge.

3.9 Tragten (55°35'N., 9°52'E.) lies at the E approach to Snaevringen, where the fairway channel becomes narrow.

The NW side between Trelde Naes Light and Skanseodde, 5 miles SW, is cliffy and wooded in the N part. It becomes lower as Skanseodde and the port of Fredericia, close W, are approached. The S side between Stavrhoved and Strib Odde, 3 miles W, is steep and wooded for 1.2 miles before becoming lower. A conspicuous church stands at Rojleskov, 1 mile WSW of Stavrhoved.

Skanseodde E Light (55°33'N., 9°46'E.), equipped with a racon, is shown from a prominent floodlit mast, 12m high, standing at the edge of the coastal bank, 0.2 mile SE of Skanseodde.

Strib Light (55°33'N., 9°45'E.), a directional sector light, is shown from a prominent tower, 21m high, standing on Strib Odde. It marks the SW end of Tragten and the NE end of Snaevringen.

A detached shoal patch, with a least depth of 5.6m, lies about 0.6 mile offshore, 1.7 miles NE of Skanseodde E Light. This shoal is unmarked and is located adjacent to the N side of the fairway channel within Tragten.

A lighted buoy moored about 3.5 miles ESE of Trelde Naes Light marks the deepest depths in the NE part of Tragten. Lighted buoys moored about 3 miles, 2.3 miles, and 1.4 miles NE of Skanseodde E Light mark the deepest depths in the route

leading through the SW part of Tragten. This route, which provides a depth of 16m, is also indicated by the white sector of Strib Light.

Caution.—A firing practice area, marked by buoys, extends up to 1.2 miles seaward from the N shore of Tragten, about 2 miles NNE of Skanseodde.

Fredericia (55°34'N., 9°46'E.)

World Port Index No. 30170

3.10 Fredericia, an old fortress town, stands on the low land close NW of Skanseodde at the entrance to Snaevringen. Its main part is situated within a quadrant of moats and ramparts. The harbor facilities front the SW side of the town.

Ice.—The port is kept open all year round by the use of icebreakers.

Tides—Currents.—The tidal range is about 0.3m. Winds from N to E may raise the water level by up to 1.4m and winds from S to W may lower it by as much as 1.6m.

The current off the harbor nearly always sets E because the main S current in Lille Baelte forms an eddy off the port and the N current follows the direction of the shore. This current off the harbor can attain a rate of up to 6 knots.

Depths—Limitations.—The commercial port facilities are described from E to W.

Skanseoddehavn (Shell) provides two oil and chemical berths. Quay No. 41 is 175m long, with the use of mooring dolphins, and has a depth of 10m alongside. Quay No. 42 is 275m long, with the use of mooring dolphins, and has a depth of 15m alongside.

Kastelshavn has 520m of total quayage. It provides three bulk berths with depths of 12m alongside.

Old Harbor (Vaerfthavn) has 200m of total quayage at the E side of the basin. It provides two bulk berths with depths of 5.6 to 7.5m alongside.

Shipyards Harbor has 500m of total quayage at the W side of the basin. It provides four berths, with depths of 5 to 6.5m alongside, in addition to two floating docks and a drydock. The largest floating dock is 227m long and 35m wide.

Vesthavn, the main cargo basin, has about 800m of total quayage and an entrance, 180m wide. It provides six berths, including ro-ro and container facilities, with depths of 7 to 10m alongside.

Oil Harbor consists of a T-head tanker berth, 275m long, with a depth of 15m alongside.

Center Harbor has about 300m of total quayage. It provides two berths for general cargo, bulk, and containers with depths of 15m alongside.

Quay No. 23, a chemical tanker jetty, is situated in the center of the basin. It provides a berth, 115m long, with a depth of 7.5m alongside.

Mollebugthavn, located in the W part of the port, has about 700m of total quayage. It provides five berths, including container and ro-ro facilities, with depths of 9 to 13.5m alongside. An extensive pleasure craft basin is situated close SW of the W end of Mollebugthavn.

Vessels up to 300m in length and 13.3m draft can be accommodated within the port (entry from NE).

Aspect.—A lighted range, which may best be seen on the chart, leads NW to the facilities in the NW part of the harbor.

A number of prominent tanks, chimneys, and silos are situated in the SE part of the port.



Fredericia— Skanseoddehavn and Kastelshavn



Fredericia—Center Harbor and Mollebugthavn



Fredericia—Vesthavn

Pilotage.—Pilotage is compulsory for loaded tankers over 1,500 dwt and for all vessels using oil berth No. 23, regardless of size. Pilotage is also compulsory for all tankers in ballast with uncleaned tanks which last carried oil products.

Pilotage is provided by the Lille Baelt pilot station at Fredericia. Vessels should send an ETA message and request pilotage 3 hours in advance. Pilots can be contacted by VHF and board about 4.5 miles NE of Skanseodde E Light.

Regulations.—Vessels should send an ETA message to the port at least 12 hours in advance.

Prior to departure from the harbor, vessels must ascertain that no other ships are entering.

Anchorage.—FA1 and FA2, two designated anchorage areas with depths of 16m, lie centered 1.5 miles SSW and 3.3 miles SSE, respectively, of Trelde Naes Light.

3.11 Snaevringen (55°32'N., 9°45'E.), leading from the SW end Tragten into the N part of Bredningen, follows a winding course for about 10 miles and has very irregular depths. The fairway within this passage is narrow and passes under two bridges. However, the route is not difficult to negotiate because it is deep, the shorebanks in most places are fairly steep-to, and there are numerous navigational aids.

3.12 Snaevringen—North Part.—The two reaches of the passage lying between Fredericia and Gals Klint comprise the N part of Snaevringen.

Strib Havn (55°32'N., 9°45'E.) ([World Port Index No. 29900](#)), a private harbor, is situated 0.3 mile SE of Strib Light and consists of two basins. The southernmost basin is used as a yacht harbor. The northernmost basin has a controlling depth of 5m and can be used by vessels up to 60m in length, 6m beam, and 4.5m draft. Pilots are available, with at least 3 hours prior notice, from the station at Fredericia but vessels can enter only during daylight. The current is reported to constantly set N across the entrances to the basins.

Anchorage is available, in depths of 11 to 13m, within the bight lying S of Strib Havn, at the E side of the passage. Although the bottom is steep, this anchorage area has no swell during NE winds.

Lyngs Odde (55°31'N., 9°45'E.) is situated 1.5 miles SSW of Strib Light, at the SW end of the first reach. Lyngs Odde Flak, a shoal with depths of less than 10m, extends up to about 0.4 mile S of the point.

A conspicuous church stands inland at Erritso, 2.2 miles NW of this point, and a prominent windmill, without sails, is situated 0.4 mile ESE of it.

Lyngs Odde Ammonikhavn (55°31'N., 9°45'E.), situated 0.3 mile N of Lyngs Odde, is a private terminal. The quay, which has additional mooring dolphins, is 55m long and has a depth of 11m alongside. Vessels up to 207m in length can be handled at this terminal. Pilotage is compulsory for vessels over 500 grt or 60m and more in length. Pilots are provided by the station at Fredericia. Three prominent tanks stand in the vicinity of the terminal.

East Lille Baelt Bridge (55°31'N., 9°45'E.), a suspension bridge, spans the passage between Lyngs Odde and Stavrbyskov, 0.6 mile ESE. It has a vertical clearance of 44m. Several lights shown from the bridge and the white sector of Strib Light indicate the navigable fairway.



East Lille Baelt Bridge from N

Stavrbyskov Light (55°31'N., 9°46'E.), a directional sector light, is shown from a hut, 2m high, standing on the E side of the passage, close S of the bridge.

Caution.—Several submarine gas pipelines, which may best be seen on the chart, extend across the passage close N and S of East Lille Baelt Bridge.

Middelfart (55°30'N., 9°44'E.)

[World Port Index No. 29910](#)

3.13 Middelfart is situated on the S side of the passage, about 1 mile SW of East Lille Baelt Bridge. The port consists of three separate harbors. Gamle Havn, a quay at Ny Havn, Hansens Havn, and a berth fronting the Nordiske Cable and Wire Factory.

Ice.—Ice conditions occur occasionally, but traffic is seldom hindered. Ice may appear off the harbor by late December and in the harbor by the middle of January. Off the harbor, it may last until late March.

Tides—Currents.—The tidal range is about 0.3m. Gales from E to NE may raise the water level by up to 1.5m and gales from W to SW may lower it by as much as 1.2m. When the current is setting N in Lille Baelt, the current off the harbor usually sets W.

Depths—Limitations.—The port facilities are described from W to E. Gamle Havn, a small craft basin, is protected by a mole. It has a depth of 4.5m and an entrance, 20m wide. The Old Harbor, situated at the outer side of the mole, has two quays, 80m and 100m long, with depths of 6.5 to 6.8m alongside.

The New Harbor (Ny Havn) has two quays, 100m and 190m long, with depths of 5.2m and 6m, respectively, alongside.

AC Hansens Quay, which is approached through a dredged channel, is 90m long and has a depth of 4.2m alongside.

Nordiske Cable and Wire Factory Quay (NKT Quay) is 200m long and has a depth of 6.5m alongside.

There are facilities for general cargo, ro-ro, and bulk vessels. Vessels up to 150m in length, 30m beam, and 6.5m draft can be accommodated.

Aspect.—A conspicuous church is situated in the town. A prominent chimney stands at the factory in the E part of the port. A conspicuous silo is situated in the vicinity of New Harbor quays. A range formed by beacons indicates the buoyed channel leading S toward AC Hansens Quay.



Middelfart—Old Harbor and New Harbor Quays



Middelfart—NKT Quay

Pilotage.—Pilotage is not compulsory, but is advised for vessels without local knowledge. Pilots are available at the port and may be contacted by VHF.

Anchorage.—Good anchorage is available in the roadstead off the port.

3.14 Kongebro Lystbadehavn (55°31'N., 9°43'E.), a small yacht harbor, is situated 0.6 mile WNW of the W end of Middelfart. It consists of a basin protected by a mole and has a controlling depth of 2.5m.

West Lille Baelt Bridge (55°31'N., 9°43'E.), a fixed railroad bridge, spans the channel about 1 mile W of Lyngs Odde. It is supported by four upright piers, which are numbered 1 to 4 from the S side.

The bridge has a vertical clearance of 33m, except on the S side of Pier 4, where it is only 30.5m. The main channel, between Pier 2 and Pier 3, has a navigable width of 210m and allows for two-way traffic. The passage between Pier 1 and Pier 2 is 155m wide and may only be used by vessels, proceeding to the N, in an E direction. The passage between

Pier 3 and Pier 4 is 155m wide and may only be used by vessels proceeding to the S, in a W direction. The passages between the shore and the outer piers at each end of the bridge may be used by small craft heading in either direction.

Red and green guide lights are shown from the bridge piers and a white light, in addition to a racon, is shown from each side of the bridge over the main channel.

Vessels that have passed under the bridge must allow approaching vessels sufficient room to enable them to adjust course toward the narrow passages.

Fishing, navigating across the fairway, and anchoring, except in emergency, are prohibited within 500m of the bridge.



West Lille Baelt Bridge from W

Snoghoj Light (55°32'N., 9°42'E.), a directional light, is shown from a prominent house, 8m high, standing 0.6 mile WNW of the N end of West Lille Baelt Bridge. The white sector of this light astern indicates the fairway leading WSW into the S part of Snaevringen.

Borup N Light (55°32'N., 9°41'E.), a directional light, is shown from a building standing 0.5mile WNW of Snoghoj Light. The white sector of this light astern indicates the fairway leading SW toward the entrance of Kolding Fjord.

Borup W Light (55°32'N., 9°42'E.), a directional light, is shown from a house, 7m high, standing 0.2 mile W of Borup Light. The white sector of this light indicates the route leading between Pier 3 and Pier 4 of the West Lille Baelt Bridge.

Damgard Light (55°32'N., 9°40'E.), a directional light, is shown from a prominent house, 7m high, standing close WSW of Borup W Light. The white sector of this light indicates the route leading between Pier 2 and Pier 3 of the West Lille Baelt Bridge.

The village of Damgard, situated close NNW of the light, is surrounded by woods and can be identified by a high, light-red colored building, which is prominent from seaward. A steep valley is located close SW of the village.

Gals Klint (55°31'N., 9°41'E.), the NW extremity of Fyn, is a wooded headland, 26m high, located about 0.8 mile WNW of the S end of the West Lille Baelt Bridge.

Caution.—When the tidal current sets S in the passage in the vicinity of West Lille Baelt Bridge, it sometimes is deflected by as much as 40° from the line of the channel and flows from a SE direction; a similar situation occurs when the N tidal current is deflected and flows from a NW direction.

A submarine cable extends across the channel from the vicinity of Lyngs Odde to Middelfart.

Two overhead cables, with a vertical clearance of 44m, span the channel about 0.7 mile W of West Lille Baelt Bridge. The westernmost cable is supported by two prominent pylons, 120m high.

3.15 Snaevringen—South part.—The two remaining reaches lying in the passage between Gals Klint and Stenderup Hage, 3.5 miles S, form the S part of Snaevringen. This part of the route is wider and deeper than the N section.

Faeno (55°29'N., 9°42'E.), with its N extremity located 1.2 miles SSW of Gals Klint, is an island that divides this part of Snaevringen into two passages. The main passage leads W of the island and Faeno Sund leads between the E side of the island and Fyn.

The island has steep and cliffy coasts in most places and is wooded on the N and S ends. A hill, 39m high, rises in the middle of the island and is surmounted by a prominent mill.

Faeno Kalv (55°30'N., 9°40'E.), an islet, lies near the middle of the main passage, 0.7 mile SW of the N extremity of Faeno. It is 12m high, steep-to, and covered with grass.

Flessingen (55°30'N., 9°40'E.), an extensive shoal bank, lies centered 0.4 mile WNW of the N extremity of Faeno. It fronts the N entrance to Faeno Sund. This shoal has depth of 4.5 to 9m and is marked by a buoy moored at its W side.

Faeno Sund (55°29'N., 9°43'E.), the secondary channel leading E of Faeno, has general depths of 10 to 34m. It is free of detached dangers but somewhat constricted. This sound leads SE into Gamborg Fjord. A branch of this sound rounds the S end of Faeno and leads SW to rejoin the main passage through Snaevringen.

Middelfart Lystbadehavn, a yacht harbor, is situated on the N side of the sound, 2.1 miles SE of Gals Klint.

Gamborg Fjord (55°29'N., 9°44'E.), a continuation of Faeno Sund, extends inland for about 4 miles and leads between the Fonsskov Peninsula, on the W side, and the mainland, on the E side. This fjord has general depths of 5 to 7m between the shorebanks. A shallow bank extends up to 1.2 miles NW from the head of the fjord. Local knowledge is essential for entering this inlet.

Skaerbaek Light (55°31'N., 9°37'E.), a directional light, is shown from a structure standing on the roof of a factory, 1.8 miles NW of Faeno Kalv. The white sector of this light astern indicates the route leading SE between the coast of Jylland and Faeno Kalv to the vicinity of Stenderup Hage.

The shorebank, with depths of less than 5m, extends up to about 0.3 mile S in the vicinity of this light and is marked by a buoy.

A conspicuous church, with a tower, stands at Taulov, 1.8 miles N of Skaerbaek Light.

Faeno Light (55°29'N., 9°42'E.), a directional light, is shown from a house, 8m high, standing on the S end of Faeno, 1.7 miles SE of Faeno Klav. The white sector of this light astern indicates the route leading SSE into Bredningen.

Stenderup Hage (55°31'N., 9°38'E.) is located at the S end of Snaevringen, 0.9 mile SSW of Faeno Light. A conspicuous yellow cliff is located 0.5 mile NW of the point. The coastal bank, with depths of less than 5m, extends up to about 0.4 mile seaward in the vicinity of this point and is marked by a buoy.

Caution.—A submarine cable area extend across the channel in the vicinity of Stenderup Hage.

A prohibited anchorage area, which may best be seen on the chart, extends across the channel in the vicinity of Stenderup Hage. This area extends up to about 0.7 mile N and 1.3 miles S of the point.

3.16 Kolding Fjord (55°30'N., 9°32'E.) is entered between Borup Sande and Loverodde, 0.8 mile SW, and extends W for about 4.5 miles to the port of Kolding. With the exception of the entrance, the greater part of this fjord is shallow.

Gudso Vig, a shallow bay, indents the N shore of the fjord and has general depths of less than 1m.

Borup Sande (55°31'N., 9°38'E.), the NE entrance point of Kolding Fjord, is located 0.8 mile E of Skaerbaek Light. This point is wooded and 30m high.

Skaerbaek Fiskerihavn (55°31'N., 9°38'E.), a fishing harbor, lies 0.4 mile NW Borup Sande, at the head of a small bight. The entrance, which faces S, is 15m wide and has a controlling depth of 2.8m.

A small yacht harbor, protected by two moles, is situated close W of this fishing harbor.

Skaerbaekvaerket Havn (55°31'N., 9°37'E.), consisting of a coal quay and an oil jetty, lies 0.8 mile W of Borup Sand and fronts a power plant, with two prominent chimneys.

The dredged channel leading to the quay, which is marked by buoys, is 49m wide and has a depth of 7m. The quay is 253m long and has a depth of 7m alongside. It can handle vessels up to 150m in length and 6.7m draft.

The dredged channel leading to the oil jetty, which is indicated by a lighted range, is 80m wide and has a depth of 11.8m. The jetty extends 200m SSE from the shore at the E end of the harbor and has a depth of 11.9m alongside. It can handle vessels up to 250m in length and 11.6m draft.

Drejensodde Light (55°30'N., 9°35'E.), a directional light, is shown from a hut, 4m high, standing on a point of the same name, 1.4 miles SW of Skaerbaek Light. A prominent sanitarium is situated on the N shore of the fjord, about 1 mile W of the light.

Caution.—A marine farm is established from April to December about 0.3 mile W of Borup Sande.

Protected bird sanctuary areas have been established in bights on either side of the head of the fjord.

Kolding (55°29'N., 9°30'E.)

[World Port Index No. 30160](#)

3.17 The port of Kolding serves an industrial center and is situated at the head of Kolding Fjord.

Ice.—An icebreaker is available and the port is usually kept open to navigation even in severe winters.

Tides—Currents.—The tidal range is only about 0.2m. Winds from E can raise the water level by 1.5m and winds from W can lower it by the same amount.

Depths—Limitations.—The approach channel is dredged to a depth of 7m. The harbor is protected by two breakwaters and has an entrance, 80m wide. A small pleasure craft basin is situated close inside the harbor on the N side.

The outer part of the harbor has 600m of quayage on the N side, with depths of 5 to 7m alongside, and 800m of quayage on the S side, with a depth of 7m alongside. The inner part of the harbor has 500m of quayage with depths of 4.5 to 7m alongside. There are facilities for general cargo, bulk, lumber, and ro-ro vessels. Vessels up to 190m in length, 30m beam, and 6.8m draft can be accommodated.

Aspect.—The white sector of Drejensodde Light indicates the route leading WSW into the fjord. The white sector of Skaerbaek Light astern then indicates the route leading SW to the outer entrance of the dredged approach channel. The fairway of the approach channel is marked by buoys and stakes. The entrance fairway leading into the harbor is indicated by a lighted range.

The town stands out prominently and the ruins of Koldinghus Castle are situated on high ground overlooking it. A number of silos stand on the S side of the harbor basin.



Kolding

Pilotage.—Pilotage is not compulsory but is advised for vessels without local knowledge. Pilot are provided by the Lille Baelt pilot station at Skaerbaek Fiskihavn. They can be contacted by VHF and board about 0.5 mile NW of Faeno Kalv.

Regulations.—All vessels must send an ETA to the port at least 1 hour prior to arrival.

Vessels in the harbor are limited to a speed of 4 knots.

Anchorage.—Good anchorage is available in the entrance of the fjord in depths of 12 to 16m, mud and clay, about midway between Borup Sande and Loverodde.

Lille Baelt—Central Part

3.18 The central part of Lille Baelt as defined in this sector is bound on the N side by Snaevringen and on the S side by a line extending between Lindehoved (55°08'N., 9°59'E), the SW extremity of Helnaes, and Halk Hoved (55°12'N., 9°42'E).

The N section of this part, known as Bredningen, forms a spacious roadstead which lies, in general, between the S entrance to Snaevringen and the island of Brandso, 6 miles S.

To the S of Brandso, the S section of the central part of Lille Baelt is encumbered by extensive shoals on which lie several islands and islets. Bago (55°19'N., 9°48'E) and Aro (55°15'N., 9°45'E) are the largest of these islands. Bago Sund, the deepest and the most extensively used channel, leads between Fyn and Bago.

To the S of Aro, Lille Baelt broadens considerably and becomes deeper. Both shores of this part of Lille Baelt trend irregularly to form a number of bights, but these are of little commercial significance. On the E shore, the bights are separated by prominent, but fairly low peninsulas whereas on

the W shore, the bights, although not as recessive, are separated by steep headlands. The terrain is characterized by rolling country, isolated hills, farmland, and wooded areas.

Haderslev Fjord, a narrow inlet, indents the coast of Jylland, 4 miles SSW of Brandso.

3.19 Bredningen (55°25'N., 9°43'E.), the N section of the central part of Lille Baelt, lies between Stenderup Hage and Brandso, 6 miles S. This spacious roadstead has general depths of 5 to 18m. The 5m curve lies less than 1 mile offshore in most places.

Flaekojet (55°26'N., 9°43'E.), a detached and steep-to shoal bank, lies centered in the middle of the N entrance to Bredningen, 1.6 miles SSE of Stenderup Hage. This shoal bank has a least depth of 4.3m and is marked by a buoy moored close SE of it.

Tonnes Odde (55°26'N., 9°45'E.), the W extremity of the Fonsskov peninsula, is located 2.1 miles SE of Stenderup Hage and terminates in a prominent steep cliff.

Fons Vig is entered between Tonnes Odde and Alehoved, about 2 miles SE. Good anchorage, out of the current, is available within this bay, in depths of 10 to 12m. Alehoved Flak, a shoal bank with depths of less than 5m, extends up to about 1 mile W of Alehoved.

A prominent church stands at Fon, near the head of the bay.

Wedellsborg Hoved (55°22'N., 9°47'E.), a wooded bluff, is located 4.2 miles S of Tonnes Odde. The shore bank, with depths of less than 5m, extends up to about 0.5 mile seaward in the vicinity of this bluff. A prominent church stands at Husby, 2.5 miles E of the bluff.

Tybrind Vig is entered between Alehoved and Wedellsborg Hoved. Anchorage, out of the current, is available within this wide bight, in depths of 7 to 10m, but a stony bank, with depths of less than 5m, extends up to about 1.2 miles seaward from the head.

Vargard Hoved (55°23'N., 9°37'E.), located 4.8 miles SW of Stenderup, is a wooded yellow bluff. Mosvig, a bight, lies between the two points and provides anchorage, in a depth of 8m, soft bottom with mud and ooze.

A prominent church, with a spire, stands at Vejstrup (Sjolund), 3.2 miles WNW of Vargard Hoved.

Skamlingsbanken (55°25'N., 9°34'E.), 113m high, rises 2.5 miles NW of Vargard Hoved and forms the prominent summit of a ridge of hills. It is the highest elevation in this area and is surmounted by a monument.

Hejlsminde Bugt (55°22'N., 9°37'E.) lies between Vargard Hoved and Anslet Hage, 3.2 mile SSE. A short and narrow channel, marked by buoys on its S side, leads from the head of this bight into Hejls Nor, a shallow lake, lying close W.

Anslet Hage (55°21'N., 9°39'E.) is a wooded point. Knudshoved, a prominent point, is located 0.8 mile S of Anslet Hage and fringed by rocks.

Anslet Grund, a shallow shoal bank, extends up to 0.9 mile E of Anslet Hage and is marked by a buoy. Knudshoved Grund, a detached shoal with a depth of 5.8m, lies about 1.5 mile ESE of Anslet Hage.

Brandso (55°22'N., 9°43'E.), a low island, lies about midway between Anslet Hage and Wedellsborg Hoved. A shorebank, which dries in places, fronts this island and extends up to about 0.6 mile seaward in places. A small and shallow

pier extends from the S side of the island. Small vessels can anchor off the pier, in a depth of 6m.

Anchorage.—The regular depths in Bredningen are convenient for anchoring throughout most of the area and the holding ground is good.

Directions.—Vessels proceeding S through Bredningen should pass E of Flaekojet. They should then steer to pass about midway between Brandso and Wedellsborg Hoved.

Caution.—Dangerous wrecks have been reported to lie about 1.2 miles NW of Brandso and about 0.7 mile SW of Wedellsborg Hoved.

A submarine cable extends ENE between Brandso and Wedellsborg Hoved.

An outfall pipeline extends about 0.5 mile SE from a point on the shore located 1 mile S of Vargard Hoved.

3.20 Lille Baelt—Central Part—South Section.—The S section of the central part of Lille Baelt extends between Anslet Hage and Halk Hoved (55°12'N., 9°42'E.), on the W side, and between Wedellsborg Hoved and Lindehoved (55°08'N., 9°59'E.), on the E side.

Bago (55°19'N., 9°49'E.), lying 3.5 miles S of Wedellsborg Hoved, is a low island. A prominent church, with a low tower and spire, stands in the village near the center of the island.

A main directional light (Bago) is shown from a prominent tower, 8m high, standing on the SW extremity of the island. A small and shallow fishing harbor is situated close NE of the light.

A shoal bank, with depths of less than 5m, surrounds the island and extends up to about 1 mile seaward on the NW and SE sides. Bago Flak, the outer part of this shoal, extends about 1.3 miles SSE from the S side of the island.

Egholm, a small grass-covered islet, lies on the shoal bank, close NW of the NW extremity of Bago.

Aro (55°16'N., 9°45'E.), a low island, lies on the W side of the passage, 3 miles SW of Bago. The W side of the island is built up and several groves of trees stand on the E side. Aro Kalv, a peninsula, projects about 1.3 miles NE from the SE extremity of the island. Korso, another peninsula, extends 0.8 mile NW from the SW end of the island.

A main directional light (Aro W) is shown from a prominent tower, 13m high, standing on the NW side of Korso peninsula. It is reported (2000) that some of the sectors of this light are partially obscured by vegetation.

Aro Flak, an extensive shoal area with depths of less than 5m, extends about 1.4 miles E and NE from the E side of Aro Kalv. Aro Sand, a rocky shoal area with depths of less than 5m, extends about 1 mile S from the S side of Aro.

Bardenfleths Grund (55°18'N., 9°44'E.), a rocky shoal, lies about 2.5 miles NNE of Aro W Light, near the edge of the shoal bank extending N from the N side of Aro. This shoal has depths of 2 to 3m and is marked by a buoy moored close NW.

Rodegrund (55°18'N., 9°43'E.), a detached shoal, lies 3.2 miles N of Aro W Light. It has a least depth of 4.8m and is marked by a buoy moored close SE.

Bastholm (55°17'N., 9°46'E.), a small islet, lies on the shoal bank, 0.5 mile N of the N extremity of Korso peninsula. Smaholme, another small islet, and Graesholm, a drying



Bago Light



Aro W Light

sandbank, lie on the shoal bank 0.3 mile S and 0.6 mile E, respectively, of Bastholm.

Linderum (55°18'N., 9°43'E.), a small islet, lies 1.9 miles NNW of Aro W Light, on Linderum Grund, an extensive shoal area with depths of less than 5m.

Toro (55°15'N., 9°55'E.), a low and flat island, lies 4 miles SE of Bago Light and close off the coast of Fyn. Toro Rev, an extensive shoal area with depths of less than 5m, extends up to 2 miles W from the W side of the island.

Nordlige Lillegrund (55°12'N., 9°49'E.), a detached shoal with a least depth of 6.7m, lies about 3.2 miles SW of Toro and is the outermost of the dangers extending W from Fyn.

Toro Banke (55°12'N., 9°54'E.), a detached shoal bank, lies 3 miles E of Nordlige Lillegrund and has a least depth of 5.3m. Several other isolated shoal patches, with depths of less than 10m, lie between Nordlige Lillegrund and the coast of Fyn and may best be seen on the chart.

Caution.—A nature reserve area lies in the vicinity of Aro Kalv. Entry is subject to numerous restrictions.

A marine farm is established from March to December in the area lying 0.5 mile E of the E side of Bago.

3.21 East side—Tvingsbjerg N Light (55°19'N., 9°54'E.), a directional light, is shown from a house, 8m high, standing on the E side of the passage, 5 miles SE of Wedellesborg Hoved. A conspicuous church stands at Sandager, 1.5 miles NE of the light.

Mariendal, a large farm house surrounded by trees, stands about 1.6 miles S of Tvingsbjerg N Light and is prominent from seaward.

Sonderby Klint (55°13'N., 9°56'E.), situated 5.5 miles SSE of Tvingsbjerg N Light, is a prominent bare point, which rises to a height of 45m close inland. A prominent church, with a tower surmounted by a turret, stands at Dreslette, about 3.5 miles E of the point.

Lindehoved (55°08'N., 9°59'E.), located 5.5 miles SSE of Sonderby Klint, is the SW extremity of Helnaes, a peninsula extending about 5 miles S from the coast of Fyn. The peninsula narrows to an isthmus near its N end.

Helnaes Light (55°08'N., 9°59'E.), a main sector light, is shown from a prominent tower, 28m high, standing on Lindehoved. A prominent church, with a tower, stands at Helnaes, 1.5 miles ENE of the light. This church can only be seen on certain bearings and a prominent mill, without sails, is situated 0.8 mile NNW of it.



Helnaes Light

The coastal shoal bank, with depths of less than 10m, extends up to about 1.2 miles WSW of the light in this vicinity and is marked by a buoy. A detached shoal, with a least depth of 6.9m, lies about 2.4 miles W of the light.

3.22 Assens (55°16'N., 9°53'E.) ([World Port Index No. 29930](#)), a small port, is located 2.5 miles S of Tvingsbjerg N Light. It lies within a small inlet that is formed by a peninsula projecting about 0.4 mile N from the coast.

Tides—Currents.—Gales from NW to NE may raise the water level by up to 1.4m and gales from W to S may lower it by as much as 1m.

Depths—Limitations.—Asnaes Rev, a sandy shoal area with depths of less than 5m, extends up to about 1 mile NW of the N extremity of the peninsula and is marked by a buoy.

A dredged channel leads SSE to the harbor through the dangers in the approaches. It passes on the E side of Asnaes Rev and has a controlling depth of 7m.

An extensive pleasure craft basin occupies the S part of the harbor. Sydlige Havn, the southernmost basin, has about 300m of total quayage with a depth of 4m alongside. It is mostly used by small craft. Mellemhavn, located close N of Sydlige Havn, has a depth of 5m. It is narrow and mostly used by ferries.

Nordlige Havn, located close N of Mellemhavn, is the commercial basin. It has about 400m of total quayage with depths of 6.6 to 7m alongside. There are facilities for general cargo and bulk vessels. Vessels up to 130m in length, 20m beam, and 6.8m draft can be accommodated.

Aspect.—Assens Havn Light, a directional light, is shown from a structure, 4m high, standing at the N extremity of the peninsula. A breakwater extends about 120m NE from this structure and its head is marked by a light. The dredged approach channel leading SSE into the inlet is indicated by a lighted range.

A prominent church, with an octagonal tower surmounted by a spire, stands in the town and a conspicuous chimney is situated on a sugar factory 0.2 mile S of it. Several prominent silos are situated at the E side of the harbor.



Assens

Pilotage.—Pilotage is not compulsory, but is advised for vessels over 600 tons or those without local knowledge. Pilots are provided by the Lille Baelt pilot station at the port. They can be contacted by VHF and board about 1.5 miles NNW of the harbor entrance.

Caution.—It is reported that the lights at the port may be difficult to identify because of strong background illumination.

3.23 West side.—Avne Vig (55°19'N., 9°38'E.), a small and shallow bay, lies 1.5 miles S of Anslet Hage.

Orby Hage (55°18'N., 9°40'E.), a point located 2 miles SE of Avne Vig, is fronted by a shallow spit. Rumpgrund, a shoal

area with depths of less than 5m, lies about 1.3 miles NE of the point, near the outer edge of the coastal bank.

Haderslev Fjord (55°19'N., 9°38'E.) is entered between Orby Hage and Stagodde, 0.4 mile SW. This narrow and winding inlet extends in a WSW direction for about 7 miles. It is too narrow for anchoring and has depths of only 2m. A dam, situated at the head, separates the fjord from a large lake.

The shallow coastal bank encumbers the entrance of the fjord and extends up to about 1.3 miles ESE of Orby Hage. A dredged channel, marked by buoys, leads through the dangers in the approaches and along the entire length of the fjord. It has a controlling depth of 6m.

Haderslev (55°15'N., 9°30'E.) ([World Port Index No. 30120](#)), a small port serving an agricultural area, is situated at the head of the fjord.

Ice.—The port is generally kept open all year round and icebreakers are used when necessary.

Tides—Currents.—The tidal range is about 0.2m. Winds from E may raise the water level by up to 1.3m and winds from W may lower it by the same amount.

Depths—Limitations.—The dredged entrance channel has a controlling depth of 6m over a width of 26m. The S side and inner part of the harbor basin are shallow and occupied by facilities for pleasure craft. The N side of the outer part of the basin provides about 500m of total commercial quayage with depths of 4 to 6m alongside. Vessels up to 110m in length, 17m beam, and 5.9m draft can be accommodated.

Aspect.—The dredged entrance channel is marked by buoys and stakes. The head of the harbor is shallow and a bridge crosses the waterway leading to the dam. A number of prominent silos stand on the N side of the harbor.

Pilotage.—Pilotage is not compulsory, except for vessels over 80 tons under tow. It is recommended for vessels of 500 tons and over. Pilots can be contacted by VHF and board off Arosund, about 2 miles SE of the fjord entrance.

Regulations.—Vessels are restricted to a speed of 6 knots in the dredged channel.

Outbound vessels, not under pilotage, must avoid meeting inbound vessels in places where passing is difficult.

Caution.—A designated nature reserve is situated adjacent to the channel in the vicinity of the harbor. Entry is subject to numerous restrictions.

3.24 Arosund (55°16'N., 9°43'E.), a small harbor, is situated 2 miles SE of Orby Hage and protected by a breakwater. It consists of an enclosed basin with a ferry berth situated close S of it. The entrance has a controlling depth of 3m. The harbor is only used by pleasure craft, fishing boats, and small ferries.

A main sector light is shown from a prominent tower, 10m high, standing on the E extremity of the S mole at the W side of the entrance to Arosund harbor.

Rade Hoved (55°14'N., 9°43'E.), a steep and bare point, is located 1.5 miles S of Arosund. It is fronted by Rade Grund, a shoal with depths of less than 5m, which extends up to about 0.5 mile SE from the coast.

Halk Hoved (55°12'N., 9°42'E.), 28m high, is located 2.6 miles SSW of Rade Hoved. This steep and prominent headland is formed by nearly vertical cliffs. Halk Grund, a shoal with

depths of less than 10m, fronts the headland and extends up to 0.5 mile seaward.

Schonheyder Banke, a detached shoal with a least depth of 7.6m, lies about 2 miles S of Halk Hoved.

3.25 Directions.—**Bago Sund** (55°18'N., 9°52'E.), the main shipping route, passes between Bago and the coast of Fyn. It consists of three reaches and has a least depth of 11.8m in the S part. On the E side, the channel is bordered by the dangers fronting the coast of Fyn. On the W side, the channel is bordered by the dangers extending from the N, E, and S sides of Bago and those extending from the SE and S sides of Aro. These dangers are marked at the outer edge by buoys.

The northernmost reach leads SE and is indicated by the white sector of Tvingsbjerg N Light. The central reach leads SSE and is indicated by the white sector of Assens Havn Light. The southernmost reach is narrow and leads SW. It is indicated astern by a lighted range, the front light of which is situated on the same structure as Tvingsbjerg N Light.

Fyr Renden leads into the narrowest part of the fairway, 2 miles SE of the SW end of Bago. The W side of this fairway is formed by the extensive shoal area lying between Bago and Aro. The E side of the fairway is formed by the shoal bank extending from the coast close N of Assens. A lighted range indicates the fairway leading through the SW reach between these dangers.

Fyr Renden (55°18'N., 9°46'E.), a narrow and tortuous channel, has a controlling depth of 6m. It passes between the shoal banks extending W and SE from Bago and NE from Aro. The W side of the fairway, which has a least width of only about 300m, is marked by buoys. This channel can be used by small vessels with local knowledge.

Aro Sund (55°15'N., 9°43'E.), a narrow channel, leads through an extensive coastal shoal area fronting the E side of Jylland. The channel, which is marked by buoys and lights, passes W of Aro. This route is available to vessels of moderate draft. It has general depths of 9 to 23m and follows an intricate course. The currents do not always follow the direction of the fairway in this passage and sometimes set across it onto the shoals.

A secondary channel leads W of Linderum. It has a least depth of 3.8m and is limited to small craft with local knowledge.

Caution.—Magnetic anomalies have been reported to exist within an area lying about 1 mile W of the N part of Bago.

A submarine water pipeline lies across Bago Sund within an abandoned cable area. It extends from the SE side of Bago to Mariendal (farm house) and is marked by beacons on both shores.

Lille Baelt—South Part

3.26 The S part of Lille Baelt as defined by this sector, extends, on the E side, from Lindehoved to Dovnsklint (54°43'N., 10°42'E.), the S extremity of Langeland, and, on the W side, from Halk Hoved to Pols Huk (54°53'N., 10°04'E.), 23 miles SE. It also includes Abenra Fjord, Als Fjord, Marstal Bugt, and Als Sund as far as, but not including, the port of Sonderborg.

The main passage in this part of Lille Baelt is deeper, less encumbered with detached dangers, and wider than the central part. However, the coastal configuration on both sides of this part trends more erratically.

In general, the terrain on Jylland and the islands consists of rolling hills and low land. It is interspersed with highly cultivated fields and wooded areas.

The main route through this part of Lille Baelt leads S from the S end of Bago Sund and passes W of Nordlige Lillegrund (55°12'N., 9°49'). It then leads in a SE direction, passing close off the NE coast of Als, into Kieler Bucht. This route, which has a least depth of 20.1m, passes through the channel lying SW of the detached dangers lying in the center of this part of Lille Baelt.

An alternate channel, which has a least depth of 11.8m, leads through the channel lying NE of the detached dangers.

Tides—Currents.—In the areas of open water, the mean change in water level is small. However, in the narrow channels and where the shoreline is irregular, the water level may vary by as much as 1.5m. Generally, winds from E to NE raise the water level by as much as 1.2m and winds from W to NW lower it by the same amount.

With winds from ENE to S, the current generally sets N; with winds from other directions, the current sets S.

3.27 Off-lying Dangers—Schonheyder Banke (55°09'N., 9°43'E.) lies about 2 miles S of Halk Hoved and has a least depth of 7.6m. This detached shoal bank consists of clay mixed with sand and stones and a buoy, marking a firing area, is moored in its vicinity.

Holst Banke (55°08'N., 9°40'E.) lies centered 4 miles S of Halk Hoved and has a least depth of 7.3m. This large detached shoal bank consists of clay mixed with sand and stones and is marked by buoys.

Lillegrund (55°07'N., 9°55'E.), a stony patch, lies about 2.8 miles WSW of Helnaes Light. It has a least depth of 3.7m and is marked by a buoy. This detached shoal lies on a bank and an isolated shoal, with a depth of 6.9m, lies about 1.2 miles NNE of it.

Langgrund (55°06'N., 9°55'E.) lies about 2.8 miles SW of Helnaes Light. This detached shoal lies near the SE end of a bank and has a least depth of 5.9m.

Hesteskoen (55°05'N., 9°54'E.), a steep-to and partly drying reef, lies on a detached shoal, 4.1 miles SW of Helnaes Light. The shoal has depths of less than 5m and is marked by a buoy moored close NE of it.

The channel leading between Hesteskoen and Langgrund has a least depth of 10.9m.

Sondre Stenron (55°04'N., 9°57'E.), a stony patch, lies about 4.5 miles SSW of Helnaes Light. It has a least depth of 0.7m and lies at the N end of a sandy shoal bank, which is marked by buoys. Depths of less than 10m extend up to about 2.3 miles SE and 1.2 miles S of this patch. The channel separating Hesteskoen from this patch has depths of more than 18m.

3.28 West Side—Sandvig (55°11'N., 9°36'E.) lies 3 miles WSW of Halk Hoved. The land extending SW of the latter point is high and steep. This bay affords anchorage, sheltered from N winds, in depths of 8 to 18m, sand and mud.

Diernaes Bugt (55°09'N., 9°31'E.), a small and shallow bay, lies 3.8 miles SW of Sandvig. Slibso, a lagoon, lies close inland of this bay.

Sonderballe Hoved (55°08'N., 9°31'E.), a prominent wooded headland, is located 1.7 miles SSE of Diernaes Bugt.

Barso (55°07'N., 9°33'E.), a small island, lies off the entrance to Genner Fjord, 1.3 miles ESE of Sonderballe Hoved. Laddenhoj, with a saddle-backed summit, rises to a height of 38m at the N end of the island. The N, S, and W sides of the island are fairly steep-to.

Barso Grund, a shoal bank with depths of less than 5m, fronts the E side of the island and extends up to about 0.7 mile seaward.

Genner Fjord (55°07'N., 9°30'E.), a sheltered inlet, is entered S of Sonderballe Hoved and has general depths of 5 to 20m. Barso, lying in the approaches, can be passed on either side.

Kalvo (55°07'N., 9°28'E.), a small craft harbor, is situated at the head of the fjord and has a controlling depth of 3.3m. Sheltered anchorage is available, in depths up to 14m, off this harbor.

Knivesbjerg (55°08'N., 9°27'E.), a prominent hill, stands 2.7 miles W of Sonderballe Hoved. It is 92m high and surmounted by a tower.

Knudshoved (55°05'N., 9°33'E.), a steep point, is located 2.6 miles SSE of Sonderballe Hoved. It is 15m high and forms the N entrance point of Abenra Fjord.

Starbeck Grund, a shoal spit, projects about 1.2 miles E from this point. It has depths of less than 5m and is marked by a buoy.

Abenra Fjord (55°02'N., 9°30'E.) is entered between Knudshoved and Varnaes Hoved, 2.8 miles SSE. This deep fjord extends about 5 miles WSW and is mostly free of dangers. Its sides are high and rather heavily wooded. Several mussel beds, marked by poles, are situated along the N shore of the fjord.

Caution.—An outfall pipeline extends about 0.5 mile SE from a point on the shore located 1.2 mile SW of Halk Hoved.

A restricted area, which may best be seen on the chart, lies 3.5 miles SW of Halk Hoved, in the approach to Sandvig. Anchoring, fishing, and seabed activities within this area could be dangerous due to the existence of bottom mines.

A firing exercise area fronts the area lying between Sandvig and Diernaes Bugt. It extends up to 4 miles seaward and is marked by buoys.

Marine farms, marked by buoys, are established from March to December along the NW side of Barso and from April to December along the SW side.

A nature reserve area lies in the vicinity of Kalvo, at the head of Genner Fjord. Entry is subject to numerous restrictions.

Several mussel beds, marked by poles, front the points along the N shore of Abenra Fjord.

3.29 Abenra (Aabenraa) (55°03'N., 9°26'E.) ([World Port Index No. 30100](#)), a small commercial port, is situated at the head of Abenra Fjord. A yacht basin lies close S of the harbor.

Ice.—The port is generally open throughout the winter, but icebreaker assistance may be required at times.

Tides—Currents.—The water in the port is brackish. Gales from NE to E may raise the water level by up to 1.5m and gales from SW may lower it by as much as 1m.

Depths—Limitations.—The dredged entrance channel, which is about 0.5 mile long, has a depth of 11m and a minimum width of 120m.

Nyhavn, the N basin, provides about 800m of total quayage with depths of 6.5 to 11m alongside. Gammelhavn, the W basin, provides about 500m of total quayage with a depth of 7.5m alongside. Sydhavn, the S basin, provides 250m of total quayage. It has a depth of 4m and is used by fishing vessels.

Sonderjyllandskajan, 260m long, is situated S of the entrance to Sydhavn and has a depth of 11m alongside. A ro-ro jetty, 150m long, extends SSE from the S end of this quay and has a depth of 11m alongside.

The tanker terminal is situated on the E side of the entrance to Nyhavn. It has two berths with depths of 11m and 7m alongside.

Cargo vessels up to 250m in length and tankers up to 200m in length can be accommodated, with drafts up to 10.75m.

Aspect.—Sonderstrand Light is shown from a structure standing at the head of the fjord, 0.6 mile S of the port. The approach channel leads WSW and is indicated by the white sector of this light. The entrance fairway leads NW and is indicated by a lighted range.

A prominent red church, with a slate roof and slender spire, stands in the town, close W of the harbor. Several silos are situated in the vicinity of the harbor.



Abenra

Pilotage.—Pilotage is compulsory for tankers over 1,500 dwt and carrying oil, gas, or dangerous chemicals. It is recommended for all vessels over 2,000 grt. Pilots are provided by the Lille Baelt pilot station at the port. They can be contacted by VHF and board about 3 miles E of the harbor.

Anchorage.—A designated anchorage area, with depths of 26 to 30m, lies centered about 2 miles E of Knudshoved and may best be seen on the chart. nd sand.

3.30 Enstedvaerket (55°01'N., 9°26'E.) (*World Port Index No. 30105*) is situated at the head of Abenra Fjord, 1.2 miles S of Abenra. The main facilities, which are owned by an electric power company, consist of an oil terminal and a coal quay.

Depths—Limitations.—The dredged approach channel, leading WSW, is about 2 miles long and has a depth of 18m.

The coal quay is 375m long and has a depth of 18m alongside. A jetty projects 270m ENE from the E end of this quay and has two oil berths, fronted by dolphins, at its head. The outer berth has a depth of 18m alongside and the inner berth has a depth of 15.5m alongside.

Three berths situated at the W side of the harbor have depths of 8m alongside and are used by coasters.

Vessels up to 350m in length and 17m draft can be accommodated.

Aspect.—The dredged approach channel is indicated by a lighted range. The limits of the dredged area in the harbor are indicated by lighted beacons.

A conspicuous chimney stands at the power station.



Enstedvaerket

Pilotage.—Pilotage is compulsory for vessels of 13m draft and over and for tankers over 1,500 dwt carrying oil, gas, or dangerous chemicals. Pilots are provided by the Lille Baelt pilot station at Abenra. They can be contacted by VHF and board about 3 miles E of the harbor. Pilots board large vessels about 3.5 miles NE of Nordborg Light.

Anchorage.—A designated anchorage area, with depths of 26 to 30m, lies centered about 2 miles E of Knudshoved and may best be seen on the chart. nd sand.

3.31 Varnaes Hoved (55°03'N., 9°35'E.), 25m high, is a steep point. It forms the S entrance point of Abenra Fjord and also the W entrance point of Als Fjord.

Als Fjord (55°03'N., 9°38'E.) is entered between Varnaes Hoved and the NW extremity of Als, 2 miles ENE. It leads about 7 miles in a general SE direction to the junction with Als Sund and Augustenborg Fjord. This fjord is about 1 mile wide and has general depths of 11 to 33m in the fairway channel. The SW side of the fjord is higher and more wooded than the NE side. Several marinas are situated within the fjord.

Ballebro Light (55°00'N., 9°40'E.) is shown from a prominent tower, 6m high, standing on the W side of the fjord, about 4 miles SE of Varnaes Hoved. The white sectors of this light indicate the main fairway.

A prominent church stands at Ullerup, about 1.8 miles SSW of the light.

Stegsvig, a bay, indents the E side of the fjord, 3 miles ESE of Varnaes Hoved. Several shoals, with depths of 5 to 8m,

encumber the entrance. Dyvig, a shallow inlet, leads about 1.2 miles E from the head of the bay and has a pier at its head. A channel, 20m wide, leads to the pier and has a controlling depth of 3.5m. A small boat harbor lies close S of the pier.

Sandvig, a bay, lies 3.6 miles E of Ballebro Light, near the head of the fjord, and has general depths of 12 to 14m.

Stevning Nor, a narrow and shallow inlet, lies 0.7 mile S of Sandvig. It is used by small vessels with drafts up to 4m and local knowledge.

Augustenborg Fjord (54°59'N., 9°46'E.), the SE continuation of Als Fjord, is entered about 3.5 miles ESE of Ballebro Light. This fjord is about 4 miles long and has general depths of 5 to 13m. The head is encumbered by shallow shoals. Small vessels can anchor, in a depth of 9m, about 1.5 miles inside the fjord.

Augustenborg (54°57'N., 9°52'E.) ([World Port Index No. 30095](#)), a small port, lies in a shallow inlet extending NE from the head of Augustenborg Fjord. A road embankment, with a sluice at its N end, crosses the inlet near the town.

A dredged channel, marked by buoys, leads to the harbor and has a controlling depth of 4m. The harbor provides a quay, 170m long, with a depth of 4m alongside. Vessels of up to 80m in length, 15m beam, and 3.5m draft can be accommodated.

Caution.—Several submarine cables lie across Als Fjord, 3.5 miles SE of Varnaes Hoved. The landing places are marked by beacons on both shores.

A ferry crosses Als Fjord in the vicinity of Ballebro Light.

It is reported (2001) that hovercraft operate in Augustenborg Fjord.

3.32 Als Sund (54°58'N., 9°45'E.) leads S for 5 miles to Sonderborg and separates Als from the mainland. It is entered, at the N end, between Snogbaek Huk and Arnkilsore, 0.8 mile ESE. This narrow sound has low and wooded shores in the N part, becoming higher toward the S.

Snogbaek Huk (54°56'N., 10°03'E.), the W entrance point, is located 2.4 miles ESE of Ballebro Light. Snogbaek Hage, a shallow bank of sand and rock, extends about 0.4 mile NE from this point and is marked by a lighted buoy. A detached shoal, with a depth of 8.4m, lies about 0.8 mile NE of the point.

Sottrupskov Light is shown from a structure, 2m high, standing on the W side of the passage, 1 mile S of Snogbaek Huk. The white sector of this light indicates the entrance channel. A prominent church stands at Vester Sottrup, about 2 miles SW of the light.

The fairway in the sound is marked by lighted buoys on the W side and unlighted buoys on the E side. It varies from 100 to 250m in width and has a controlling depth of 10.5m, close N of Sonderborg.

Allsundbroens, a fixed bridge, spans the sound about 0.9 mile N of Sonderborg. It has a navigable width of 50m and a vertical clearance of 33m.

For further details of Sonderborg, [see paragraph 3.48](#).

Vessels without local knowledge are advised to use the services of a pilot as a considerable amount of local traffic use this passage. Pilots are available from Sonderborg and will board vessels N of Snogbaek Huk.

Caution.—The current in Als Sund usually flows N and attains rates of 3 to 4 knots. This makes navigation somewhat

difficult for large vessels as the current tends to set toward one or the other shore.

3.33 The NE and E shores of Als form the W side of the main passage leading through the S part of Lille Baelt. Between Tontoft Nakke and Pols Huk, 17 miles SE, the shore is fairly high with occasional steep cliffs.

Nordborg Light (55°05'N., 9°43'E.) is shown from a prominent tower, 20m high, standing about 4 miles ENE of the entrance to Als Fjord. The coast between is low and barren.

Tontoft Nakke (55°05'N., 9°45'E.), the N extremity of Als, is located 1.2 miles ENE of Nordborg Light. Tranesand, a shoal with depths of less than 3m, fronts the point. It extends up to about 0.6 mile seaward and is marked by a buoy.



Nordborg Light

Tranerodde Light (55°03'N., 9°51'E.) is shown from a prominent tower, 10m high, standing on a point of the same name, 4.2 miles SE of Tontoft Nakke. Tranerodde Grund, a shoal with depths of less than 10m, fronts the point and extends up to about 1 mile seaward.

A conspicuous white church, with a slender spire, is situated on high ground at Havnbjerg, 1.8 miles WSW of the light and a prominent windmill stands near it.



Tranerodde Light

Taksensand Light (55°00'N., 9°58'E.) is shown from a prominent tower, 19m high, standing on a point of the same name, 4.5 miles SE of Tranerodde Light.



Taksensand Light

Fynshav Ferry Harbor (55°00'N., 9°59'E.), situated 1 mile SE of Taksensand Light, is protected by breakwaters. It is used exclusively by ferries from Bojden (55°06'N., 10°05'E.).

Mommark Havn (54°56'N., 10°03'E.), situated 5.2 miles SE of Taksensand Light, is protected by a breakwater. It is used by the ferries from Faaborg (55°06'N., 10°14'E.), small craft, fishing boats, and yachts. The entrance has a controlling depth of 4m. Vessels up to 25m in length, 8m beam, and 3m draft can be accommodated.

Pols Huk (54°53'N., 10°04'E.), the SE extremity of Als, is located 3.5 miles SSE of Mommark Havn. Pols Rev, a shoal bank with depths of less than 5m, extends up to about 1.5 miles SE from the point and is marked by a buoy.

Gammel Pol Light (54°53'N., 10°04'E.) is shown from a prominent column, 11m high, standing on the N part of Pols Huk. A prominent church stands at Lysabild, 2.6 miles NW of the light.

Directions.—The main route through this part of Lille Baelt passes close off the NE coast of Als. The channel leads SE and ESE to pass SW of the detached dangers lying offshore. The track is indicated by the white sectors of Tranerodde Light and Taksensand Light.

A fairway, 300m wide, lies 1.5 miles NNE of Tranerodde Light, between Tranerodde Grund and Hesteskoen. It is marked by lighted buoys and can be used by vessels with drafts up to 17m.

From a position located about 4 miles E of Taksensand Light, the route then leads SSE through the S part of Lille Baelt into Kieler Bucht (see paragraph 3.68).

Caution.—A marine farm lies 0.6 mile offshore, about 2 miles SE of Tranerodde Light. It is marked by lighted buoys and may best be seen on the chart.

Submarine cables, which may best be seen on the chart, lie across Lille Baelt and extend NE from close NW of Fynshavn and ENE from a point located 1 mile N of Gammel Pol Light.

A marine farm lies close offshore, about 0.6 mile NW of Mommark Havn. It is marked by lighted buoys and may best be seen on the chart.



Gammel Pol Light

A restricted area, which may best be seen on the chart, lies centered 2.5 miles NE of Pols Huk. Anchoring, fishing, and seabed activities are prohibited in this area due to the existence of unexploded ordnance surrounding a wreck.

3.34 East side—Hornenaes (55°05'N., 10°05'E.), located 4.8 miles SE of Helnaes Light, is the W end of an irregularly shaped peninsula. This headland, which forms the S entrance point of Helnaes Bugt, has steep cliffs and rises to a height of 40m close inland. The 10m curve lies about 0.5 mile W of the point.

Helnaes Bugt (55°07'N., 10°04'E.) lies N of Hornenaes and its entrance is encumbered by shoals. This bay is divided into Sonder Fjord and Norre Fjord by a shallow bank extending in an E direction from the E side of Helnaes to the E shore. Three islets lie on this bank.

Kalvø, a small peninsula, projects from the E side of the entrance to the bay, 4 miles SE of Helnaes Light. Bojden Ferry Harbor, protected by two moles, is situated at the NW end of this peninsula. This small harbor is used exclusively by the ferries from Fynshav (55°00'N., 9°59'E.).

Several ramps, piers, and loading places, with depths of less than 3m alongside, are situated within Helnaes Bugt and used only by small craft.

A conspicuous church, with a tall spire at one end and two small towers at the other, stands on high ground at Horne, 4.2 miles E of Bojden Ferry Harbor.

Lyo (55°02'N., 10°09'E.), located 3 miles SE of Hornenaes, has steep cliffs along its W and S shores and is flat at the NW end. A prominent village church stands near the center of the island, but is generally obscured by trees. A conspicuous mill, without sails, is situated on high ground close W of the church.

A shore bank, with depths of less than 10m, fronts the W side of the island and extends up to about 0.8 mile seaward. Lyo Flak, a rocky shoal with a least depth of 4.7m, lies about 1.3 miles W of the W side of the island and is marked by a buoy.

Lyo Rev Light is shown from a mast, 4m high, standing on the low N extremity of the island. A sandy spit extends about 0.3 mile E from the light and is marked by a buoy. Lyo Sand, a shore bank with depths of less than 5m, fronts the E and SE sides of the island and extends up to about 0.8 mile seaward.

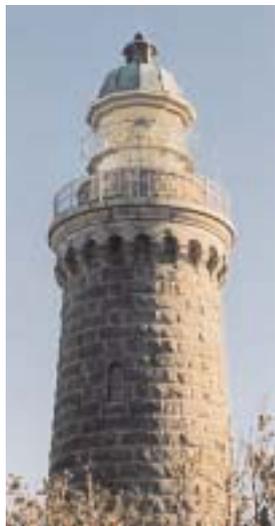
Skrams Flak, a detached shoal area with depths of less than 5m, lies centered 1.8 miles SE of the SE side of the island and is marked by a lighted buoy.

Lyo Havn, consisting of a pier and a yacht basin, is situated at the N side of the island. The head of the pier provides a berth for a ferry and has a controlling depth of 4.5m. Vessels up to 20m in length, 5m beam, and 3m draft can be accommodated alongside.

Aero (54°55'N., 10°20'E.), 12 miles long, lies with its N end located 4.5 miles SSE of Lyo. A ridge of hills extends along the longitudinal axis of this island and its summit, 67m high, rises near the middle. The island is mostly built over and, although there are no woods, the numerous hedge rows give it a wooded appearance.

3.35 Skjoldnaes (54°58'N., 10°12'E.), the N extremity of the island, is 24m high. A main light is shown from a prominent tower, 22m high, standing on this point.

A prominent church, with a tower surmounted by a small spire, stands at Sodby, 2.5 miles SE of the light. This church is surrounded by trees and is not visible on all bearings. A conspicuous windmill is situated on high ground 1.2 miles SE of the church.



Skjoldnaes Light

Vejsnaes Nakke (54°49'N., 10°25'E.), the S extremity of Aero, is formed by a bluff surmounted by a hill, 22m high. A main light is shown from a mast, 9m high, standing on this point.

A prominent church, with a tower surmounted by a spire, stands at Store Rise, 2.3 miles NNW of the light. Another prominent church, with a tower surmounted by an open belfry, stands at Tranerup, 4 miles NW of the light.

A prominent windmill stands at Bregninge, 2.4 miles NW of Tranderup, and a church, with a slender spire, is situated 0.4 mile SSE of it.

Vodrup Flak (54°51'N., 10°16'E.), a detached shoal bank with a least depth of 8.2m, lies centered about 2.3 miles offshore, 5.6 miles NW of Vejsnaes Nakke Light.

Vejsnaes Flak (Sneedorffs Grund) (54°45'N., 10°26'E.), a detached shoal bank with a least depth of 6.4m, lies centered 4.2 miles S of Vejsnaes Nakke Light.

Caution.—A restricted area, which may best be seen on the chart, lies centered 8 miles W of Vejsnaes Nakke Light. Anchoring, fishing, and carrying out any seabed activities within this area are prohibited due to the existence of wartime gas shells on the bottom.

A submarine exercise area, which may best be seen on the chart, lies centered 7.5 miles W of Vejsnaes Nakke Light in the vicinity of the above restricted area.

3.36 Marstal Bugt (54°47'N., 10°35'E.) is entered between Vejsnaes Nakke and Dovnsklint, 11 miles SE. This bay is enclosed by the S side of Aero and the SW side of Langeland. A shallow and sandy flat, with several small islands lying on it, connects the SE end of Aero to Langeland and separates the bay from the waters lying S of Fyn. The bay has general depths of 9 to 20m throughout, but several detached shoals, with depths of less than 10m, lie near the center of the entrance.

The 10m curve lies within 1 mile of the shore except off the SE end of Aero where it extends up to 2 miles seaward. Both sides of the bay are mostly low.

Vessels can anchor as convenient within the bay, sheltered from N winds.

For details of Marstal (54°51'N., 10°31'E.), which can be entered from the bay, [see paragraph 3.44](#).

Bagenkop (54°45'N., 10°40'E.) ([World Port Index No. 29770](#)), a small harbor, is situated 2 miles NNW of Dovnsklint and protected by breakwaters. The inner three basins have depths of 3 to 3.5m and are used by fishing vessels and small craft. The entrance channel, outer basin, and ferry berth have a depth of 6m. Vessels up to 50m in length, 10m beam, and 3m draft can be accommodated.

Dovnsklint (54°44'N., 10°43'E.) is the S extremity of Gulstav, the S part of Langeland. It is formed by white cliffs, up to 16m high. Keldsnor Light is shown from a tower standing 1.2 miles ENE of this point ([see paragraph 2.25](#)).

Snekke Grund, a shore bank with depths of less than 10m, fronts Dovnsklint and extends up to about 1.3 miles seaward.

Gulstav Flak (54°41'N., 10°43'E.), a detached bank of sand and stones with depths of less than 10m, extends up to about 4 miles S of Dovnsklint. A wreck, with a swept depth of 9m, is reported (1998) to lie on the S part of this bank.

Caution.—Restricted areas, which may best be seen on the chart, lie centered 4 miles SE of Vejsnaes Nakke Light, 3.5 miles SW of Dovnsklint, and 5 miles SSW of Dovnsklint. Vessels are prohibited from anchoring, trawling, dredging, or carrying out any seabed activities within these areas due to the residual danger from mines lying on the bottom.

High speed ferries operate in the vicinity of Marstal Bugt.

Fairways South of Fyn

3.37 The fairways S of Fyn lie within an area enclosed by the S coast of Fyn, the N coast of Aero, and the SW coast of Langeland. The E limit of this area is defined roughly by a line extending between Svendborg (55°03'N., 10°37'E.) and Rudkobing (55°56'N., 10°43'E.). Most of the area is foul and encumbered by numerous islands, islets, and shoals.

Tasinge, the largest island, forms the S side of Svendborg Sund. Ports of commercial importance in this area include Faborg (55°06'N., 10°15'E.), Marstal Havn (54°51'N., 10°31'E.), Soby (54°57'N., 10°16'E.), and Aeroskobing (54°53'N., 10°25'E.). There are also numerous shallow small craft harbors and yacht marinas in the area.

For buoyage purposes, the channels lying S of Fyn are considered to run E from Lille Baelt toward Svendborg.

Ice.—Ice formation in this area may appear quite early in the season. However, the larger ports are generally open to navigation all year round and icebreakers are used when necessary. Ice has been known to appear as early as the first part of December off Rudkobing and remain as late as the first week of April. As a rule, the W part of this area, to the N of Aero, is the last to freeze over. Svendborg Sund is, for the most part, kept free of any extensive ice formation by the current.

Tides—Currents.—The tidal range in this area is small and may vary from negligible to about 0.6m. During certain wind conditions, a remarkable difference in the rise of the water level at various places occurs. For example, at Faborg, NE winds may raise the water level by up to 0.6m, whereas, with the same wind conditions, the water level may rise by up to 1.5m at Svendborg. In general, winds from N to E cause the water level to rise and winds from S to W cause it to fall.

In Svendborg Sund, the current is strongly affected by the winds and as a result is very irregular. The current may set in the same direction for 5 or 6 days and may attain a rate of up to 6 knots.

Pilotage.—Pilots are available from the station at Tankefuld (55°03'N., 10°34'E.) in the W approach to Svendborg Sund. They can be contacted by VHF and board in the vicinity of Lehnskov Pynt (55°02'N., 10°30'E.). The pilots will conduct vessels to Svendborg and also to ports situated in the Baltic Sea, Lille Baelt, the S part of Store Baelt, and the W part of Smalandsfarvandet. Local pilots are available at Aeroskobing and Marstal.

3.38 Lyo Krog (55°04'N., 10°08'E.), the passage lying between the S side of Horne Land and the N side of Lyo, leads 2 miles ENE and then 3 miles ESE. Horne Land is the peninsula separating Helnaes Bugt from Faaborg Fjord.

Lyo (55°03'N., 10°09'E.), an island lying 3 miles SE of Hornenaes, was [previously described in paragraph 3.34](#).

Knolden (55°04'N., 10°13'E.), the S extremity of Horne Land, consists of a small peninsula connected to the coast by a narrow isthmus. It is faced on the S side by prominent light-colored cliffs, up to 30m high.

Knastgrund (55°03'N., 10°14'E.), a rocky shoal with depths of less than 1m, extends about 1.2 miles SE from Knolden and is marked by a buoy.

Avernako (55°01'N., 10°17'E.), an island divided into two parts by a narrow strip of land, lies with its N end located 1.8

miles SE of Knolden. This island is mostly built over and its highest part is at the E end. A prominent church, with a gray roof and tower, stands near the center of the W part of the island.

A main sector light (Munke) is shown from a structure, 4m high, standing on the E side of the W part of the island.

A main sector light (Nakkeodde) is shown from a structure, 3m high, standing on the N side of the E part of the island.

Bjorno (55°04'N., 10°15'E.), a barren and hilly island, lies 1.5 miles E of Knolden and forms the S side of Faborg Fjord. A main light is shown from a structure, 3m high, standing on the SW side of the island.

Bjornoholme Flak, a shoal with depths of less than 3m, extends up to 0.5 mile SE from the S end of the island and is marked by a buoy.

Lillegrund (55°03'N., 10°14'E.), a detached rocky area with depths of less than 1m, lies in the W approach to Faborg Fjord, 0.9 mile W of Bjorno Light, and is marked by buoys.

Store Svelmo (55°02'N., 10°20'E.), an islet, lies 0.8 mile offshore, about 2.3 miles SE of Bjorno Light. Svelmo Trille, a narrow spit, fronts the S side of this islet and is marked by a buoy.

A conspicuous white church, with a red roof, stands at Astrup, 2.5 miles N of Store Svelmo. Another prominent church, with a red roof and tower, is situated at Ulbolle, about 3 miles E of Astrup.

Caution.—A submarine cable and a submarine pipeline extend S from the SE end of Bjorno to the N end of Avernako and are marked by beacons.

A submarine cable extends NNE from the N side of Lyo to the coast of Fyn.

A submarine cable, which may best be seen on the chart, extends in a S direction from close NW of Knolden to the N end of Aero.

3.39 Faborg Fjord (55°05'N., 10°15'E.) and its approaches lie between Knolden and Store Svelmo. Except for some bluffs standing along the SE shore, the coast of the fjord is generally low. Several hills rise a short distance inland. The depths within the fjord are very irregular and there are several shallow shoal patches.

Two channels lead through the shallow dangers into this fjord. The E channel passes E of Bjorno and has a controlling depth of 3.4. The W channel, which passes W of Bjorno, may be entered by passing either E or W of Lillegrund. The fairway leading W of Lillegrund has a controlling depth of 3.7m. The main fairway leading E of Lillegrund has a controlling depth of 10m as far as the NW extremity of Bjorno and a controlling depth of 4.9m as far as Faborg.

Faborg (Faaborg) (55°06'N., 10°15'E.) ([World Port Index No. 29940](#)), a small port serving the surrounding agricultural area, is situated at the head of Faborg Fjord. A pleasure craft basin is situated in the NW part of the port.

Tides—Currents.—Winds from N may raise the water level by up to 1m and winds from SW may lower it by the same amount.

Depths—Limitations.—The main harbor has an entrance, 30m wide, protected by breakwaters. Its inner part has depths of 2.8 to 4.4m and is used by pleasure craft and fishing vessels. The outer part provides 200m of total commercial quays and

has depths of 3.2 to 5.6m alongside. A basin used by ferries is located in the SE part of the port and has a depth of 4.5m. Vessels up to 100m in length, 20m beam, and 4.2m draft may be accommodated.

Aspect.—The harbor approach channel is indicated by a lighted range. A prominent church, with a spire, stands in the town. A bell tower and a power station chimney, both conspicuous, are situated close SSW and 0.2 mile SSE, respectively, of the church.

Anchorage.—Vessels can anchor, in depths of 6 to 11m, close within the W entrance channel.

Caution.—The approach and entrance fairways are subject to silting.

3.40 Nakkebolle Fjord (55°03'N., 10°23'E.), a small and shallow light, is entered 1.5 miles NE of Store Svelmo and is almost completely encumbered with shoals. The shores are low and densely built over.

Lehnskov Pynt (55°02'N., 10°31'E.), located 6.2 miles E of Store Svelmo, is the NW entrance point of Svendborg Sund. Woods extend down almost to the water in the vicinity of this point. A prominent green bluff, 15m high, is located about 0.7 mile WNW of the point.

Skaro (55°00'N., 10°28'E.), a low island, lies 2 miles SW of Lehnskov Pynt. It is treeless with a few scattered houses.

Tasinge (55°00'N., 10°33'E.), the E part of which was described beginning in paragraph 2.20, is the largest island lying S of Fyn.

Baekkehav Light (55°00'N., 10°33'E.) is shown from a structure, 6m high, standing on the NW side of the island, 1.2 miles SE of Lehnskov Pynt.

Varo Knude, the SW extremity of this island, is located 4.3 miles S of the light. This point rises steeply on its S side to a prominent hillock, 8m high.

Vornaes Pynt (55°01'N., 10°31'E.), the NW extremity of Tasinge, is located about 1 mile S of Lehnskov Pynt and forms the SW entrance point of Svendborg Sund.

Directions.—The main route leading through this area, which connects Lille Bael with Store Bael, passes between Hornaenæs and the N side of Lyo. It then passes between the N end of Avernake and Knastegrund shoal. The route continues in an E direction along the S coast of Fyn and into Svendborg Sund. The fairway channel is indicated by sector lights and has general depths of 10 to 22m.

An alternate secondary route passes S of Lyo, N of Avernako, and then joins the main fairway channel.

Caution.—Submarine cables extend NE across the channel from the N side of Skaro to the coast of Fyn.

3.41 Svendborg Sund (55°04'N., 10°37'E.), a narrow passage, leads between the S shore of Fyn and the NW side of Tasinge. The entrance, lying between Lehnskov Pynt and Vornaes Pynt, is comparatively wide and deep. Both shores are rather low and have scattered wooded areas located near the coast

Iholm, 5m high, is an islet lying near the edge of the shorebank on the S side, about 2 miles inside the entrance. The main fairway passes N of this islet.

The current in the sound is very irregular and greatly influenced by the wind. During prolonged calm periods, the cur-

rent attains a rate of 2 to 3 knots. During gales, the current can attain a rate of 6 knots in the narrower parts.

Svendborg Sund Bridge (Bratten Bridge) (55°03'N., 10°36'E.), a fixed road bridge, spans the sound about 1 mile SW of Svendborg. The piers of the navigable span are protected by underwater caissons, which extend 25m in the direction of the fairway. The centermost 50m of this navigable span has a vertical clearance of 33m.

Saint Jorgens Light (55°03'N., 10°36'E.) is shown from a structure standing on the N shore of the sound, close SW of the bridge. The white sector of this light indicates the fairway channel.

The fairway channel leading through the sound has a controlling depth of 6.9m. Vessels with drafts up to 6.5m can transit to the port of Svendborg.

For details of the port of Svendborg, see paragraph 2.22.

Caution.—Submarine cables and submarine gas pipelines extend across the channel within 0.5 mile of the Svendborg Sund Bridge and are marked by beacons.

The greater part of Svendborg Sund has been designated a nature reserve and numerous restrictions apply.

3.42 An extensive shallow flat, which can best be seen on the chart, fronts the W and S sides of Tasinge. It extends up to about 6 miles W of the island, on the S side of the channel leading to Svendborg Sund. This flat also extends from the SW end of Tasinge to the SE end of Aero and from the S side of Tasinge to the SW side of Langeland. A number of small islands and islets lie scattered on this flat and several channels, some buoyed, lead between them. These channels are used by small coasters with local knowledge.

Aero (54°53'N., 10°20'E.) lies with its SE end located about 6 miles SSW of Varo Knude, the SW extremity of Tasinge.

Billes Grunde (54°59'N., 10°18'E.), a detached shoal area, lies 3 miles ENE of Skjoldnaes, the N extremity of Aero. It has a least depth of 3.4m and is marked by a buoy.

An area of deep water, entered between the N end of Aero and Billes Grunde, extends SE for about 7 miles along the NE side of Aero. It is bordered on the E side by the seaward edge of the flat extending from the W side of Tassinge.

Odden (54°54'N., 10°24'E.) is a low and steep-to peninsula, 1.3 miles long, which extends NE and NW from the N side of Aero, 8 miles SE of Skjoldnaes.

Ommelshoved (54°53'N., 10°28'E.) is a low peninsula, about 2 miles long, which extends NW from the SE end of Aero. Halmø, an islet, lies close E of the N end of this peninsula. Its E end is formed by a low cliff.

Drejo (54°58'N., 10°25'E.), a low island, lies on the flat, 6 miles E of the N end of Aero. Skoven, the W part of the island is connected to the E part by a narrow isthmus. This island is almost entirely flat and treeless. A village, with a prominent church, is situated in its E part.

Stryno (54°54'N., 10°37'E.), 10m high, lies 3 miles SE of Varo Knude, the SW extremity of Tasinge. This island is well built over and a prominent church stands in the village near its center.

3.43 Soby (54°57'N., 10°16'E.), a small harbor, is situated on the NE side of Aero, about 2.5 miles SE of Skjoldnaes. The harbor consists of three basins and is protected by breakwaters.

The entrance is 30m wide and has a controlling depth of 4.8m. A detached breakwater, 80m long, extends NNW on the W side of the entrance.

Gales from NE can raise the water level by up to 1.7m and gales from SW can lower it by the same amount.

The easternmost basin is used only by pleasure craft. The center basin has depths of 3 to 4m and is mostly used by fishing vessels. A ferry berth, with a depth of 4m alongside, is situated in the S part of this basin. The westernmost basin provides about 200m of commercial quayage, with depths of 3.5 to 4.8m alongside. Vessels up to m in length, 12m beam, and 3.5m draft can be accommodated.

The harbormaster acts as a local pilot. Due to heavy passenger traffic, vessels of over 100 grt are required to notify the harbor authorities in advance of their arrival and departure times.

Good anchorage, sheltered from winds from SE through S to WNW, is available, in depths of 13 to 15m, blue clay, off the harbor.

Aeroskobing (54°53'N., 10°25'E.) ([World Port Index No. 29800](#)), a small harbor, lies 6.2 miles SE of Soby. It is located in the NW corner of a shallow bay, which is enclosed by Odden and Ommelshoved peninsulas. Dejro lies in the approaches to the harbor and may be passed on either side. A pleasure craft marina is situated close NW of the harbor.

Two channels pass W of Dejro. The westernmost of these channels has a controlling depth of 3.8m while the easternmost has a controlling depth of 4.5m. The channel passing E of the island has a controlling depth of 3.6m.

Gales from E to SE can raise the water level by up to 2m and gales from W to SW can lower it by as much as 1.5m.

The harbor consists of a single basin, enclosed by two moles, which has depths of 3.5 to 4.5m. The entrance is 15m wide and has a controlling depth of 4.5m. Two ferry berths, located outside the basin close NNW of the N mole, have depths of 4m alongside. Vessels up to 80m in length, 13m beam, and 4.3m draft can be accommodated. Local pilots are available.

A prominent white church, with a dark spire, stands in the town and a conspicuous windmill is situated about 0.4 mile SW of it.

3.44 Marstal (54°51'N., 10°31'E.) ([World Port Index No. 29790](#)), a small harbor, is situated at the SE end of Aero. It can be approached from the NW through Morkedyb, from the E through Rudkobing Lob, and from the S through Marstal Sondre Lob.

Tides—Currents.—Gales from NE to E can raise the water level by up to 1.2m and gales from SE to S can lower it by the same amount.

Depths—Limitations.—Morkedyb is a narrow buoyed channel leading SE through the extensive flat extending W from Tasinge. It is entered S of Drejo and has a controlling depth of 3m.

Rudkobing Lob, a narrow passage, leads S from Rudkobing (see [paragraph 2.23](#)). It passes S of Stryno and has a controlling depth of 3.6m.

Marstal Sondre Lob, a buoyed channel, leads N from Marstal Bugt (see [paragraph 3.36](#)). It is indicated by a lighted range and has a controlling depth of 4.5m.

The harbor consists of a narrow channel fronting the town, which is protected on the E side by a detached breakwater, 3m high. This breakwater extends almost parallel to the shore and terminates at its S end near Aeroshale, a narrow tongue of land forming the SE extremity of Aero.

The harbor entrance, 32m wide, is protected by a short detached breakwater. The S part of the harbor is used only by pleasure craft. There are several shipyards and a floating dock, 115m long and 15.5m wide. Marstal Quay provides 518m of quayage, with depth of 3.2 to 4.5m alongside. There are facilities for general cargo, ferries, tankers, and passenger vessels. Vessels up to 115m in length, 20m beam, and 4.5m draft can be accommodated.

Aspect.—A prominent church, with a dark spire, stands in the town and a mill, without sails, is situated close SW of it. A prominent shipyard building is situated close NW of the harbor entrance.

Pilotage.—Pilots are available from the harbor. They may be contacted by VHF and should be ordered in advance. Pilotage is compulsory for vessels with drafts of 4m and over or exceeding 70m in length.

Regulations.—Vessels with drafts over 4.2m must contact the harbormaster by VHF prior to entering Marstal Sondre Lob. Vessels entering by this channel must wait for vessels departing.

Anchorage.—Vessels may anchor in the roadstead off the harbor, to the N of the range line.

Caution.—A submarine cable extends across the harbor entrance.

High speed ferries operate in the approaches to the port.

Flensborg Fjord (Flensburger Forde)

3.45 Flensborg Fjord (54°50'N., 9°50'E.), known to the Germans as Flensburger Forde, is one of the largest coastal inlets in the W part of the Baltic Sea. It is about 27 miles long and very irregularly formed. The entrance to this fjord lies between Pols Huk (54°53'N., 10°04'E.), on the Danish island of Als, and Schleimunde, on the German Schleswig coast, about 12 miles S. The German port of Flensburg lies at the head of the fjord and is reached through an intricate channel. The fjord also provides access through Sonderborg Bugt to the Danish port of Sonderborg which lies at the S end of Als Sund, the latter passage emptying into the N part of the bay.

The fjord is divided naturally into an outer part and an inner part by a line extending between Borreshoved (54°50'N., 9°44'E.) and Habernis Huk, 2.8 miles SE. The outer part is wide whereas the inner part is comparatively narrow and tortuous.

Ice.—The fjord only freezes over completely during severe winters. During these times, the ice usually forms after the middle of January and closes the fjord for about two months. With winds from the E a hard frost can cause the fjord to freeze over completely in 24 hours.

Generally, the ice begins to thaw in the early part of March, when it melts along the shores and begins to move. Since W winds usually prevail in this area at that time, the ice drifts seaward over the entire fjord in very large floes.

Tides—Currents.—Although the tidal range in the fjord is mostly negligible, the tides are noticeable in some places. For

example, Sonderborg has a mean tidal range of only about 0.6m, whereas Egersund has a mean tidal range of nearly 1.2m.

Winds from the E raise the water level and winds from the W lower it. Strong winds from NE cause the highest rise in the water level, up to 2.5m, and strong winds from SW to W can reduce the water level by 1.5 to 2.5m.

Aspect.—The centerline of the fairway channel leading through the fjord is the approximate boundary between Danish and German waters. In many places this boundary is indicated by beacons or lighted ranges.

Pilotage.—Pilotage is compulsory for vessels over 1,000 grt and for all oil, gas, and chemical tankers. Pilotage is recommended for all vessels with drafts over 6m proceeding to the inner part of the fjord.

Pilots can be contacted by VHF and board in the vicinity of Flensburger Forde Lighted Buoy (54°49'N., 9°44'E.). Vessels arriving from seaward must give an ETA at the boarding position to the pilot station at least 5 hours in advance.

Pilots from Germany and Denmark have the right to conduct pilotage within the territorial waters of both countries. Each country has the right to station pilots in the fjord and to pilot vessels as far as the approaches of any port. Within each port, the local pilot's nationality corresponds to that country in which the harbor is located.

Regulations.—Vessels are prohibited to approach within 200m of the coasts in the fjord without special permission. In the area lying NW of Holnis (54°52'N., 9°36'E.), an exception is made to this rule and vessels may approach the coast as closely as navigation necessitates.

Landing on Danish territory requires permission of the police.

Except in an emergency, vessels are prohibited from anchoring on range lines or within the fixed white sectors of the directional channel lights.

Caution.—Fishing gear, nets, and traps are laid along the shores of the fjord, annually, from September to the end of May. They extend offshore to a depth of about 3m and in most areas are marked by barrel buoys.

3.46 Flensborg Fjord Entrance.—The coast extending between Pols Huk (54°53'N., 10°04'E.), [previously described in paragraph 3.33](#), and the W end of Kegnaes, 7 miles W, forms the N shore of the entrance to the fjord.

Kegnaes (54°52'N., 9°55'E.), a low peninsula, is connected at its E end by a narrow isthmus to the mainland. A prominent church is situated at the SW end of this peninsula.

A main light is shown from a prominent tower, 18m high, standing on a bluff at the SE end of the peninsula.

The coastal bank, with depths of less than 8m, extends up to about 0.7 mile S and SE from the shore in the vicinity of the light and is marked by a buoy. Flejmosse Sand, a shallow and rocky bank, fronts the S side of the peninsula, 1.3 miles W of the light. This bank is steep-to and extends up to about 0.4 mile seaward. The water over this bank is usually visible from a distance due to its light color.



Kegnaes Light

Fiskersand, a shoal bank with depths of less than 8m, extends up to about 0.7 mile S from the S side of the peninsula, 3.2 miles W of the light.

The coast extending between Schleimunde (54°40'N., 10°02'E.) and Birknack, 9 miles NW, forms the S shore of the entrance to the fjord. This low, sandy stretch of coast is diked for almost its entire length. Behind the dike, the land is marshy and partly cultivated. The coastal bank, with depths of less than 10m, extends up to about 1.7 miles seaward in places along the shore.

The prominent tower of a manor house stands near the shore at Oehe, 2.5 miles NW of Schleimunde. A conspicuous silo is situated at Schwackendorf, 2.3 miles W of this tower.

Birknack (54°48'N., 9°55'E.) is a low and barren point. A prominent disused light tower, 24m high, stands near the shore, 2.7 miles SE of this point.

Kalkgrund (54°48'N., 9°54'E.), a shallow spit, extends about 2 miles NNW from Birknack. It consists of fine sand and stones.

Kalkgrund Light (54°49'N., 9°53'E.), equipped with a racon, is shown from a prominent floodlit tower, 24m high, standing at the N end of this spit.



Kalkgrund Light

Bredgrund (54°49'N., 10°02'E.), an extensive shoal area, encumbers the entrance of the fjord and lies centered 3 miles SE of Kegnaes Light. It is marked on the S side by a buoy.

This shoal area has a least depth of 4.3m, which lies near the center and is marked by a buoy moored about 0.5 mile N of it.

Directions.—The main entrance channel lies S of Bredgrund and is part of the Kiel-Flensburg Route, which may best be seen on the chart.

From the vicinity of Lighted Buoy No. 2, moored 5.5 miles SE of Schleimunde, the route leads NW for about 10 miles to the Lighted Buoy No. 3, moored 5.5 miles SE of Kalkgrund Light. It then leads NW for about 6 miles to Lighted Buoy No. 4, moored 1 mile NNE of Kalkgrund Light.

Vessels may then proceed WSW into the inner part of the fjord or NW toward Sonderborg Bugt.

A narrow channel lying between the N side of Bredgrund and the shorebank fronting the S part of Kegnaes also leads into the fjord. The fairway has a minimum width of about 0.2 mile and a least depth of 10.9m. Its narrowest part is marked by a buoy and indicated by light sectors.

The outer part of the fjord has a controlling depth of 18m.

Caution.—A disused ammunition dumping ground area, which may best be seen on the chart, lies centered 4 miles N of Schleimunde, in the S approach to Flensburg Fjord.

3.47 Sonderborg Bugt (54°52'N., 9°50'E.) is entered between the W end of Kegnaes and Borreshoved, about 4.8 miles SW. This bay has general depths of 21 to 31m.

Middelgrund (54°51'N., 9°52'E.), a steep-to and rocky detached shoal, lies centered 1.4 miles SW of the W extremity of Kegnaes, on the E side of the entrance. It has a least depth of 2.8m and is marked by buoys, moored at the E and W sides.

Heltsbanke (54°51'N., 9°47'E.), a detached shoal area, lies centered 1.3 miles ENE of Borreshoved, on the W side of the entrance. It has a least depth of 5.4m and is marked by a buoy moored at the SE side.

The main deep channel leading into the bay lies between Middelgrund and Heltsbanke. A secondary channel, with a controlling depth of 10.7m, leads NNW between Middelgrund and the W side of Kegnaes. A narrow channel, with a controlling depth of 5.2m, leads NNE between Heltsbanke and Borreshoved.

Vemmingbund (54°54'N., 9°44'E.), a small bight, indents the NW shore of Sonderborg Bugt. The land in the vicinity of the head of this bight is low.

Horup Hav (55°53'N., 9°57'E.), an inlet, indents the NE part of the bay and extends along the N side of Kegnaes. Horuphav Havn, a yacht harbor, is situated on the N side of the entrance to this inlet, 0.7 mile N of the N extremity of Kegnaes.

Borreshoved (54°50'N., 9°45'E.), the W entrance point of Sonderborg Bugt, is the N entrance point of the inner part of the fjord. This point is fringed by a steep-to and shallow shorebank, which extends up to about 0.3 mile seaward and is marked by a buoy.

Flensburger Forde Lighted Buoy (54°49'N., 9°44'E.), marking the entrance to the inner part of the fjord, is moored about 0.8 mile S of Borreshoved Point.

Caution.—Except for Danish vessels, navigation is prohibited within Horup Hav.

Sonderborg (54°55'N., 9°47'E.)

World Port Index No. 30060

3.48 Sonderborg, situated on the N side of Sonderborg Bugt, lies at the S entrance to Als Sund. This river port has berthing facilities extending along both shores of the sound. The main part of the town stands on the E side of the sound.

For details of the N entrance to Als Sund, see paragraph 3.32.

Ice.—Navigation within the port is impeded by ice only during severe winters.

Tides—Currents.—The current in the harbor generally sets N and may attain a rate of up to 3 knots. During such times, it is difficult to navigate within the harbor or through the passage of the bridge.

Winds from E can raise the water level by up to 1.2m and winds from W can lower it by the same amount.

Depths—Limitations.—The route leading through the bay to the port has depths of more than 18m as far as the entrance to Als Sund. The steep-to shorebanks fronting both sides of the S entrance, which has a controlling depth of 7.5m, extend seaward and narrow the fairway channel to a width of only about 270m.

Christian X Bridge (Kong Christian den X's Bro), a bascule bridge, spans the sound about 0.4 mile above the S entrance and divides the port into two harbors, Nordhavnen (North Harbor) and Sydhavnen (South Harbor). The navigable passage of this bridge is 30m wide. It has vertical clearance of only 5m when closed.

The commercial quays, situated along the E side of Nordhavnen, provide 800m of total berthage, with a depth of 7.5m alongside.

Sydhavnen, which is mainly used by passenger ferries and fishing boats, has 500m of total quayage, with depths of 4 to 8m alongside. Vessels up to 4,000 grt and 6.5m draft can enter the harbor through the bridge from the S.

The N entrance has a controlling depth of 10.5m. Vessels up to 33,000 grt, 200m in length, 32m beam, and 9.5m draft can enter the harbor through the N entrance of the sound, but may not proceed S of the Christian X Bridge.

Als Sund Bridge, an elevated fixed bridge, stands 0.9 mile N of Christian X Bridge. The navigable channel leading through the bridge has a width of 50m and a vertical clearance of 33m.

Aspect.—The outer limits of the E and W shorebanks fronting the S entrance to the sound are marked by lighted buoys. An extensive marina, protected by breakwaters, is situated on the E side of the entrance, about 0.9 mile SSE of Christian X Bridge. A light is shown from the head of its main breakwater.

A prominent beacon is situated on the shore at the W side of the entrance, 0.8 mile SW of Christian X Bridge. A prominent church, with a spire, stands in the town, close E of the bridge. A prominent castle is situated on the E shore, about 0.3 mile S of the bridge and close N of the entrance.

A conspicuous windmill stands on a bare hill at Dybbol, 0.9 mile WSW of the bridge, and a prominent yellow pyramid-shaped monument is situated close SW of it.

Pilotage.—Local harbor pilots are available. They may be contacted by VHF and generally board off Middelgrund. Tankers and all other vessels over 2,000 dwt are recommended to use the services of a pilot. In addition, see pilotage for Flensborg Fjord in paragraph 3.45.

Regulations.—Vessels must proceed only at speeds necessary to maintain steerageway when within 250m of either side of the bridge while passing through the navigable span.

Anchoring within 250m of the bridge, except in an emergency, is prohibited.

Vessels anchoring in the channel must do so in a manner that does not impede the passage of other vessels proceeding through the bridge.

Vessels must stay at least 100m from the bridge until the signal to pass through the span is given.

With the exception of recreational vessels, only one vessel at a time may pass through the bridge span. When a sailing vessel and a power-driven vessel are approaching the bridge from the same direction at the same time, the sailing vessel shall have precedence.

Vessels must proceed according to the directions given by the bridge watch.

Anchorage.—Vessels may anchor S of the lighted buoy marking the seaward limit of the shorebank on the E side of the entrance.

Caution.—The direction of buoyage changes at the Christian X Bridge.

Several submarine cables and pipelines extend across the harbor and may best be seen on the chart.

3.49 Geltinger Bucht (54°48'N., 9°51'E.) is entered between Kalkgrund Light and Habernis Huk, 3.7 miles SW. This bay has general depths of 7 to 23m between the shorebanks. Jurgens Schott, a shoal area of sand and weed, has depths of 4.8 to 7.5m and projects about 1.7 miles N from the head of the bay.

Gelting, a small craft harbor, and two marinas are situated near the head of the bay.

Anchorage is available, according to draft, N of Jurgens Schott, but winds send in a sea that makes this roadstead unsuitable for small vessels.

Habernis Huk (54°48'N., 9°47'E.), the W entrance point of Geltinger Bucht, is the S entrance point of the inner fjord. The shorebank, with depths of less than 5m, fronts this point and extends up to about 0.5 mile seaward.

The village of Habernis stands on high ground about 0.5 mile W of the point and is conspicuous from seaward.

Neukirchen Grund (54°49'N., 9°46'E.), a steep-to and rocky shoal, lies about 1.2 miles NW of Habernis Huk. This shoal has a least depth of 2.3m and is marked by a buoy, moored close N of it.

Caution.—Former mine areas lie along the E and W sides of Geltinger Bucht. Vessels are cautioned that anchoring, fishing, or carrying out seabed activities along the sides of this bay could be dangerous.

A nature reserve area lies along the NE side of Geltinger Bucht and extends up to 0.6 mile seaward. Entry is subject to numerous restrictions.

3.50 The inner part of the fjord, entered between Borreshoved and Habernis Huk, initially leads WNW for about 5 miles toward the Holnis peninsula. The route then consists of three reaches that lead generally NNE, WNW, and SW around this peninsula. It continues SW for about 7 miles to the head of the fjord.

Skelde Vig (54°51'N., 9°42'E.), a small bight, lies 1.7 miles WNW of Borreshoved. It affords sheltered anchorage to small vessels, in depths of 5 to 11m.

Brunsnæs Flak (54°52'N., 9°38'E.), a shoal, fronts the S and W sides of Brunsnæs, 4 miles WNW of Borreshoved. This shoal, with depths of less than 10m, extends up to about 0.8 mile seaward and is marked by buoys.

A conspicuous white church, with twin spires and a separate bell tower, stands at Broager, about 2 miles NNE of Brunsnæs.

Langballigau (54°49'N., 9°40'E.), a small fishing harbor, is situated at the mouth of a river, 5 miles WNW of Habernis Huk. The entrance is 15m wide and has a controlling depth of 2.1m. The pilot vessel used by German pilots is stationed at this harbor.

A prominent beacon stands near the shore, about 1 mile ESE of Langballigau. A conspicuous windmill is situated at Westerholz, 0.6 mile SE of Langballigau.

Langballig Bank (54°50'N., 9°40'E.), formed by two detached shoal patches, lies centered 0.7 mile NE of Langballigau. It has depths of 7.6 to 8.9m and is marked a buoy moored on the NW side.

Holnis (54°52'N., 9°36'E.), a peninsula, projects N for about 2 miles from the S shore of Flensborg Fjord. This peninsula is very low at its S end where it connects to the mainland. Holnishaken, a steep-to and sandy spit with several drying rocks, extends about 0.5 mile NE from the NE extremity of the peninsula. Schidenkind, a shorebank, extends up to about 0.5 mile N and NW from the marshy NW extremity of the peninsula.

3.51 Holnis Light (54°52'N., 9°34'E.), a main directional sector light, is shown from a prominent tower, 26m high, standing on the W side of the peninsula. The route leading into the inner part of the fjord is indicated by the white sector of this light.



Holnis Light

Skodsbol Reach (54°54'N., 9°39'E.) leads NNE between Holnishaken and Holdnaes Middelgrunde, a detached shoal with a least depth of 8.8m, lying about 0.6 mile E of the NE extremity of Holnis.

Rinkenaes Reach (54°53'N., 9°35'E.) leads WNW and WSW between the bank fronting N side of Holnis and the S side of Rinkenaes Bugt.

Lagemade Reach (54°54'N., 9°37'E.) leads SW between the bank fronting the W side of Holnis and the dangers fronting the Danish coast.

Okseoer (54°51'N., 9°31'E.) is the outer of two islets lying close off the N shore of the fjord, 2.2 miles W of Holnis Light. A conspicuous beacon stands on the summit of this islet.

Farensodde (54°49'N., 9°28'E.), an extensive pleasure craft harbor, is situated on the S side of the fjord, 2.5 miles SW of Okseoer. The entrance is protected by two moles and has a controlling depth of 4.8m. The shore in the vicinity of this harbor consists of white sand.

Mittelgrund (54°49'N., 9°27'E.), a shoal area with a least depth of 4.6m, extends E from the W side of the head of the fjord. Its outer edge is marked by a lighted buoy, moored about 0.6 mile W of Farensodde.

Osbegrund, a shoal area with a least depth of 4.5m, extends E from the W side of the head of the fjord. It lies about 0.5 mile S of Mittelgrund and is marked by a lighted buoy.

Murwik (54°49'N., 9°28'E.), the site of a maritime academy, is situated about 0.6 mile SW of Farensodde. It is fronted by several piers and boat harbors, with depths of 4 to 8m alongside, which are closed to civilian use. The conspicuous tower of the academy is visible from seaward.

Depths—Limitations.—The track leading WNW from the entrance to the inner part of the fjord has depths in excess of 12m in the fairway.

The recommended track leading through Lagemade Reach, NW of Holnis, has a controlling depth of 7m. However, a controlling depth of 10m can be maintained by using the fairway that turns sharply round the NW end of Holnis.

Vessels navigating the narrows off Holnis are limited to a maximum speed of 8 knots. Vessels with drafts over 7m may require the assistance of a tug in order to navigate the sharp turn and should not attempt the passage at night.

The fairway channel extending SW from the narrows to the head of the fjord has general depths of 10 to 20m.

Aspect.—The recommended track leading into the inner part of the fjord is indicated by the white sector of Holnis Light. The recommended tracks leading through the reaches, which may best be seen on the chart, are indicated by lighted ranges, range beacons, and lighted buoys.

Caution.—During the winter when ice forms, the lighted buoys in the inner part of the fjord and in the narrows off Holnis are liable to be replaced by unlighted spar buoys.

A foul area, within which entry is prohibited, lies centered 0.6 mile N of Holnis Light and is marked by buoys.

A spoil ground dumping area, which is occasionally buoyed, lies centered 0.8 mile WNW of Farensodde and may best be seen on the chart.

3.52 Rinkenaes Bugt (54°54'N., 9°37'E.), the bay lying N of Holnis, forms the approach to Egersund and Nybol Nor. The E part of the bay has general depths of 6 to 9m and

provides anchorage but the W part is shallow. An isolated shoal patch, with a depth of 4.6m, lies near the middle of the bay, 0.9 mile NW of the NE extremity of Holnis and is marked by a buoy, moored close S.

Marina Minde, an extensive pleasure craft harbor, is situated on the E side of the bay, 1.3 miles N of the NE extremity of Holnis, and is protected by a floating breakwater.

Egersund (54°54'N., 9°36'E.), a short and narrow strait, leads from the head of Rinkenaes Bugt to Grasten Havn and Nybol Nor. An approach channel leads NW through the E part of the bay to the entrance of the strait. It is indicated by a lighted range and marked by lighted buoys.

The entrance fairway, which leads between the steep-to shorebanks, has a minimum width of 65m and a controlling depth of 8.6m.

A bascule road bridge spans the strait between Egersund and Alnor, close inside the entrance, and has a navigable width of 25m.

Egersund Havn (54°55'N., 9°36'E.) ([World Port Index No. 30028](#)), a small harbor, lies in the middle of the strait and is used by coasters, fishing boats, and pleasure craft. There are several piers and a quay, 30m long, with depths of 2.5 to 4m alongside. Vessels up to 80m in length, 23m beam, and 4m draft can be handled.

Grasten Havn (54°55'N., 9°36'E.), a small harbor, lies at the head of Sildekule, a small bight extending N from Egersund. The entrance channel, which is marked by buoys and indicated by lighted ranges, has a controlling depth of 5m. There is a quay, 160m long, and a pier, 50m long, which have depths of 5m alongside. Two prominent silos stand near the quay. Vessels up to 100m in length, 15m beam, and 4.8m draft can be handled.

Nybol Nor (54°55'N., 9°38'E.) is an enclosed body of water extending about 2 miles NE from the bridge at Egersund. It is mostly used by pleasure craft. The entrance channel is marked by buoys and has a controlling depth of 7m.

Caution.—A submerged cable and a gas pipeline cross the strait in the vicinity of the bridge at Egersund and are marked by beacons.

To the W of Farensort, the approach to Flensburg is 1.5 miles wide, but the entrance fairway is narrowed to a width of 0.2 mile by Mittelgrund and Osbegrund.

Flensburg (54°48'N., 9°26'E.)

[World Port Index No. 29005](#)

3.53 Flensburg, a commercial port and ferry terminal, lies in a narrow inlet at the head of Flensburg Fjord. The harbor consists of a natural basin, over 1 mile long, and an artificial basin situated at Freihafen, on the E side of the entrance.

Ice.—The harbor freezes only during severe winters.

Tides—Currents.—Winds from S lower the water level and winds from NE raise it. The highest observed level was 3m above the mean sea level and the lowest was 2.4m below. Generally, the level ranges from 1.7m above to 1.5m below.

Depths—Limitations.—The entrance fairway has a controlling depth of 9.6m.

Harniskai, at the E side of the harbor, provides two cargo quays, 240m and 470m long, with depths of 6 to 7m alongside.

Ballastkai, a quay located close S of Harniskai, is 140m long. It has a depth of 5m alongside and is used by passenger vessels.

Innerkai, a quay located at the SW side of the harbor, is 320m long. It has a depth of 5m alongside and is used by passenger ferries. Schiffbrückkai, two quays located close N of Innerkai, provide 290m of total berthage, with depths of 5 to 6.5m alongside. Kraftwerk Kai, at the power station, is 180m long and has a depth of 9m alongside.

Vessels up to 8.5m draft can be accommodated in the port.

Aspect.—A conspicuous power station, with a tall chimney, stands on the NW side of the harbor entrance and a shipyard is situated close N of it. A prominent silo is situated on the E side, 0.3 mile SE of the power station. Several conspicuous churches stand in the town.

The approach channel leading SSW into the inlet between Mittelgrund and the coast is indicated by the white sector of Kielseng Light, which is shown from a mast, 5m high, standing on the E side of the harbor. The entrance fairway leading SW into the harbor is indicated by a lighted range.

Pilotage.—Local pilots are available at the harbor. Vessels over 180m in length, 28m beam, or 7m draft must request special permission to enter the port.

Anchorage.—Anchorage is available, in depths of up to 19m, mud, in the roadstead lying NE of Mittelgrund. The harbor basin is too narrow and restricted for anchoring.

Flensborg Fjord to Kieler Forde

3.54 Directions.—**Coastal route**—The Kiel-Flensburg Route, which may best be seen on the chart, forms the main passage along this stretch of the coast.

From the vicinity of Lighted Buoy No. 3, moored 5.5 miles SE of Kalkgrund Light (54°49'N., 9°53'E.) in the approach to Flensborg Fjord, the track leads SE for about 10 miles to Lighted Buoy No. 2, moored 5.5 miles SE of Schleimunde (54°40'N., 10°02'E.). It then continues SE for about 9 miles to a position lying 1.3 miles E of Kiel Light (54°30'N., 10°16'E.), in the approach to Kieler Forde.

3.55 Schleimunde (54°40'N., 10°02'E.), located close S of the entrance to Flensburger Forde, forms the entrance to Die Schlei. Two breakwaters extend seaward and protect the entrance to this narrow fjord.

Die Schlei extends inland for about 22 miles in a SW direction from Schleimunde to the town of Schleswig. The shore is very irregular and the fjord varies in width from about 100m to over 2 miles. Some sections are subject to silting and the fairway depths are maintained by dredging. Local knowledge is required. Several harbors used by small craft, pleasure boats, and fishing vessels are situated along the fjord.

Ice.—Generally, the fjord freezes over before the outer waters. Navigation for small craft is usually difficult from January to February.

Tides—Currents.—The current usually follows the direction of the channel and sets in or out according to the prevailing winds. In the narrow parts of the fjord the current may attain a rate of 3 knots. Tides are negligible.

Depths—Limitations.—Schleimunder Seegat, a dredged entrance channel, leads across the shallow coastal bank and is marked by buoys. It is 65m wide and has a controlling depth of

5m. The channel from Shleimunde has a controlling depth of 3.8m (2000) as far as Kappeln (54°40'N., 9°56'E.) and 3.5m as far as Arnis (54°38'N., 9°56'E.). Above Arnis the controlling depth is only 2.5m.

A highway drawbridge is situated at Kappeln and a highway and railroad bascule bridge is situated at Lindaunis (54°35'N., 9°49'E.). Both bridges have navigable widths of 22.3m.

An overhead cable, with a vertical clearance of 28m, spans the fjord about 1.2 miles NE of Kappeln and another overhead cable, with a vertical clearance of 26m, spans the fjord 0.9 mile NE of Lindaunis.

3.56 Kappeln (54°40'N., 9°56'E.) ([World Port Index No. 28955](#)), a small port, is situated on the W side of the fjord. Quays, 100m and 170m long, line the shore N and S, respectively, of the bridge and have depths of 4 to 5m alongside. There are facilities for bulk vessels and passenger ferries. Vessels up to 120m in length, 13m beam, and 4m draft can be accommodated, but entry is dependent on the controlling depth of the dredged fairway.

Aspect.—A main light (Schleimunde) is shown from a prominent floodlit tower, 14m high, standing on the head of the N breakwater, at the entrance to the fjord.

The fairway channel of the fjord is marked by beacons and buoys. The reaches as far as Kappeln are indicated by four lighted ranges.



Schleimunde Light

Pilotage.—Pilots are available and should be requested from Lotsenbruderschaft NOK Kieler Forde. Local knowledge is required.

Anchorage.—With W winds, anchorage can be obtained, in depths up to 14m, according to draft, about 2 miles E of the fjord entrance. However, this anchorage is unsafe with E winds.

Caution.—Special marine regulations are in force for navigation on Die Schlei.

3.57 Between Schleimunde and Eckernförder Bucht, 9 miles S, the coast is mostly low and wooded. In the vicinity of

Schleimunde the shore is low, but at Schonhagen, about 2 miles S, it is steep and prominent from seaward. This stretch of coast is fringed by a shorebank, which is foul and weedy in depths of less than 4m.

Olpenitz Hafen (54°40'N., 10°02'E.), lying 0.6 mile S of Schleimunde, is a small military harbor, which is closed to commercial shipping. Lighted ranges indicate the approach and entrance fairways. The harbor is protected by breakwaters and has depths of 2.4 to 6.5m. A prominent chimney stands close S of this harbor.

A conspicuous castle stands at Schonhagen, about 1.5 miles S of Olpenitz Hafen. A prominent mill, without sails, is situated on the high ground at Brodersby, 1.5 miles WNW of the castle.

Schonhagener Grund (54°37'N., 10°04'E.), a rocky shoal patch, lies about 1 mile offshore, 2.5 miles SSE of Olpenitz Hafen. It has a depth of 4.8m and is marked by a buoy.

Bokniseck (Boknis Eck) (54°33'N., 10°01'E.), located about 7 miles S of Olpenitz Hafen, is the N entrance point of Eckernforder Bucht. Sporthafen Damp, an extensive yacht marina, is situated 2 miles N of this point.

Caution.—A prohibited area, the limits of which are shown on the chart, lies centered 3 miles SE of Schleimunde. It is used for mining exercises and is marked by buoys.

A mine laying practise area, the limits of which are shown on the chart, lies with its N end located about 2.8 miles ENE of Schleimunde. This area, which extends in a S direction for 5 miles, is 0.8 mile wide.

A disused explosives dumping ground area, the limits of which are shown on the chart, lies centered 4.5 miles SSE of Schleimunde.

Schwedeneck oil production platforms, lighted and floodlit, are situated 3 miles NE and 1.7 miles ENE of Bokniseck. Submarine pipelines, marked by buoys, extend from each platform to a point on the shore located about 1 mile N of Bokniseck.

A submarine exercise area, the limits of which are shown on the chart, lies centered 3 miles E of Bokniseck.

3.58 Eckernforder Bucht (54°30'N., 10°00'E.) is entered between Bokniseck and Danisch Nienhof, a poorly defined point located 5 miles SE. This bay, which extends SW for about 8 miles, narrows gradually to a width of 1.5 miles at its head. It is mostly free of dangers and has general depths of 9 to 27m.

The shores of the bay are high in places, with hills behind, and are thickly wooded. A conspicuous church stands on the S side at Krusendorf, 2.8 miles W of Danisch Nienhof.

A conspicuous chimney, 27m high, stands on the N side at Waabs, 1.6 miles SW of Bokniseck, and a prominent silo is situated 0.5 mile SW of it. A prominent church stands close N of the chimney but is reported to be often obscured by trees.

Mittelgrund (54°31'N., 10°03'E.), a large detached shoal, lies centered 2.6 miles SSE of Bokniseck in the middle of the entrance to the bay. It has a least depth of 5.5m and is marked by a buoy.

Eckernforde Light (54°28'N., 9°51'E.), a directional light, is shown from a prominent tower, 27m high, standing at the head of the bay. A prominent radio mast is situated 0.6 mile SSW of the light.



Eckernforde Light

Der Ort, a small craft harbor, is situated on the N side of the bay, 1 mile NE of the light. It is used exclusively by naval vessels. A yacht marina lies close NE of this harbor.

A conspicuous mill stands on a hill, 38m high, at Lindhoft, about 4 miles E of the light.

3.59 Eckernforde (54°29'N., 9°50'E.) ([World Port Index No. 28950](#)), a small port and resort, is situated in the NW part of the head of the bay.

Ice.—In general, ice conditions in the bay are similar to those in Kieler Forde. Occasionally, the inner bay will freeze over one week before Kieler Forde. Usually, the first ice appears in the middle of January and disappears during the last part of February.

Tides—Current.—Normally, the current flows into the bay with N or E winds and out with S and W winds. During strong N winds, the current flows in along the N shore and out again along the S shore. The currents attain rates of about 1 knot in the bay.

Winds from NE can raise the water level in the harbor by up to 0.9m and winds from SW can lower it by as much as 1.2m.

Depths—Limitations.—The approach route through the bay leads WSW and passes NNW of Mittelgrund. It is indicated by the white sector of Eckernforder Light. An outer entrance buoy is moored at the head of the bay, about 1 mile SE of the port. From this buoy, the entrance channel, which has a controlling depth of 6m, leads 0.9 mile NW and is indicated by the white sector of the harbor light.

A bascule bridge divides the harbor into inner and outer basins. The inner basin has depths of 3 to 3.5m and is used by pleasure craft. A small craft basin, protected by a mole, is situated on the SE side of the outer basin. The quays in the W part of the outer basin are used mostly by fishing vessels.

The commercial quays at the SE side of the outer basin provide 400m of total berthage, with depths of 5 to 6m alongside. There are facilities for general cargo vessels, bulk vessels,

and passenger ferries. Vessels up to 5m draft can be accommodated.

Aspect.—The church standing in the town at Eckernforde is conspicuous. A prominent disused light tower, 12m high, stands near the root of the mole on the S side of the outer basin.

Anchorage.—Good anchorage is available, in depths of 18 to 20m, mud and clay, within the roadstead lying about 0.8 mile SE of the harbor.

Caution.—A small prohibited area, marked by buoys, lies 1 mile SE of Bokniseck and may best be seen on the chart.

A measured distance (2 miles) is situated close SW of Bokniseck and may best be seen on the chart. Its running course is marked by buoys and three pairs of range beacons. Vessels using this measured distance should display the flag signal SM.

A small prohibited area, which may best be seen on the chart, lies adjacent to the shore in the vicinity of a pier used by naval craft, about 2 miles W of Danisch Nienhof.

A torpedo firing range area lies parallel with the S shore of Eckernforder Bucht and extends from the head of the bay to the vicinity of Mittelgrund. It is marked by buoys and may best be seen on the chart. Vessels entering the bay are cautioned to stay N of this range area. Anchoring and fishing are prohibited within the area. When the range is in use, warning signals are shown from patrol vessels and from a signal mast on the S shore.

A small prohibited area, which may best be seen on the chart, lies centered 0.5 mile SE of Eckernforde Light.

A small prohibited area, which may best be seen on the chart, lies adjacent to the shore close E of Der Ort, the naval craft harbor.

It is reported that the tower of a hostel standing close S of Eckernforde Light is conspicuous and from a distance may be mistaken for the light structure.

Kieler Forde

3.60 Approaches.—**Kiel Light** (54°30'N., 10°16'E.), equipped with a racon, is shown from a prominent floodlit tower standing on a caisson in the outer approaches to Kieler Forde. Pilot vessels are stationed within a small sheltered basin at the base of the light structure, which is protected by two moles extending S and W.



Keil Light



Bulk Light

Bulk Light (54°27'N., 10°12'E.) is shown from a prominent tower, 25m high, standing on a wooded point at the W side of the approach, 3 miles SE of Danisch Nienhof. A stony shorebank, with depths of less than 5m, fronts the point and extends up to about 0.6 mile seaward in the vicinity of the light. Kleverberg, a stony foul area with depths of less than 10m, extends up to about 1.5 miles ENE of the light and is marked by a lighted buoy.

The coast extending NW of Bulk Light is high and sparsely wooded. It is fronted by a shorebank, with depths of less than 10m, which extends up to about 1.6 miles seaward.

Stollergrund (54°31'N., 10°12'E.), an extensive detached area of stony foul ground, lies centered 4 miles N of Bulk Light. It has a least depth of 6.6m and is marked by a buoy moored on its N side.

Stollergrund Rinne (54°30'N., 10°11'E.), a secondary channel leading into the W side of Kieler Forde, passes between the S side of Stollergrund and the shorebank fronting the coast. It has a minimum width of about 0.3 mile and a controlling depth of 10.6m.

3.61 Stein (54°25'N., 10°16'E.), a village, stands on the E side of the approach, 3.4 miles SE of Bulk Light. Sporthafen Wendorf, a small harbor, fronts the shore in the vicinity of this village and is used by fishing boats and pleasure craft. It is protected on the W side by a stone dam and has a controlling depth of 2.8m.

The coast extending to the E of Stein is low with salt flats, which are protected against flooding by dikes. Kolberger Heide, a coastal bank with depths of less than 5m, fronts the shore and extends up to about 0.4 mile seaward. A detached shoal patch, with a least depth of 4.5m, lies about 1 mile offshore, 2.5 miles NE of Stein.

Au Haken, a shorebank with depths of less than 5m, fronts the coast close W of Stein and extends up to about 1 mile seaward in places.

Several extensive shoals lie within 6 miles of the coast, on either side of the approaches to Kieler Forde. Outside these shoals, the depths are uneven and vary between 10m and 20m. The bottom consists mainly of rocks and large stones.

Gabelsfach (54°32'N., 10°21'E.), a detached shoal patch, is the outermost danger in the approach. It lies about 2.5 miles NE of Kiel Light and has depths of 9.3 to 9.8m.

Regulations.—An IMO-adopted Traffic Separation Scheme (TSS) lies at the N entrance to Kieler Forde and is centered 0.8 mile SE of Kiel Light.

The E end of the separation zone is marked by the KO1/1 lighted buoy, which is moored about 1.2 miles E of Kiel Light. The W end of the separation zone is marked by Kieler Forde lighted buoy, which is moored about 0.9 mile S of Kiel Light. Inbound traffic passes on the N side of these lighted buoys and outbound traffic passes on the S side.

Directions.—Vessels approaching from the Store Baelt or Fehmarn Baelt should use the Kiel-Ostsee Route and pass SW of Gabelsfach. The track, which is shown on the chart, leads in a WSW direction toward the vicinity of Lighted Buoy KO1/1.

Vessels approaching from Fehmarnsund should use the Kiel-Fehmarnsund Route. The track, which is shown on the chart, leads in a W direction toward the vicinity of the Lighted Buoy KO1/1.

Vessels approaching from Lille Baelt or Flensburger Forde should use the Kiel-Flensburg Route. The track, which is shown on the chart, leads in a SSE direction to the vicinity of the Lighted Buoy KO1/1.

All inbound vessels should proceed SW in the TSS traffic lane. From a position located about 0.8 mile S of Kiel Light, vessels should steer SSW for 2.5 miles, using the fixed white sector of Friedrichsort Light (54°23'N., 10°12'E.), to a position about 1.3 miles ESE of Bulk Light. They should then steer SW and SSW for about 3 miles, using the white isophase sector of Friedrichsort Light, to a position close E of the Lighted Buoy No. 7 (54°24'N., 10°12'E.). The track then continues S into the fjord.

Outbound vessels should proceed NNE for about 3 miles from close E of Lighted Buoy No. 7, using the fixed white sector of Friedrichsort Light astern, to a position about 1.7 miles E of Bulk Light. They should then continue to steer NNE for about 1.5 miles, using the white sector of Kiel Light. From a position about 2 miles S of Kiel Light, vessels should then proceed NE through the TSS traffic lane.

Caution.—A submarine cable, marked by buoys, extends NE from the vicinity of Bulk Light to Kiel Light. Anchoring and fishing are prohibited within 300m of this cable.

Numerous foul patches and wrecks lie in the approach area and may best be seen on the chart.

An explosives dumping ground area, within which anchoring is prohibited, lies centered 3.2 miles SE of Kiel Light and may best be seen on the chart.

3.62 Kieler Forde (54°26'N., 10°13'E.) includes the area extending SSW for about 7.5 miles from Kiel Light. It is bounded on the W side by the stretch of coast extending between Bulk Light and Friedrichsort Light, 4 miles S. It is bounded on the E side by the stretch of coast extending between Stein and Jagersberg, 3 miles SW.

Strander Bucht (54°26'N., 10°12'E.), a bay, lies 1.4 miles S of Bulk Light and indents the W side of the fjord. Strande, a small harbor, is situated at the head of the bay. It has a controlling depth of 3.5m and is used by fishing vessels and pleasure craft. Schilsee, an extensive yacht marina, is situated

close S of Strande. A conspicuous radio mast stands near the coast at the S end of the bay.

The bay provides anchorage, in depths of 10 to 16m, good holding ground, but the roadstead is untenable in E winds and there are several foul patches.

Friedrichsort Light (54°23'N., 10°12'E.), a directional sector light, is shown from a prominent floodlit tower, 32m high, standing on a small islet lying close off the W side of the fjord, about 4 miles S of Bulk Light. The islet is connected at its S end to the shore by a causeway. Three conspicuous radio masts are situated about 0.3 mile WNW of the light.



Freiderichsort Light

Laboe Hafen (54°24'N., 10°13'E.), a small and shallow harbor, is situated 2 miles WSW of Stein at the E side of the fjord. It is used by a fishing vessels. A yacht marina is situated close S of this harbor.

A prominent naval war memorial stands near the shore, 0.7 mile NE of the harbor.

3.63 Jagersberg (54°23'N., 10°13'E.), situated 1 mile S of Laboe, is fronted by a pier. A small explosives dumping ground area, which may best be seen on the chart, lies in the vicinity of this pier.

A lighted range, situated at Jagersberg, indicates the route leading SW to the entrance of the Kiel Canal.

Ice.—During normal winters, Kieler Forde is frozen over from mid-January until the last half of February. Generally, navigation is obstructed for only about 15 days. In severe winters with strong NE winds, drift ice may form a barrier across the ford, particularly in the narrows off Friedrichsort Light.

Tides—Currents.—The tide in the fjord is negligible. The water level depends on the wind force and direction. Gales from the NE can raise the water level by up to 2m and gales from SW can lower it by the same amount.

With winds from S to W, the current flows out of the fjord and with winds from N to E it flows inward. The currents attain maximum rates of 2.5 knots in the narrows off Friedrichsort. With strong NE and SE winds, a current may set W at a rate of 2 knots in the vicinity of Kiel Light.

Depths—Limitations.—The controlling depth through Kieler Forde is 16m, decreasing to 11m near the head of the inner fjord.

Pilotage.—Pilotage is compulsory for the following vessels:

1. Tankers over 60m in length, 10m beam, or 3.1m draft carrying gas, chemicals, petroleum, or petroleum products in bulk, or unloaded tankers, if not cleaned, degassed, or completely inerted after carrying petroleum or petroleum products with a flashpoint below 35 C.

2. Other vessels or composite units over 45m in length, 9.5m beam, and 3.1m draft or 55m in length, 8.5m beam, and 3.1m draft.

3. Tows over 55m in length, 10m beam, or 3.1m draft.

Vessels bound for Nord-Ostsee Kanal (Kiel Canal) entering from the E and vessels bound for Kieler Forde from sea must send a request for pilotage at least 3 prior to arrival off Kiel Light. If the transit time is less than 3 hours, requests for pilotage must be made immediately upon departure from the last port.

All vessels over 55m in length or 8m beam should contact Kiel Pilot on VHF channel 14 on passing Kiel Light. Such vessels must state their name, beam, length, grt or nrt, whether their journey to the locks will be interrupted or not, whether the vessel is exempt from taking a pilot, and whether a sea pilot is required for the canal roads.

Pilots can be contacted by VHF and board in the vicinity of Kiel Light or in the approach to the canal. Kiel Pilots may be contacted by E-mail at keilpilot@keilpilot.de.

Vessels proceeding to the port facilities at Kiel, at the head of the fjord, should send an ETA to the port at least 24 hours in advance.

Regulations.—A Vessel Traffic Service (VTS) system has been established in Kieler Forde and the Kiel Canal.

The requirements for VTS Kiel Canal West are described in Pub. 192, *Sailing Directions (Enroute) North Sea (Sector 9)*.

Participation in VTS Kiel Canal East/Kieler Forde is mandatory for vessels, as follows:

1. All vessels, including pushed or towed composite units, with a length of 50m and over.

2. All vessels carrying dangerous cargo (gas, chemicals, petroleum, or petroleum products) in bulk.

3. Vessels bound for Holtenau Anchorage (54°23'N., 10°10'E.) with a mast or superstructure height greater than 40m above the waterline.

Vessels entering the VTS area of Kiel Canal East must maintain a continuous listening watch on the appropriate VHF channel, as follows:

1. Kieler Forde—Kiel Traffic Station—VHF channel 22.

2. Kiel-Holtenau Locks approach, the outer harbor, and in the locks—Kiel Canal Station No. 4—VHF channel 12.

3. Canal area from Breitolz to Kiel-Holtenau—Kiel Canal Station No. 3—VHF channel 3.

A Sailing Plan (SP) must be sent (to VTS Kiel Traffic on VHF channel 22), as follows:

1. 30 minutes before passing Kiel Light (inbound only).

2. Before leaving a harbor or berth within Kieler Forde and bound for the canal.

3. When within Kieler Forde and bound for the Holtenau Anchorage.

A Sailing Plan (SP) must also be sent, as follows:

1. When in the canal locks (by a form available at the lock).

2. Before leaving a harbor or berth within the canal (to VTS Kiel Canal Station No. 3 on VHF channel 3).

The format for the SP is, as follows:

Designator	Information Required
A	Vessel name and call sign.
D	Position.
U	Length (in meters), beam (in decimeters), and type.
O	Draft (in decimeters).
G	Port of departure.
I	Port of destination.
P	Indication if liquefied gases, chemicals, petroleum, or petroleum products are or were carried in bulk. If yes, type, quantity, and UN number and whether tanks are uncleaned or completely inerted.
Q	Deficiencies or restrictions on maneuverability.
T	Name of vessel's owner or agents.

A Position Report (PR) must be sent on passing Kiel Light and Friedrichsort Light (inbound only).

The format for the PR is, as follows:

Designator	Information Required
A	Vessel name and call sign.
B	Time of report (local time in four digits).
D	Position.
F	Speed.

A Deviation Report (DR) must be sent in case of amendments to the SP (e.g., when interrupting or commencing a canal transit without instruction from the VTS Center).

An Incident Report (IR) must be sent in case of an incident impairing safety or the environment.

When in the canal, the DR or IR should be sent to VTS Kiel Canal Station No. 3 on VHF channel 3. When in Kieler Forde or the Holtenau locks, the DR or IR should be sent to VTS Kiel Canal Station No. 4 on VHF channel 12.

Special regulations governing navigation, speed, anchorage, dangerous cargo, and quarantine within Kieler Forde are in force and a copy should be obtained from the authorities.

Information broadcasts are made at fixed times and as single reports on demand, as follows:

1. VTS Kiel Canal Station No. 2 broadcasts every H+15 and H+45 on VHF channel 2 in German, and on request in English.

2. VTS Kiel Canal Station No. 3 broadcasts every H+20 and H+50 on VHF channel 3 in German, and on request in English.

3. In cases of severe icing in Kieler Forde, VTS Kiel Traffic Station broadcasts on VHF channel 22 according to the situation.

The broadcasts include information relevant to the safe passage through the VTS area and general traffic details including local storm warnings, weather, visibility, ice, casualties, and dredging operations.

Kieler Hafen (54°22'N., 10°10'E.)

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3.64 Kieler Hafen occupies the inner part of Kieler Forde to the S of Friedrichsort Light and includes the approach to the locks at the E end of the Nord-Ostsee Kanal (Kiel Canal) and the facilities at Kiel.

Friedrichsort (54°23'N., 10°11'E.), a manufacturing town and suburb of Kiel, stands 0.8 mile W of Friedrichsort Light. It is fronted by several wharves, boatyards, shipyards, and floating repair docks.

Stickenhorn (54°23'N., 10°10'E.), a large yacht harbor, is situated 1 mile WSW of Friedrichsort Light. The basin lies on the E side of a mole, which extends about 600m SSE from the shore. It has depths of 2 to 8m and is protected on the NE side by a breakwater. A shoal, with depth of less than 5m, extends about 200m SSE from the head of the mole and is marked by a buoy.

Pluschowhafen (54°23'N., 10°10'E.), a well-protected basin, lies close W of Stickenhorn. It is enclosed by the W side of the mole and the shore. The basin has depths of 3 to 7m and is used by fishing vessels, yachts, and naval craft. A small prohibited area lies in the SW part of this basin.

Holtenau Schleusen Light (54°22'N., 10°09'E.) is shown from a prominent tower, 20m high, standing 1.9 miles SW of Friedrichsort Light, on the N side of the entrance to the Kiel Canal. A conspicuous church is situated 0.2 mile NW of the light.

An aeronautical light is shown from a prominent structure, 16m high, standing near the airport, 0.5 mile NW of Holtenau Light.



Holtenau Schleusen Light

Holtenau (54°22'N., 10°09'E.), also known as Kiel-Holtenau, is that part of Kiel extending along the N side of the entrance to the canal. Tiessenkai, the main quay, extends W from the vicinity of the light. It is 300m long and has depths of 4 to 5.5m alongside. Vessels up to 85m in length, 13m beam, and 3.5m draft can be accommodated alongside.

Scheerhafen Light (54°22'N., 10°09'E.) is shown from a prominent framework tower, 20m high, standing about 0.4 mile S of Holtenau Schleusen Light, at the E end of a mole on the S side of the entrance to the Kiel Canal.

Moltenort (54°23'N., 10°12'E.), a small harbor, is situated on the E side of the fjord, about 1 mile S of Friedrichsort Light. It has depths of 2 to 4m and is used by fishing vessels. A pleasure craft basin adjoins the S end of this harbor.

A Submarine Memorial Monument stands on a point about 0.2 mile N of the harbor and is conspicuous from seaward.



Kieler Hafen from S

Anchorage.—Holtenau Reede (Holtenau Anchorage) (54°23'N., 10°11'E.), the limits of which are indicated on the chart, lies centered 0.8 mile NE of Holtenau Schleusen Light, at the W side of the fjord, and has depths of 12 to 13m.

Heikendorf Reede (Heikendorf Anchorage) (54°22'N., 10°11'E.), the limits of which are indicated on the chart, lies centered 1.1 miles E of Holtenau Schleusen Light, at the E side of the fjord, and has depths of 7 to 12m.

Caution.—Degaussing range areas, which may best be seen on the chart, front the shore of the fjord 0.3 mile SW of Friedrichsort Light and close W of the Submarine Memorial Monument. Vessels using the degaussing ranges must exhibit the International Code flag signal RU.

A submarine pipeline extends SE across the fjord close N of Friedrichsort Light and is marked by beacons.

A submarine cable extends SSE across the fjord from a point on the shore located 0.2 mile W of Friedrichsort Light.

3.65 Nord-Ostsee Kanal (Kiel Canal) (54°22'N., 10°09'E.) connects the North Sea to the Baltic Sea. The North Sea

terminal, or W end, of the canal is at Brunsbüttel. The canal is 53 nautical miles long and has a depth of 11m.

The E entrance lies close S of Holtenau Schleusen Light and consists of two sets of locks, the New Locks and the Old Locks. Generally, the New Locks are in service, but the Old Locks may be used temporarily.

The Old Locks, situated on the N side of the entrance, have a usable length of 125m and a usable width of 22m. These locks can be used by vessels with drafts of up to 7m.

The New Locks, situated on the S side of the entrance, have a usable length of 310m, a usable width of 42m, and a depth over the sill of 13.8m. Vessels up to 9.7m draft can use this lock and proceed to the facilities situated close W of it.

To expedite traffic, each new lock has a third gate which can divide the lock into two chambers with usable lengths of 221m and 100m.

The mast heights of vessels are limited by a bridge, situated 1 mile inside the E entrance, which has a vertical clearance of 40m.

Approach areas, the limits of which are indicated on the chart, lie off the entrances of the canal. Generally, navigation within these areas is restricted to vessels entering or leaving the canal.

Vessels with a maximum length of 235m, a maximum beam of 32.5m, and a maximum draft of 9.5m can transit the canal. This maximum draft only applies to vessels of up to 160m in length. Vessels exceeding 160m in length are subject to a sliding scale with regard to the draft limitation.

The average time of transit of the canal and the locks at both ends usually requires from 8 to 10 hours.

For further information, including draft and size limitations, for the canal, see Pub. 192 Sailing Directions (Enroute) North Sea (Sector 9).

The latest information concerning the canal is now available on the Internet.

Nord-Ostsee Kanal (Kiel Canal) Home Page

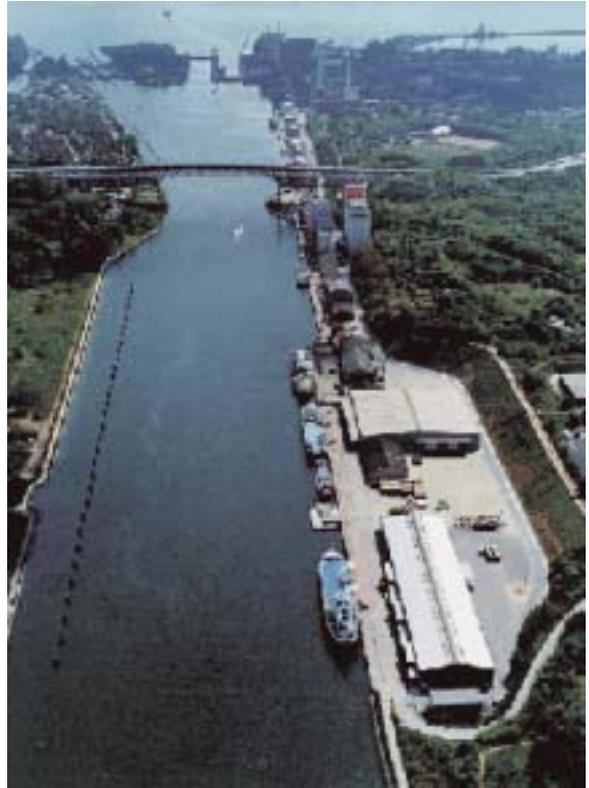
<http://www.kiel-canal.org>

3.66 Nordhafen (Holtenau-Wik) (54°22'N., 10°07'E.) is situated on the S side of the canal at the W side of the bridge, which spans the waterway 0.6 mile W of the locks. The quay provides 1,068m of total berthage with a depth of 10m alongside. There are facilities for timber, bulk, ro-ro, and container vessels.

Stadtwerkekai, a bunkering quay, is situated on the S side of Binnenhafen, close W of the locks. It is 800m long and has depths of 10 to 10.5m alongside. Two conspicuous chimneys stand at a power station close S of the SE end of this quay.

Bunkerbrücke Projensdorf, another bunkering berth, is situated close W of Nordhafen and has a depth of 10.5m alongside.

Scheerhafen (54°22'N., 10°09'E.), a bulk terminal, is situated immediately S of the canal locks and is formed by two moles. The moles are 300m long and have depths of 8.8 to 10m alongside. A pier, used by tankers, projects from the shore midway between the moles. This pier is 170m long and has depths of 10m and 6m, respectively, alongside its N and S sides.



Kiel Canal—Nordhafen

Tirpitzhafen (54°21'N., 10°09'E.), with depths of 5 to 10m, lies immediately S of Scheerhafen and is protected by breakwaters. The NE breakwater extends about 500m SSE from the head of the southernmost mole at Scheerhafen. This basin is closed to all commercial shipping.

Sporthafen Wik, a yacht marina, is situated 0.2 mile S of Tirpitzhafen and fronts the suburb of Wik.

Sporthafen Dusterbrook, an extensive yacht harbor with four basins, is situated 1 mile SSE of Tirpitzhafen. A conspicuous water tower stands at Ravensburg, about 1 mile W of the harbor.

Sporthafen Monkeberg, a yacht marina, is situated at the E side of the fjord, about 1 mile E of Tirpitzhafen. A conspicuous deviation beacon and a prominent water tower stand about 0.7 mile ESE and 0.9 mile ENE, respectively, of the marina.

The Schwentine River flows into the E side of the fjord, about 1.3 miles S of Sporhafen Monkeberg. A conspicuous chimney, 132m high, stands in an industrial area about 0.5 mile NNE of the river mouth.

Caution.—Submarine cables extend E across the fjord from the S part of Scheerhafen and a point on the shore located 0.3 mile N of Sporhafen Dusterbrook.

3.67 Kiel (54°20'N., 10°08'E.), a large city, stands at the head of the fjord. It is an important manufacturing and commercial center with extensive shipbuilding and repair facilities. The industrial complexes are concentrated on the E side in the communities of Gaarden, Ellerbek, Wellingdorf,

Neumuhlen, and Dietrichsdorf. The latter three being situated in the vicinity of the Schwentine River. Kiel is also a major naval base.

Ice.—Navigation in the port is seldom hindered by ice.

Depths—Limitations.—Generally, vessels entering the harbor are limited to a length of 245m and a draft of 9.7m. Vessels up to 270m in length may enter with special permission.

The main facilities on the W side of the port are described from N to S below.

Osterkai, a ro-ro ferry terminal, is situated about 0.8 mile WSW of the mouth of the Schwentine River. It has a quay, 500m long, and two piers, with least depths of 7m alongside.

Satorikai, a cargo quay, is 200m long and has depths of 6 to 7m alongside.

Schwedenkai, a ferry terminal quay with a ro-ro ramp, is 180m long and has a depth of 10m alongside.

Bollhornkai Nord, with a ro-ro ramp, is 270m long and has a depth of 10m alongside.

Bollhornkai Sud, with a ro-ro ramp, is 300m long and has a depth of 10m alongside. It has facilities for cruise liners.

The main facilities on the E side of the port are described from N to S below.

Ostuferrhafen, a ro-ro and container terminal, is situated close N of the mouth of the Schwentine River and consists of a wide pier and a basin. It provides 1,700m of total quayside, with five ro-ro berths, and has a depths of 6.6 to 10m alongside.

The Schwentine River is navigable for about 0.8 mile within its entrance. A fishing harbor is situated on the S side and has depths of 6 to 7m alongside. A scrapyard is situated on the N side. It is fronted by a quay with a depth of 7.3m alongside. There are also several small marinas.

Arsenalhafen, a naval dockyard, is situated close S of the mouth of the Schwentine River. It consists of a large basin and three floating docks. This facility is closed to commercial shipping.

Howaldtswerke, situated close SW of Arsenalhafen, is an extensive shipbuilding yard with several dry-docks. The largest dock is 426m long, 88m wide, and has a depth of 10.2m on the sill. It can handle vessels up to 700,000 dwt. Several conspicuous large cranes stand in the vicinity of this yard.

Norwegenkai, a ro-ro passenger ferry terminal, is situated SW of Howaldtswerke. It consists of a quay, 300m long, and two ro-ro berths, with a depth of 10m alongside.

A railroad bridge spans the harbor close S of Norwegenkai. It has an opening section, which allows vessels up to 21.5m beam to enter Die Horn, the innermost part of the port.

Die Horn, a basin situated at the head of the fjord, is mostly used by passenger vessels. Bahnhofskai, a quay at the W side, is 380m long and has depths of 4 to 6m alongside. Willy-Brandt-Ufer, a quay at the NE side, is 220m long and has depths of 3.7 to 6.7m alongside.

Kieler Bucht

3.68 Kieler Bucht (54°35'N., 10°30'E.), lying at the W end of the Baltic Sea, is considered to include the waters lying between the entrance to Die Schlei (54°40'N., 10°02'E.) and the NW side of Fehmarn (54°32'N., 11°04'E.), 35 miles ESE. Except in the approaches to the fjords and off the W side of

Fehmarn, the area is free from obstructions and has general depths of 11 to 22m.

The N and W sides of this area, including the S entrances to Lille Baelt and Store Baelt, have previously been described. The S side of the area is formed by the German coast extending between Kieler Forde and the NW extremity of Fehmarn, 26 miles ENE.

Between the E entrance of Kieler Forde and the approach to Fehmarnsund, the coast for the first 4 miles is low and, in places, protected by dikes. Farther to the E, the coast becomes higher and is backed by hills. Hohwachter Bucht lies at the E end of this stretch of coast. The shore between the E entrance of Kieler Forde and this bay is fronted by a bank, with depths of less than 10m, which extends up to about 1.7 miles seaward in places.

A prominent firing area signal tower stands near the shore at Heidkate, about 4.2 miles SSE of Kiel Light. Three high-rise buildings are situated near the shore about 2 miles ESE of this tower and are very conspicuous from seaward.

Neuland Light (54°22'N., 10°36'E.) is shown occasionally from a prominent tower, with adjoining buildings, standing near the shore at the W side of Hohwachter Bucht. Several firing area signal structures are situated NW and within 2.5 miles of this light.

A conspicuous tower, 17m high, stands on a hill, at an elevation of 128m, about 2.7 miles SW of Neuland Light.



Neuland Light

3.69 Hohwachter Bucht (54°20'N., 10°45'E.), a large bay, has general depths of 12 to 17m. Several lakes lie close inland at the head. Anchorage can be obtained in the S part of the bay, in a depth of 15m, fine sand. However, the bay is open and gives little protection and the bottom in the vicinity of the shore is foul in many places.

Since there are no commercial harbors here and navigation is often prohibited in the bay due to military firing exercises, it should be avoided by general shipping.

Caution.—Todendorf anti-aircraft firing range area and Putlos tank firing range area lie along the stretch of coast between the E entrance of Kieler Forde and the NE side of

Hohwachter Bucht. These range areas extend up to about 12 miles offshore and their outer limits are marked by lighted buoys and buoys, which may best be seen on the chart.

During firing exercises these range areas are closed to shipping and fishing. Warning signals are shown from safety patrol vessels and from several signal towers standing along the coast. Firing times are disseminated in the German Notice to Mariners. For further information, see Pub. 140 *Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea*.

Extensive herring fishing takes place in the vicinity of Hohwachter Bucht from May through November. The nets, which may be up to 1 mile long, are marked at each end by lighted buoys.

Numerous high-speed ferries operate within the waters of Kieler Bucht.

3.70 Heiligenhafen Light (54°22'N., 11°01'E.), a sector light, is shown from a tower with a dwelling, 13m high, standing near the shore, about 3 miles E of the NE end of Hohwachter Bucht. A conspicuous tower, 75m high, stands at an elevation of 134m about 0.7 mile SSW of this light.



Heiligenhafen Light

Heiligenhafen (54°22'N., 10°59'E.) (*World Port Index No. 28920*), a small harbor, is situated about 1 mile W of Heiligenhafen Light and is protected from seaward by a narrow strip of land. It is used by fishing vessels, coasters, local ferries, and pleasure craft.

Tides—Currents.—With continuous E winds, the water level may rise by up to 0.6m. With W winds, the level may be lowered by the same amount.

Depths—Limitations.—The dredged approach channel, which leads W between the narrow strip of land and the mainland, has a controlling depth of 4.5m and is 40m wide.

The harbor is protected from the E by a breakwater, 380m long, which extends NNE and N from the shore. There are extensive facilities for pleasure craft. The main commercial quay is 210m long and has depths of 3.8 to 5.1m alongside. Vessels up to 116m in length and 4m draft can be accommodated.

Aspect.—An outer lighted buoy is moored about 1 mile NE of Heiligenhafen Light at the seaward entrance to the approach

channel. Vessels should steer SW toward this lighted buoy using the white sector of the light. The fairway of the dredged channel is indicated by lighted ranges and is marked by buoys.

The town, a resort, stands on the E slope of the higher land fronting Hohwachter Bucht. The harbor is not visible when approaching from the W until it bears S. A prominent church and a silo, 40m high, stand in the vicinity of the harbor.

Pilotage.—Pilotage is compulsory for vessels over 90m in length but is recommended for vessels without local knowledge. Local pilots are available and may be contacted on VHF channel 14. Vessels over 8m beam must report to the port authority on VHF at least 20 minutes prior to entering the seaward entrance of the approach channel.

Anchorage.—Sheltered anchorage is available, in a depth of 7m, mud, in a roadstead lying about 0.5 mile NE of Heiligenhafen Light.

Caution.—A submarine pipeline extends about 1 mile NE from a point located 0.2 mile E of Heiligenhafen Light.

3.71 Fehmarn (54°28'N., 11°08'E.), a comparatively low island, lies centered 8 miles NE of Heiligenhafen. It is well cultivated with few trees.

Westermarkelsdorf Light (54°32'N., 11°04'E.) is shown from a prominent tower, 17m high, standing near Markelsdorfer Huk, the NW extremity of the island. The coast extending ESE for about 6 miles from the light is protected by dikes. Within these dikes, there is an almost continuous series of lagoons separated by dams.



Westermarkelsdorf Light

KO5/T62 Lighted Buoy (54°36'N., 11°01'E.), equipped with a racon, is moored about 4 miles NNW of Westermarkelsdorf Light. It marks the junction of the Kiel-Baltic (Kiel-Ostsee) Route and Route T.

KO6/T63 LANBY (54°36'N., 11°09'E.), equipped with a racon and floodlit, is moored about 5.2 miles NE of Westermarkelsdorf Light. It marks the junction of Route T and Route H.

Ojet Bank (54°37'N., 11°01'E.), a steep-to and detached shoal, lies 5.7 miles NNW of Westermarkelsdorf Light. It has a

least depth of 9.4m and is located between Route T and Route H.

Flugge Light (54°27'N., 11°01'E.) is shown from a prominent tower with a dwelling, 37m high, standing on the SW end of Fehmarn, 5.3 miles SSW of Westermarkelsdorf Light. The coast extending along the W side of the island is low and diked. It is backed by marshes and a few lagoons.



Flugge Light

A prominent church, with a spire, stands at Petersdorf, 2.8 miles NE of Flugge Light, and a conspicuous silo, 40m high, is situated close SE of it.

Orther Bucht, a shallow bay, lies between Flugge Light and Strukkamphuk, 3.2 miles SE. Krummsteert, a narrow peninsula, is located at the W side of the entrance and extends about 1 mile SE from Flugge Light. Orth, a shallow pleasure craft harbor, lies in the NW corner of this bay.

Strukkamphuk Light (54°25'N., 11°06'E.), a sector light, is shown from a prominent tower, 5m high, standing at the E side of the entrance to Orther Bucht.



Strukkamphuk Light

Fluggesand (54°27'N., 10°57'E.), an extensive coastal bank with depths less than 10m, fronts the entire W side of Fehmarn. It extends up to about 3.5 miles seaward off the N and central parts of the W side and up to 9 miles W off the SW extremity of the island. This bank is mostly rocky and foul.

Caution.—A minelaying practice area, the limits of which are shown on the chart, lies centered 6.2 miles NW of Flugge Light, off the W side of Fehmarn.

3.72 Fehmarnsund (54°24'N., 11°06'E.) is the narrow passage, used by small vessels, leading between the S side of Fehmarn and the mainland. It is spanned by Fehmarnsund Brucke, a fixed road and rail bridge.

Ice.—Fehmarnsund freezes over only during severe winters. The first ice usually appears in the middle of January and the last ice disappears around the first part of March. Generally, shipping is hindered for an average of about 20 days and the passage is closed by packed floes of drift ice for about 15 days. With winds from the E or the W, drift ice is driven into the sound making anchoring dangerous.

Tides—Currents.—Winds from the NE usually cause a W-flowing current in the sound and winds from SW to NW cause an E-flowing current. These currents usually attain a rate of about 2 knots, but they may occasionally set at 4 knots in the narrows. After a sudden shift in the wind direction during stormy weather, the wind and current sometimes oppose each other.

Winds from N to E can generally raise the water level by up to 1m and by up to 2m in the winter. Winds from SSW to W can lower it by as much as 1.5m in the winter.

Depths—Limitations.—Coastal banks, with depths of less than 10m, front the stretches of shore extending from Heiligenhafen to the bridge, on the S side, and from Flugge Light to the bridge, on the N side. These coastal banks occupy the entire approach to the sound and extend up to about 4 miles W of the bridge. Mittelgrund, a shoal with depths of less than 10m, occupies the E approach to the passage and extends up to about 4 miles E of the bridge.

A dredged channel leads E through the passage and ESE under the bridge. The fairway at the W side of the bridge has a controlling depth of 5.5m and the fairway at the E side of the bridge has a controlling depth of 3.8m. The channel is about 50m wide and subject to silting.

Fehmarnsund Bridge has a vertical clearance of 22.1m and a navigable span width of 240m.

Aspect.—The channel leading E through the W approach of the sound is marked by buoys and its entrance is marked by a lighted buoy. The white sector of Fehmarnsund Bridge Light, which is equipped with a racon, indicates the approach fairway. The fairway leading ESE through the navigable span of the bridge is marked by buoys. The channel leading SE through Mittelgrund, in the E approach, is marked by buoys. The fairway is indicated by the astern alignment of Flugge Light and Strukkamphuk Light.

A conspicuous church stands on the mainland about 1.8 miles SSW of the bridge.

Pilotage.—Pilotage within the sound is not compulsory. Pilots are available at Heiligenhafen for vessels without local knowledge.

Regulations.—Speed is limited to 8.1 knots in the dredged channel at the E side of the bridge.

Rules for navigating in German restricted waters are in force within Fehmarnsund. Vessels proceeding E are considered to be incoming from seaward.

Anchorage.—Anchorage is available, in a depth of 8m, sand over mud, to the E of the bridge. Anchorage is prohibited on the lighted range alignment at the E side of the bridge.

Caution.—Several submarine cables and pipelines extend across the passage in the vicinity of the bridge.

During winter, the positions of the channel buoys can not be relied upon.

Fishing with fixed nets, drift nets, lines, and eel baskets takes place in the approaches to the passage in depths up to 5m, clear of the channels.

Routes

3.73 Coastal routes.—The Kiel-Fehmarnsund Route, which may best be seen on the chart, has been established for small vessels bound for Mecklenburger Bucht (54°15'N., 11°30'E.). This route leads ESE for 4 miles from the TSS located in the vicinity of Kiel Light to Lighted Buoy No. 2 (54°29'N., 10°25'E.). It continues SE for 9 miles to Lighted Buoy No. 3 (54°26'N., 10°40'E.). The route then leads ESE for about 10 miles to Lighted Buoy No. 4 (54°25'N., 10°56'E.), which is moored in the W approach to Fehmarnsund.

Vessels using this route should not confuse the lighted buoys marking the center of the track with the lighted buoys marking the outer perimeter of the firing practice areas, which extend up to 12 miles offshore in this vicinity.

The Kiel-Baltic Route (Kiel-Ostsee), which may best be seen on the chart, has been established for vessels proceeding

E through Kieler Bucht and into the Baltic Sea. The center-line of the track is marked by lighted buoys.

This route leads NE for 11 miles from the TSS located in the vicinity of Kiel Light to Lighted Buoy KO3 (54°34'N., 10°36'E.). The route then continues ENE for 15 miles to Lighted Buoy KO5/T62 (54°36'N., 11°01'E.) where the track joins Route T (see [paragraph 2.1](#) and [paragraph 4.1](#)).

Deep Water Route.—A route for deep-draft vessels, with drafts of up to 17m, leads into the Baltic Sea from the S part of Lille Baelt. From a position located about 4 miles E of Taksensand Light (55°00'N., 9°58'E.), the track leads SSE through the S part of Lille Baelt into the N part of Kieler Bucht.

From a position located about 9.5 miles of Vejsnaes Light (54°49'N., 10°26'E.), a deep-water channel leads in an E direction for 12 miles. It is marked on the N side by Lighted Buoy No. 2, Lighted Buoy No. 4, Lighted Buoy No. 6, and Lighted Buoy No. 8 and on the S side by Lighted Buoy No. 1 and Lighted Buoy No. 3.

The channel then continues SE for 3.5 miles from a position located 5.5 miles SW of Keldsnor Light (54°44'N., 10°44'E.), close N of Lighted Buoy No. 3. This section of the route narrows to a width of only about 0.2 mile. It is marked by Lighted Buoy No. 10, Lighted Buoy No. 12, and Lighted Buoy No. 14 on the NE side and by Lighted Buoy No. 5 and Lighted Buoy No. 7 on the SW side.

From close S of Lighted Buoy No. 14, moored about 5.2 miles SSW of Keldsnor Light, vessels may proceed ENE to join Route T (see [paragraph 2.1](#) and [paragraph 4.1](#)).