

SECTOR 5

NORTH COAST OF FRANCE—BAIE DE LA SEINE—POINTE DE BARFLEUR TO CAP D'ANTIFER

Plan.—This sector describes the Baie de la Seine, including the major port of Le Havre. The descriptive sequence is from W to E.

General Remarks

5.1 Baie de la Seine, a wide bay, is entered between Pointe de Barfleur, on the W side, and Cap d'Antifer, 55 miles E. The W side of the bay is formed by the E side of the Cotentin Peninsula and includes only a few small harbors. Caen is situated in the S part of the bay. This port is connected to the sea at Ouistreham by a canal running parallel to the Riviere Orne. The port of Le Havre is situated at the E side of the bay. The estuary of the River Seine lies close S of this port and provides access to Rouen. The small ports of Trouville-Deauville and Honfleur lie on the S side of La Seine close to the mouth. Port du Havre-Antifer, used by deep-draft tankers, is situated 10 miles N of Le Havre.

Tides—Currents.—The tides in Baie de la Seine, especially those at Le Havre and in La Seine Maritime, are remarkable for their stand at HW. From outside a line joining Pointe de Barfleur and Cap d'Antifer, the E and W currents of the English Channel bend slightly inwards towards Baie de la Seine.

Off the W side of the bay the E current runs more S, and off the E side of the bay more N than in mid-channel, and similarly the W current tends to run in the opposite direction.

In the bay and near the coast along the S shore the currents are more or less rectilinear; within 2 or 3 miles of the S shore they do not exceed 1.5 knots in each direction. Notably in the middle of the bay, they can attain or even exceed 2 knots.

Off the E side of the Cotentin Peninsula, the S current is weaker and of shorter duration than the current in the opposite direction.

Pilotage.—Pilotage for Port du Havre-Antifer and Le Havre are provided by the Le Havre-Fecamp Pilotage Service (see paragraph 5.12). Pilotage for ports along La Seine Maritime is provided by the La Seine Pilotage Service at Rouen (see paragraph 5.13). This service also provides pilots for Honfleur, Ouistreham-Caen, Trouville-Deauville, and Dieppe.

Regulations.—For regulations concerning tankers laden with hydrocarbons and vessels carrying dangerous cargo bound to or sailing from Le Havre, Rouen, and other La Seine ports, see paragraph 5.10.

For details of the Identification Zone and Movement Reporting System pertaining to vessels bound for the ports of Port du Havre-Antifer, Le Havre, Rouen, and Ouistreham-Caen including Waiting Areas and anchorages, see paragraph 5.10.

Special regulations and reporting procedures apply to tankers transporting hydrocarbons and to vessels transporting dangerous substances navigating in the approaches to the French coasts of the North Sea, English Channel, and the

Atlantic between the Belgian border and Spanish border. Such vessels preparing to pass through or stop within French Territorial Waters are required to send a message to the appropriate CROSS station giving their intended movements. In addition, such vessels must use the designated Mandatory Access Routes and Channels when approaching a port or roadstead.

For further details of these special procedures, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Cargo transfer operations take place within a Transshipment Area (Val de Saire) lying in the W part of Baie de la Seine. This area, which is under the control of the French Maritime Authority, is centered 10 miles ESE of Pointe de Barfleur and may best be seen on the chart.

The following is a summary of the relevant regulations:

1. The approach to the area should be made from the E on a course between 200° and 270°.

2. Should circumstances require, the authority may prohibit or, if in progress, terminate the operation.

3. At least 12 hours notice of transshipment must be given by the owner or master of the vessel to the Regional Operational Centre for Surveillance and Rescue (CROSSMA) at Jobourg, giving:

a. Name, flag, last port of call, and destination of vessel to be lightened.

b. Name, flag, and destination of vessel to be loaded.

c. Day, hour, and position of transshipment and quantity to be transhipped.

4. Throughout the operation, and while in the area, vessels concerned should maintain a listening watch on VHF channel 16. They should also advise CROSS JOBURG of the following times:

a. Arrival in the area.

b. Commencement of operations.

c. Completion of operation.

d. Getting underway.

e. Any accident or incident.

f. If visibility falls below 3 miles.

5. During the transshipment, vessels must display the shapes or exhibit the lights prescribed in the International Regulations for Preventing Collisions at Sea (72-COLREGS) and by the International Code of Signals for vessels engaged in special operations but not underway.

Caution.—A firing danger area lies in the S part of Baie de la Seine and is situated within the parallels of 49°45'N and 49°25'N, and the meridians of 0°30'W and 1°00'W.

Numerous wrecks, some marked by buoys, lie within 10 miles of the shores of the bay. Small undetected wrecks and obstructions may also lie close offshore.

Pointe de Barfleur to Pointe de la Percee

5.2 Pointe de Barfleur (49°42'N., 1°16'W.), the W entrance point of Baie de la Seine, is a low point fronted by foul ground which extends up to about 1.5 miles seaward.

A main light (Barfleur-Gatteville) is shown from a conspicuous tower, 75m high, standing on an islet close off the point. A signal station stands close N of the light. When first sighting the light tower, it appears to be rising from the sea.



Barfleur-Gatteville Light

A lighted buoy (Val de Saire) is moored about 7.5 miles ENE of the light.

La Pernelle, a prominent wooded hill, stands about 5 miles SSW of Pointe de Barfleur. Vessels approaching the point from E will first sight the high summit of this hill, which slopes gently N. The square belfry of the church standing on the E slope of this hill is conspicuous from seaward.

The high land of La Butte de Montaigu, with a prominent summit rising about 6 miles SW of La Pernelle, can also be identified from seaward.

Caution.—Raz de Barfleur is a race caused by the tidal currents rushing over the rocks in the vicinity of the point, and during spring tides the sea breaks as far as 3 to 4 miles E and NE of the charted light structure, especially when the wind is against the tidal current.

Vessels approaching the point from the E or SE should keep well offshore until clear of the race, remaining seaward of the 30m curve.

5.3 Barfleur (49°40'N., 1°16'W.) is a small, drying harbor lying 1.5 miles S of Pointe de Barfleur. It is used by fishing vessels, small coasters, and pleasure craft. Tides rise about 6.5m at springs and 5.3m at neaps. The harbor, enclosed by a jetty and a breakwater, can accommodate small vessels with drafts up to 4m. The N and W sides are quayed and dry 2 to 4m. Vessels lie alongside on a bottom of muddy sand and gravel. The approach channel is indicated by a lighted range and marked by buoys and beacons. The square belfry tower of the church situated in the town can be easily identified from the approaches. Another prominent church belfry stands at Montfarville, about 1 mile SW of the harbor. Local knowledge is required and local fishermen act as pilots.

Small vessels can anchor, in depths of 8 to 10m, sand and mud, indifferent holding ground, in the approach channel.

Pointe de Saire (49°36'N., 1°14'W.), marked by a light, is located 5.5 miles SSE of Pointe de Barfleur. The coast between is fronted by rocks and shoals extending up to 1.3 miles seaward.

Saint-Vaast-la-Hougue (49°35'N., 1°15'W.) is a small harbor lying 1.8 miles SW of Pointe de Saire. Ile de Tatihou, lying 1 mile E, fronts the harbor. A conspicuous tower, with a turret on one side, stands on the S extremity of the island. Fort de l'Ilet, a low fort, is situated close S of this tower.

Fort de la Hougue, high and surmounted by a turret, stands 1 mile SSW of the harbor and is conspicuous. It is joined on the N side to the mainland by a breakwater. This fort, which is marked by a light, is situated at the end of a drying rocky bank extending from the coast. The harbor is used by fishing vessels and pleasure craft. The approach is indicated by a lighted range. Local knowledge is required. The harbor consists of a drying outer basin and an inner wet basin. A gate, 16m wide, provides entry to the wet basin, which has a least depth of 2.3m.

A conspicuous water tower stands about 2 miles inland, 5.5 miles SSW of Sainte-Vaast-la-Hougue. A church, with a prominent pointed belfry, is situated at Quinville, 1.7 miles E of the water tower. Another church, with a prominent pointed belfry stands at Les Gougins near the shore, 5.2 miles S of Sainte-Vaast-la-Hougue.

Anchorage.—Rade de Saint-Vaast consists of two anchorages and provides shelter from W winds. The bottom is formed by sand, mud, and clay, and provides good holding ground. Onshore winds can cause heavy seas within this roadstead.

Grande Rade, with a depth of 14m, lies about 1.5 miles S of Ile de Tatihou and close NW of the N end of Banc de la Rade.

Petite Rade, with depths of 2 to 6m, lies about 0.7 mile S of Ile de Tatihou.

Vessels must request permission from CROSS JOBOURG prior to anchoring in this roadstead.

5.4 The Iles Saint-Marcouf (49°30'N., 1°09'W.) consists of two low islands and lies about 4 miles offshore, 7 miles SE of Saint-Vaast-la-Hougue. A light is shown from a square tower, 17m high, standing on Ile du Large, the northeasternmost island. Ile de Terre, lying 0.3 mile SW, is a bird sanctuary and landing is prohibited. In very clear weather, these islands can be easily distinguished. A submarine cable extends SW from the islands to the mainland and may best be seen on the chart.

An extensive area of shallow shoal banks, lying parallel to the coast and separated from the coastal dangers, extends about 5 miles NW and about 6 miles ESE of the Iles Saint-Marcouf. This shoal area is marked by lighted buoys.

A channel leads between this extensive area of shoal banks and the mainland shore. However, due to the numerous wrecks lying in this vicinity, local knowledge is advised.

Baie du Grand Vey (49°25'N., 1°07'W.) is entered between Pointe de la Madeleine and Pointe de Maisy, 4 miles ESE. It is encumbered by drying sandbanks through which two channels lead. The seaward entrances of these channels are marked by a lighted buoy moored about 2 miles E of Pointe de la Madeleine.

The coast between Sainte-Vaast-la-Hongue and Pointe de la Madeleine is low and fringed with wooded dunes. A coastal bank extends up to 1.5 miles offshore in places. A prominent church spire stands about 1 mile inland at Brucheville, at the W side of the bay.

Pointe de la Madeleine is marked by a monument commemorating the Allied invasion landings of WWII on Utah Beach, which extends NW.

High seas are formed in the bay with onshore winds; vessels should not attempt to reach Carentan or Isigny, at the head of the bay, except in fair weather and at HW.

5.5 Carentan (49°18'N., 1°14'W.), a small harbor with a wet basin, lies 4.5 miles inland from the head of the bay. It is used by fishing vessels and pleasure craft. Passe de Carentan, the entrance channel, dries 3.2m. It is indicated by a lighted range and marked by buoys and beacons. The harbor may be contacted by VHF. The wet dock, with depths of 3 to 4m, is 0.8 mile long and 60m wide. The entrance lock is 30m long and 9m wide. Local knowledge is required.

Isigny (49°19'N., 1°06'W.), a small drying port, lies 1.5 miles inland on the Aure River. It is used by small coasters, fishing vessels, and pleasure craft. Passe d'Isigny, the entrance channel, is indicated by a lighted range and marked by buoys and beacons. The inner part of this channel leads between two dikes and is 85m wide. The alongside berths dry up to 3m. Vessels up to 55m in length and 12m beam can be accommodated with drafts up to 4.2m at springs and 2.2m at neaps. Local knowledge is required.

Anchorage.—Rade de la Capelle, a roadstead lying between Banc du Cardonnet and Baie du Grand Vey, provides anchorage sheltered from S and SW winds, in a depth of 12m, mud and sand, good holding ground. Care is necessary to avoid several dangerous wrecks lying in this vicinity.

Grandcamp-Maisy (49°23'N., 1°03'W.), a small harbor, lies 1.5 miles E of Pointe de Maisy and 4.5 miles W of Pointe de la Percee. It is used by fishing vessels and yachts. The approach channel is indicated by a lighted range. The entrance channel has a minimum width of 18m and dries 2m. The entrance is protected by breakwaters and submerged seawalls. The wet basin is entered through a gated passage, 14.3m wide, and has a depth of 2m.

A light is shown from a mast, 12m high, standing in the town close S of the wet basin. A conspicuous water tower stands on the higher land about 2 miles SSW of the harbor. A prominent bell tower, 67m high, is situated on the high land backing the town.

Pointe de la Percee to Ouistreham and Caen

5.6 Pointe de la Percee (49°24'N., 0°55'W.) is bordered by foul ground extending about 1 mile NE. A race is caused when the wind opposes the tidal currents in the vicinity of the point. At Pointe de la Percee the cliffs fall steeply to the shore and form a good landmark for vessels coming from the E.

Perhaps one of the most overwhelming sites along the coastline is the Normandy American Cemetery and Memorial, which is situated on a cliff overlooking Omaha Beach and the English Channel, 3 miles ESE of the point.

The coast gradually rises from Grandcamp-Maisy to Pointe de la Percee, 5 mile E. Between Grandcamp-Maisy and the Riviere L'Orne, 32 miles E, the coast is 30 to 60m high.

A prominent church stands at Vierville-sur-Mer, 1.3 miles SSE of Pointe de la Percee, and a conspicuous water tower is situated about 1 mile W of it. Another prominent church stands at Colleville-sur-Mer, 4 miles SE of Pointe de la Percee, and a conspicuous television mast is situated about 1 mile SE of it.

Between Pointe de la Percee and Port-en-Bessin, 7 miles ESE, the coast is fronted by a bank with rocky ledges extending up to 1 mile seaward in places.

A dangerous area extends between 1 mile and 3.5 miles ESE of Pointe de la Percee. It extends up to 1 mile offshore and is marked by buoys. Within this area are the remains of the blockships and other obstructions that formed the artificial harbor off Omaha Beach during the WWII Allied invasion landings of 1944.

5.7 Port-en-Bessin (49°21'N., 0°45'W.) (World Port Index No. 35900), a small harbor, is used by fishing vessels and pleasure craft. Tides rise about 7.2m at springs and 5.9m at neaps. The harbor consists of an outer and inner Avant-port, and two narrow wet basins. The Avant-port dries 2 to 4m and is protected by a breakwaters. Entry to the wet basins is provided by a passage, 10.5m wide, with a gate. These basins are accessible to small vessels with drafts up to 4.2m at springs and 2.6m at neaps. The harbor may be contacted by VHF. The approach channel is indicated by a lighted range. With strong onshore winds, entry is not advised as a dangerous swell occurs in the outer avant-port.

A prominent signal station is situated 0.5 mile W of the harbor. A conspicuous water tower stands about 1.8 miles ESE of the harbor. The prominent spires of Bayeux Cathedral, standing inland 5 miles SSE of Port-en-Bessin, may be seen from seaward.

Arromanches-les-Bains (49°20'N., 0°37'W.) is situated 5 miles E of Port-en-Bessin. A conspicuous statue of the Virgin Mary stands on the crest of a hill close E of this village.

The caissons and wrecks of Port Winston, a former artificial harbor used for the Allied landings during WWII, front the town and extend up to about 1 mile offshore.

Plateau du Calvados fronts the coast between the valley of Arromanches-les-Bains and Ouistreham, 15 miles ESE. This rocky bank has depths of less than 5m and extends up to about 2 miles offshore in places.

5.8 Pointe de Ver (49°20'N., 0°27'W.) is located 4 miles E of Arromanches-les-Bains. A main light is shown from conspicuous white tower, 16m high, standing among trees on a hill close S of the point.

Courseulles-sur-Mer (49°20'N., 0°28'W.) (World Port Index No. 35890), situated 2.5 miles E of Pointe de Ver, is a small harbor lying at the mouth of the Riviere Seullles. It is used by small fishing vessels and pleasure craft. The harbor consists of an Avant-port leading to a wet dock and a tidal basin. The approach channel is indicated by a lighted range and dries 3.5m. Local knowledge is advised. The entrance, with a least width of 27m, lies between a jetty and a breakwater. Training walls, which cover and are marked by beacons, extend seaward from the outer ends of the jetty and the break-

water. The tidal basin is used by yachts and its entrance is spanned by a swing bridge. The wet dock is entered through a passage, 9.6m wide, with a gate. It has depths of 3 to 4m and can handle small vessels with drafts up to 2.5m. Entry is reported to be difficult for small craft with low height of eye because the range marks are screened by large trees.

Les Essarts de Langrune and Roches de Lion, both of which dry, form part of the coastal bank bordering the shore between Courseulles-sur-Mer and Ouistreham, 9 miles ESE.

Ouistreham (49°17'N., 0°15'W.) and Caen (49°11'N., 0°21'W.)

World Port Index No. 35885 and World Port Index No. 35880

5.9 Ouistreham is the entrance port for vessels bound for Caen. The port, which is also referred to as Caen-Ouistreham, consists of an outer harbor and an avant-port. Locks providing entry to Canal de Caen are situated in the S part of Avant-port. The canal, which is 7.5 miles long, leads SSW to the port of Caen.



Ouistreham

Tides—Currents.—At Ouistreham, the mean tidal rise is 7.6m at spring tides, and 6.2m at neap tides. In Rade de Caen, the tides have characteristics similar to those in the estuary of the Seine; the HW stand is 1 hour 30 minutes during spring tides, and 2 hours during neap tides.

Depths—Limitations.—An Approach Channel, within which navigation is controlled, leads S and SW to the beginning of the entrance channel. This channel, which may best be seen on the chart, is entered about 8.5 miles NNE of Ouistreham and has depths in excess of 20m decreasing to 9m.

A Waiting Area, which may best be seen on the chart, lies adjacent to the SE side of the SW leg of the Approach Channel. It has depths of 8.8 to 11m.

The entrance channel leads from the S end of the Approach Channel through the coastal bank into the outer harbor. It has a dredged depth of 7m (1993) over a width of 50m. The inner part of this channel is contained between two training walls, which cover at HW and extend about 1 mile seaward.

The channel leading from the outer harbor through Avant-port to the locks is dredged to a depth of 3m.

Canal de Caen.—Two entrance locks provide access to Canal de Caen. The W lock is open from 3 hours before to 4

hours after HW. It is 225m long and 28.8m wide with a depth of 3.25m on the sill.

The E lock is open from 2 hours before to 3 hours after HW. It is 181m long and 18m wide with a depth of 0.2m on the sill. This lock may be divided into two chambers, 70m and 90m long.

The canal runs parallel to the Riviere Orne and extends for 7.5 miles from the locks to Caen. A constant water level is maintained in the canal and at Caen by means of a dam built across the Riviere Orne. The canal is dredged to a depth of 2m below chart datum, which provides a fresh water depth of 9.8m.

The four main docks at Caen are (from N to S) Bassin d'Herouville, Bassin de Calix, Nouveau Basin, and Bassin Saint Pierre.

Four bridges span the canal. Pont de Benouville (Pegasus Bridge), a swing bridge, is situated 2.4 miles S of the locks and has a clearance width of 40m.

Pont de Colombelles Bridge, a swing bridge, is situated about 0.5 mile N of Bassin d'Herouville and has a clearance width of 30m.

Calix Viaduct, a fixed bridge, is situated between Basin de Calix and Nouveau Basin. It has a vertical clearance of 33m.

Pont de la Fonderie, a swing bridge, is situated at the entrance to Bassin Saint Pierre and has clearance width of 12m.

Vessel dimensions, with fresh water (FW) drafts, permitted in the canal are, as follows:

1. Between the locks and Bassin d'Herouville:
 - a. By day—vessels up to 205m in length, 23.5m beam, and 8.4m draft. Vessels less than 172m in length and 22m beam may transit with drafts up to 8.95m. Vessels proceeding only to Blainville Wharf, inbound or outbound, may transit with drafts up to 9m depending upon the rise of tide in the entrance channel and the characteristics of the ship.
 - b. At night—vessels up to 20m beam and 8m draft. Vessels proceeding to Blainville Wharf may transit with beams up to 22m.
2. Between Bassin d'Herouville and Bassin de Calix:
 - a. By day—vessels up to 180m in length and 23.5m beam, with drafts of 8.2 to 8.6m.
 - b. At night—vessels up to 150m in length, 20m beam, and 8m draft.
3. Entering Nouveau Basin:
 - a. By day—vessels up to 145m in length and 20.5m beam, with drafts of 3.8 to 7m.
 - b. At night—vessels up to 145m in length and 20m beam, with drafts of 3.8 to 6m.

The maximum drafts for tankers depend upon the size of the vessel and the amount of cargo. Such vessels should contact the local authorities before arrival. Other vessels with drafts over 7.92m should contact the local authorities prior to their intended port call to ensure the entry conditions.

Berths.—Two ro-ro ferry berths are situated on the W side of the outer harbor at Ouistreham, about 0.5 mile N of the locks. No.1, the southernmost berth, can handle vessels up to 145m in length and 24m beam. A swinging area, lying adjacent to this berth, has a dredged depth of 6m.

No. 2, the northernmost berth, can handle vessels up to 165m in length and 26m beam. A swinging area, lying adjacent to this berth, has a dredged depth of 7m.

An extensive marina, with a depth of 3m, lies close S of the locks at the E side of the canal. A quay, used by dredgers, is situated about 0.4 mile S of the locks. It is 200m long and has a depth of 3.6m alongside. A berth, used by oil tankers, is situated at Maresquier, on the W side of the canal about 1.5 miles S of the locks. It can handle vessels up to 120m in length and 5.6m draft (FW).

A berth, 100m long, with a depth of 4.6m alongside and another berth, 200m long, with a depth of 6m alongside are situated at Ranville, at the E side of the canal close N of Pont de Benouville (Pegasus Bridge).

Blainville Wharf is situated on the E side of the canal about 1.3 miles above Pont de Benouville (Pegasus Bridge). It is 625m long and has a depth of 9m alongside.

Bassin d'Herouville contains President Delaunay Quay, which is 370m long, and Ponderex Mole, which is 215m long.

Bassin de Calix contains Quay de Calix, which is 140m long.

Nouveau Bassin contains Quay President Gaston Lamy, which is 550m long, and President Hippolyte Quay, which is 150m long.

Bassin Saint Pierre is entered from Nouveau Bassin through a passage 12.3m wide. It has a depth of 4m and is used by pleasure craft up to 50m in length.

The port of Caen has facilities for ro-ro, container, general cargo, bulk, timber, and tanker vessels.

Aspect.—A main light (Ouistreham) is shown from a prominent tower, 38m high, standing at the E side of the locks.

A lighted range, which may best be seen on the chart, indicates the entrance channel. Lights and beacons mark the submerged training walls on either side of the inner part of the harbor entrance channel.

A lighted fairway buoy (Ouistreham) is moored about 3 miles N of the entrance to the locks.

A conspicuous church belfry stands 0.5 mile SW of the main light and a large prominent water tower is situated 0.5 mile SW of it. Another prominent water tower stands at Merville-Franceville, about 2 miles E of the main light.

The buildings fronting the coast at the resort of Riva-Bella, about 1 mile W of the port entrance, are reported to be prominent from the seaward approaches.

Pilotage.—Pilotage in the port is compulsory for the following:

1. All vessels carrying hydrocarbons or dangerous substances.
2. All vessels over 50m in length between the sea and the entry locks.
3. All vessels over 65m between the locks and the sea.
4. All vessels over 25m between the locks and Caen.
5. All vessels not equipped with VHF.

Pilots may be contacted by VHF. They board about 0.5 mile S of Ouistreham Lighted Buoy or in the Waiting Area. Generally, pilots are available from 2 hours 30 minutes before to 3 hours after HW.

All vessels should send an ETA and a request for pilotage at least 24 hours in advance, confirming at least 2 hours prior to

arrival. The request should include the vessel's salt water draft and maximum overhead clearance (air draft).

The pilot station situated at Caen-Ouistreham is under the control of the La Seine pilotage service at Rouen.

A vessel navigating in the approaches to Caen-Ouistreham is also within the Estuary of the Seine. For additional details concerning the mandatory VTS Identification Zone, see paragraph 5.10.

Regulations.—Vessels over 1,600 grt and carrying hydrocarbons or dangerous cargo should consider the Navigation Controlled Approach Channel to be a Mandatory Access Channel. Such vessels must establish contact with the authorities on VHF channel 68 before entering the channel and maintain a listening watch on the same frequency. When in the channel these vessels are deemed to be restricted in their ability to maneuver and must show the appropriate lights and shapes.

All other vessels must contact the authorities on VHF channel 68 when entering the entrance channel.

The Waiting Area lying adjacent to the SE side of the SW leg of the Approach Channel may only be used by vessels over 1,600 grt and carrying hydrocarbons or dangerous cargo. Such vessels anchored in the Waiting Area must maintain a watch on VHF channel 68 and be able to sail on 15 minutes notice. It is forbidden for these vessels to remain in the Waiting Area during periods of bad weather from NW to NE. Such vessels should then remain at sea at least 7 miles from the French coast, or seek shelter off Le Havre.

All navigation in the entrance channel leading to the locks is prohibited during the arrival or departure of automobile ro-ro ferry vessels.

The maximum speed allowed in Canal de Caen is 7 knots.

Vessels transiting the canal must keep a watch on VHF channel 68.

A distance of 400m must be maintained between vessels transiting the canal. All overtaking is prohibited except in an emergency.

Signals.—The opening of bridges in Canal de Caen is indicated by green lights. If the lights are not exhibited, or are replaced by a red light, vessels should stop no less than 400m from the bridge, and wait for the green light signal.

The request for a bridge to open is one long blast. A long blast is also a request for small craft in the canal to keep close to the bank for the passage of a commercial vessel.

Anchorage.—Rade de Caen, off the mouth of the Riviere Orne, affords shelter from winds between SW and SE.

Vessels over 1,600 grt and carrying hydrocarbons or dangerous cargo must anchor in the Waiting Area.

Other vessels may anchor in an area, with depths of 5 to 8m, lying about 0.6 mile NW of No. 1 Channel Entrance Lighted Buoy. W-SRCO Buoy (white and blue) is moored in the vicinity of this anchorage, about 2.5 miles NNW of the locks.

Anchorage is prohibited within the Approach Channel and in the vicinity of the lighted entrance range.

Directions.—The principal route from the sea to the port approaches is through Le Parfond (49°26'N., 0°15'W.), a comparatively deep bight extending in an ESE direction toward the Estuary of the Seine.

In order to avoid the wrecks and obstructions in Rade de Caen, vessels, except those obliged to use the Approach Channel, should approach on the lighted range leading to the en-

trance when about 2 miles N of Ouistreham Fairway Lighted Buoy.

Caution.—Numerous wrecks and obstructions, some marked by buoys, lie in Rade de Caen and may best be seen on the chart.

A Spoil Ground (Dumping Ground) Area, the limits of which may best be seen on the chart, lies centered 3 miles NNE of the locks.

A restricted area, which may best be seen on the chart, lies in the vicinity of a wreck, 2 miles N of Ouistreham Fairway Lighted Buoy. Anchoring, fishing, and diving are prohibited within this area.

The Estuary of the Seine

5.10 The Estuary of the Seine, in the E part of Baie de la Seine, provides access to the port of Le Havre on its N shore.

The estuary also provides access to La Seine Maritime, the name given to that part of the Seine navigable by ocean-going vessels as far as the port of Rouen.

The channel from Rade de la Carosse (49°28'N., 0°02'E.) to Rouen is about 78 miles long. The small ports of Trouville-Deauville and Honfleur lie on the S shore of the estuary.

On the N side, Port du Havre-Antifer, used by deep-draft tankers, is situated 10 miles N of Le Havre. On the SW side, the port of Caen-Ouistreham is situated 19 miles SW of Le Havre.

All of the above ports are considered to be within the Estuary of the Seine as far as the following VTS Identification Zone regulations are concerned.

Tides—Currents

The tides and tidal current systems within the estuary of the Seine are complex. For example, the port of Le Havre experiences a HW stand of about 2 to 3 hours duration, while on La Seine Maritime a double HW exists, with a tidal bore in the upper reaches of the river. The tides and currents will be described in greater detail later in the text.

In Rade de la Carosse the S current begins at LW at Le Havre and attains a rate of 1 knot during spring and neap tides.

The SSE current begins 2 hours after LW at Le Havre and attains a rate of 3 knots during spring and neap tides. The NNE current begins at HW at Le Havre and attains a rate of 1.5 knots during spring and neap tides. The NW current begins 2 hours after HW and attains a rate of 2 knots during spring and neap tides.

In Petite Rade, the S current begins 1 hour 15 minutes before LW at Le Havre and attains a rate of 0.5 knot during spring and neap tides.

The SSE current begins 1 hour 30 minutes after LW at Le Havre and attains a rate of 2 knots at spring and neap tides.

The NW current begins at HW at Le Havre and attains a rate of 2 knots during spring and neap tides. The WNW current begins 3 hours after HW at Le Havre and attains a rate of 1.5 knots during spring and neap tides.

The rate of the tidal currents in Petite Rade varies considerably, but in no part does the flood current during spring tides exceed 2.5 knots, or the ebb current exceed 2 knots.

Larger vessels operating with or near a minimum underkeel clearance may wish to contact the local authorities for additional information. From observations in the E part of Baie de la Seine, it was reported that the tidal currents never exceed a rate of 2.5 knots.

These observations conflict with French sources; consequently prudence is necessary, particularly in thick weather. The flood current lasts longer and is stronger than the ebb current. In Grande Rade, which lies about 5.5 miles W of Cap de la Heve, the flood current begins about 4 hours 30 minutes before HW at Le Havre and sets SSW.

Then, increasing in force, it turns and sets S about 3 hours before HW, and then sets SSE 2 hours 30 minutes before HW and attains a rate of 2.5 knots during the greatest tides. At HW it sets NE and attains a rate of 3 knots; then it turns progressively to the N and diminishes gradually and expires about 2 hours after HW at Le Havre.

The ebb current begins 3 hours after HW at Le Havre and sets WNW. Then it turns through W to WSW and sets 6 hours after HW. When the current is setting in this direction it attains its greatest rate of 2.5 knots during the greatest tides. It then turns, sets SSW, and ceases at LW at Le Havre.

Depths—Limitations

Banc de Seine, with depths of less than 15m, lies on the parallel of Le Havre and extends to about 15 miles W of Cap de la Heve. The tidal currents, when they oppose the wind, cause a very rough sea on this bank.

Le Parfond (49°26'N., 0°15'W.), a comparatively-deep bight, extends in an ESE direction toward the Estuary of the Seine.

Chenal de Rouen, providing access to La Seine Maritime, leads between Banc du Ratier and Banc d'Amfard. Banc d'Amfard, a drying bank, terminates W in Gambe d'Amfard, and consists of clay and shingle. Banc du Ratier is a mass of pebbles, prolonged W by Les Ratelets, and lying nearly in the middle of the estuary.

Les Digue du Ratier, on the N side of Banc du Ratier, is submerged when the tide rises; it is marked by beacons on raised platforms, about 0.5 mile apart, and by a light at its W extremity.

Since the construction of this dike, the banks in the vicinity of the river mouth have stabilized and any further changes have been relatively slight.

Two dredged channels lead across the banks that encumber the estuary. The northernmost channel leads into the port of Le Havre; the southernmost channel leads into La Seine Maritime.

Aspect

Cap de la Heve (49°31'N., 0°04'E.) is located on the N bank of the mouth of the Seine. A main light is shown from a conspicuous tower, 32m high, standing on this cape. A prominent radar tower and two lattice masts stand close SSW and 0.2 mile SSE, respectively, of the light.

White limestone cliffs, which are visible from a great distance to seaward when the sun shines on them, are located in the vicinity of the cape. These cliffs are in contrast to those extending from near the cape to the vicinity of Cap d'Antifer, 11 miles NNE, which are 100m high and reddish in color.



Cap de la Heve Light

A conspicuous television mast, 189m high, stands at Graville, 4.2 miles E of Cap de la Heve.

Two conspicuous chimneys, 250m high, are situated near a power station in the port area of Le Havre, 3.7 miles SE of Cap de la Heve.

The **Riviere Dives** (49°18'N., 0°06'W.) flows into the S side of the bay about 5.5 miles E of Ouistreham. The banks at the mouth of this river dry up to 1 mile seaward. Cabourg is situated on the W side of the river and Dives-sur-Mer is situated on the E side. The river contains a large marina and a quay, which is used by small fishing vessels and pleasure craft. Local knowledge is required for entry. A conspicuous casino stands in Cabourg.

Mont-Dives, 132m high, rises 2 miles SE of the river mouth. This hill is conspicuous from seaward and dominates the built up area of Dives-sur-Mer.

The S side of the estuary from the riviere Dives to Honfleur, about 15 miles NE, is backed by dark, round hills, which contrast with the light-colored cliffs on the N side. Villers-sur-Mer, a prominent resort borders the coast, 4 miles ENE of the riviere Dives. Mont Canisy, 111m high, rises close behind the shore, 1.5 miles NE of Villers-sur-Mer. It has a flat summit and is conspicuous from seaward.

LHA Lanby (49°31.7'N., 0°09.9'W.), equipped with a racon, is moored in the NW approach to the estuary, about 9 miles W of Cap de la Heve.

Antifer A5 Lighted Buoy (49°46'N., 0°17'W.), equipped with a racon, is moored about 21 miles NW of Cap de la Heve.

For details of additional landmarks and aids, see the descriptions of the individual ports.

Regulations

Reporting System—A Vessel Traffic Service (VTS) Identification Zone for vessels navigating in the Baie de la Seine has been established for the purpose of facilitating recognition of vessels bound to or for the ports of Port du Havre-Antifer, Le Havre, Rouen, and Caen-Ouistreham.

The zone is bounded by an arc of radius 22 miles centered on Cap de la Heve Light. It is bound on the S side by the coastline and on the N side by the intersection with the meridian of Cap d'Antifer Light (0°10'E.).

The following procedures apply:

1. All vessels and tows over 50m in length entering or within the zone bound to or from any port, Waiting Area, or anchorage should report on VHF channel 22 to the Baie de Seine Traffic Control Center. This regulation is mandatory within French territorial waters. All vessels should also maintain a listening watch on VHF channel 16.

2. Inbound vessels should contact the Control Center through their Agent 48 hours in advance of their arrival at LHA Lanby (49°31.7'N., 0°09.9'W.) or Port du Havre-Antifer A5 Lighted Buoy (49°46'N., 0°17'W.). Vessels must state name, call sign, ETA, maximum draft, details of cargo, and any damage.

3. Inbound vessels should contact the Control Center by telex 24 hours prior to arrival. Vessels must state name, call sign, ETA, draft, and any damage.

4. Inbound vessels should contact the Control Center 3 hours prior to arrival on VHF channel 12 stating name, call sign, whether a pilot is on board, and any changes to information previously submitted.

5. Inbound vessels within the Identification Zone should report at the following positions (direction and VHF channel):

- 49°28.9'N, 0°00.5'W.—NNW—VHF channel 12.
- 49°34.2'N, 0°01.7'W.—S—VHF channel 12.
- 49°45.3'N, 0°01.1'W.—SSW—VHF channel 22.
- 49°43.8'N, 0°03.5'E.—SSW—VHF channel 22.
- 49°41.8'N, 0°04.2'W.—NNE—VHF channel 22.
- 49°40.2'N, 0°00.6'E.—NNE—VHF channel 22.

6. Vessels bound for Le Havre or Port du Havre-Antifer may only enter the Approach Channels with permission from the Control Center.

7. Vessels mooring in the Waiting Areas must contact the Control Center stating their position and time of anchoring.

8. Vessels transiting the area and not entering the ports of Le Havre or Port du Havre-Antifer should not:

- Cross Le Havre Approach Channel E of LH7 Lighted Buoy and LH8 Lighted Buoy (49°30'N., 0°01'W.). Vessels may cross W of these buoys with permission from the Control Center.
- Cross Port du Havre-Antifer Approach Channel E of A17 Lighted Buoy and A18 Lighted Buoy (49°42'N., 0°02'E.). Vessels may cross W of these buoys with permission from Port du Havre-Antifer Port Control.

9. Vessels bound for Le Havre should enter the Approach Channel W of the entrance buoys.

10. Exempted from the rules stated in 8a, 8b, and 9 above are fishing vessels and pleasure craft less than 19.8m in length, vessels with a pilot on board providing the authorities are notified, certain local craft, and vessels experiencing difficulty in embarking or disembarking a pilot in the approaches provided permission has been given by the authorities. In all these cases, it is conditional that no inconvenience is caused to shipping in the Approach Channels.

11. All vessels crossing the Approach Channels must not impede shipping in the channels.

12. Vessels constrained by their draft should display the appropriate international signals and lights.

13. Pleasure craft in the approaches to or within the ports, whether under sail or power, must give way to all other shipping.

Additional entry, departure, and reporting procedures are under the control of the individual ports within the zone.

Radar assistance, in poor visibility or on request, will be given by the Traffic Control Center. Coverage is within a circular area, with a 12.5 mile radius, centered on 49°39'N, 0°08'E.

Information concerning tides, meteorological conditions, and navigation will be provided by the Traffic Control Center on request.

Tankers.—Special regulations and reporting procedures apply to vessels carrying hydrocarbons or dangerous substances navigating in the approaches to the French coasts of the North Sea, the English Channel, and the Atlantic Ocean between the Belgian border and Spanish border. Such vessels preparing to pass through or stop within French Territorial Waters are required to send a message to the appropriate CROSS station giving their intended movements. In addition, such vessels must use the designated Mandatory Access Routes and Channels when approaching a port or roadstead. For further details of these special procedures, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Special regulations and reporting procedures also apply to vessels carrying hydrocarbons or dangerous substances bound for or sailing from Port du Havre-Antifer, Le Havre, Rouen, and other La Seine ports. The following is a summary of the regulations:

1. The above vessels prior to entering French territorial waters or getting underway from a French port must:
 - a. Establish radio contact with Havre Port Radio or Rouen Pilot Radio. Contact must then be maintained continuously until berthed or outside the territorial waters.
 - b. Report to Le Havre port or Rouen pilots, as appropriate, any defects to propulsion machinery, steering or anchor gear, mooring winches, or radar equipment. The port authority will require such a vessel to complete a questionnaire.
2. Vessels bound for Le Havre must comply with instructions given by Le Havre port radio. If vessels have to wait they must proceed to the area appropriate for their draft and dimensions as follows
 - a. Vessels less than 250m in length or with drafts less than 12m proceed to No. 1 Waiting Area, lying S of the Approach Channel, passing N of a line through LHA Lanby and HP Lighted Buoy, 4.5 miles ESE.
 - b. Vessels 250m or more in length or with drafts of 12m or more proceed to No. 2 Waiting Area if their tonnage is less than 100,000 dwt, or to No. 3 Waiting Area.
3. Vessels bound for Le Havre must have a Le Havre pilot on board while underway within 7 miles of the French coast except vessels less than 250m in length or with a draft of less than 12m, which may proceed without a pilot to No. 1 Waiting Area.
4. Vessels bound for La Seine ports:
 - a. Vessels 250m or more in length or with drafts of 12m or more must wait for a pilot at a distance of more

than 7 miles from the coast and S of a line passing through LHA Lanby and HP Lighted Buoy.

b. Vessels less than 250m in length or with drafts less than 12m may proceed without a pilot to Rade de la Carosse (49°28'N., 0°02'W.) staying S of LHA Lanby and Le Havre No.1 Waiting Area.

c. Vessels may not leave Rade de la Carosse for La Seine without a Rouen pilot on board.

5. During movements between Le Havre and La Seine, a Le Havre pilot and a Rouen pilot must be on board.

Anchorage

The following designated anchorage areas, which may best be seen on the chart, are available in the Estuary of the Seine:

1. For Le Havre:
 - a. No. 1 Waiting Area, for vessels less than 250m in length and less than 12m draft, is centered about 5 miles WSW of Cap de la Heve, on the S side of Le Havre entrance channel. It has depths of 12m, sand and broken shells, with good holding ground. A wreck, with a depth of 11.8m, lies near the middle of this anchorage area and is marked by HP Lighted Buoy.
 - b. No. 2 Waiting Area, reserved for vessels of less than 100,000 dwt, is centered 2.5 miles NNE of LHA Lanby and has depths of 17 to 22m, sand, mud, and broken shells.
 - c. No. 3 Waiting Area, centered about 5.5 miles NW of LHA Lanby, is authorized for use by any vessel. It has depths of 21 to 25m, fine sand and broken shells.
2. For Rouen:
 - a. No. 1 Waiting Area lies in Rade de la Carosse, about 4 miles SW of Cap de la Heve. It has depths of 12 to 13m, sand and shells. This anchorage has good holding ground but is exposed to W and N winds. The area can be used by vessels bound for Rouen or La Seine Maritime while waiting for a pilot or the tide.
 - b. No. 2 Waiting Area lies centered 3.5 miles SE of LHA Lanby. This area is for the use of vessels over 190m in length or with drafts over 9m, and vessels carrying dangerous cargo over 150m in length or with drafts over 9m.

For anchorages for deep-draft vessels bound for Port du Havre-Antifer, see paragraph 5.19.

Caution

Numerous wrecks, which may best be seen on the chart, lie in the approach to Le Havre and in the Estuary of the Seine.

Small vessels should avoid impeding the navigation of deep-draft vessels, which are frequently encountered in the estuary.

Vessels should not proceed into depths of less than 15m unless they have verified their position as this contour lies close to the coastal dangers.

Anchoring, fishing, and waiting are prohibited within a large area, which may best be seen on the chart, lying adjacent to the N side of the Le Havre Approach Channel.

Anchoring, dredging, and trawling are prohibited within an area lying adjacent to the coast in the vicinity of Cap de la Heve. This area, which may best be seen on the chart, extends up to about 3 miles seaward.

Care is advised when using any of the anchorages in the approaches to the estuary as there is a slight risk of fouling disused cables, which may best be seen on the chart.

5.11 Trouville-Deauville (49°22'N., 0°05'E.) (World Port Index No. 35870) is situated on the S side of the estuary, on both sides of the mouth of the Riviere La Touques. It is used by fishing vessels and pleasure craft.

The harbor is entered between two rubble training walls, which cover at HW. The W wall extends NNW from the outer end of a curved breakwater. The harbor consists of Avant-port, a riverside quay, and two wet basins.

Tides—Currents.—The tides rise about 8.2 m at springs and 6.8m at neaps. Off the harbor, the tidal currents set ENE and WSW with rates up to 3 knots at springs. Within the entrance channel, the flood current attains a rate of 2.8 knots and the ebb current a rate of 1.8 knots. An eddy forms off the entrance to the outer yacht basin about 1 hour before HW. The best time to enter is at slack water, about 15 minutes before to 15 minutes after HW.

Depths—Limitations.—An entrance channel, which dries 1.2m at its N end, leads through the coastal bank to the entrance. An extensive yacht basin, with a least depth of 2.8m, lies on the W side of the harbor entrance, at Deauville. It is protected by a breakwater and entered via a lock, which is 52m long and 12m wide. Basin des Yachts, a wet basin, is situated in the S part of the harbor and entered via a gate, 14.5m wide. Basin Mornay is entered from the S end of Basin des Yachts via a passage, 13.1m wide. Small vessels with drafts up to 3.5m at springs and 2.5m at neaps can enter the basins.

The E bank of the river provides a quay, which dries up to 3m, mud. Vessels up to 60m in length and 13m beam can enter the harbor with drafts up to 3.6m at springs and of 2.5m at neaps.

Aspect.—A lighted range, which may best be seen on the chart, indicates the entrance channel. The training walls are marked by beacons and lights.

A conspicuous casino is reported to stand in Deauville at the W side of the harbor.

Pilotage.—Pilots are available from La Seine pilotage service. Pilotage in the port is compulsory for all vessels over 55m in length and all vessels carrying dangerous substances. An ETA and request for pilotage should be sent 48 hours in advance with a confirmation 5 hours prior to arrival. Pilots can be contacted by VHF and board in the vicinity of the Rouen Waiting Area, about 4 miles SW of Cap de la Heve.

Vessels should also send an ETA to the port 24 hours in advance, with a confirmation 2 hours prior to arrival.

Anchorage.—Small vessels may anchor, in a depth of 4m, about 2.3 miles WNW of the harbor entrance.

Caution.—Dredges may be frequently encountered in the approaches to the harbor.

Le Havre (49°29'N., 0°06'E.)

World Port Index No. 35840

5.12 The port of Le Havre, an artificial port, can accommodate the largest vessels afloat. It owes its importance mainly to its geographic location and the long stand of HW. Le

Havre is a large commercial and petroleum port, and the terminus for the largest transatlantic liners. The port also provides extensive facilities for container and ro-ro traffic.

Bassin Theophile Ducrocq and Bassin Rene Coty extend along the S side of the port and form a large continuous tidal dock. A lock situated at the E end of this tidal dock leads into a number of constant level basins. A complex of wet docks, entered via locks at the W end, extends along the N side of the port.



Le Havre

Tides—Currents

The tidal rise at Le Havre is 7.7m at MHWS, and 6.4m at MHWN. Le Havre is subject to a particular type of HW stand known as “the duration of high water.” After a rapid rise, the tidal curve exhibits a leveling off period of about 3 hours.

During the leveling off period, the variation in water level remains slight (0.3m) in relation to the tidal range. The actual time of HW varies within the duration of the HW stand depending on the phase of the moon.

During spring tides, it will occur during the third quarter of the HW stand, while at neaps, HW will occur toward the middle of HW stand. The LW stand at Le Havre lasts for only a few moments.

Storms from the SW to NW may increase the tidal level by as much as 0.7m, while weather from E to NE will lower the tidal level by 0.3 to 0.5m.

The variations due to weather may shift the time of HW by up to 1 hour.

Vessels operating with, or near a minimum underkeel clearance should consult the local authorities for guidance.

Any rule governing the tidal currents in the approaches to Le Havre and at the entrance of the Seine is necessarily complex. It is often different, even for adjacent positions.

In general, the tidal currents may be said to be rotary in direction during the rise and fall of a tide.

This is best observed in the case of the currents in Grande Rade and in Rade de la Carosse.

In these roadsteads, from the time of LW for the duration of 2 to 3 hours, the flood current flowing NE turns clockwise to set ESE during the filling of the Seine.

At the end of this period the Verhaule current, a relatively rapid current of constant direction, springs up and flows NE and N towards Cap de la Heve. The Verhaule current runs until the time of HW, and the ebb current sets to the W and then to the SE for a period of 4 to 5 hours.

The exceptions to the generality occur in Petite Rade, N of the entrance of Le Havre, and in the Estuary of the Seine. In these areas the current has only two directions; that is, SE

(flood) and NW (ebb). It should be noted that the tidal currents set across the entrance of Le Havre and not into the port.

At springs the flood current attains a maximum rate of 2 knots about 4 hours before HW; the ebb current attains a maximum rate of about 2 knots about 3 hours after HW. About 2 hours after LW the current entering Avant-Port and Bassin Theophile-Ducrocq can attain a velocity of about 1.6 knots.

Depths—Limitations

The Approach Channel, which is navigation controlled, leads in an ESE direction through the coastal bank to the harbor entrance. It is 300m wide and maintained at a dredged depth of 15.5m on the range line. The channel is entered about 0.5 mile NE of LHA Lanby.

Tankers up to 300,000 dwt and 392m in length, with drafts of 19.2 to 20.7m, may enter the port, subject to tidal restrictions. Such vessels enter by day only and should arrive at LHA Lanby at least 3 hours prior to HW.

Vessels up to 150,000 dwt and 17m draft may enter Grand Canal du Havre. The recommended time for vessels of over 100,000 dwt to enter the port is 1 hour prior to HW.

Facilities.—Petite-Port, an extensive yacht marina with a depth of 3m, lies close inside the entrance, on the N side.

Bassin la Manche, lying 0.7 mile E of the entrance, is a tidal basin from which access to the wet dock complexes to the N and E is gained.

The small wet docks extending to the N of Bassin la Manche are entered through a gate, 8m wide, and are used by pleasure craft.

Bassin de la Citadelle, with a depth of 6.3m, is used by fishing vessels and port authority craft. It is entered through a lock situated at the NE end of Bassin la Manche. The lock is 75m long and 16m wide with a depth of 1.7m over the sill.

Quinette-de-Rochemont Lock, at the E side of Bassin la Manche, provides entry to a wet dock system, which includes Bassin Bellot and Bassin de l'Eure. It is 232m long and 30m wide with a depth of 4.5m over the sill. Vessels up to 180m in length and 26m beam can lock in. When the gates are open, vessels up to 210m in length can pass through.

Bassin Vauban and Bassin de la Barre are entered from the N end of Bassin de l'Eure through a passage 16m wide. Both of these basins are used by fishing vessels and port authority craft.

Sas Vetillart Lock, at the E end of Bassin Bellot, leads into Bassin Vetillart, Bassin Marcel Despujols, and then into Canal de Tancarville. It is 175m long and 27m wide with a depth of 2m over the sill. Vessels up to 165m in length, 23m beam, and 8.5m draft can use this lock.

Bassin Theophile Ducrocq, about 2 miles long, is entered 0.6 mile ESE of the port entrance. Bassin Rene Coty extends 1 mile ENE from its E end.

Ecluse Francois Premier Lock, situated at the E end Bassin Rene Coty, leads into Grand Canal du Havre and several constant level basins. It is 400m long and 67m wide with a depth of 14.5m over the sill. Vessels up to 320m in length, 55m beam, and 17m draft can use this lock.

Grande Canal du Havre, with depths up to 22m, extends E for about 6 miles from the lock. It is marked by buoys and provides berths for several large industrial complexes.

Darse de l'Ocean, a deep basin, extends about 1 mile SSE from Ecluse Francois Premier Lock.

Canal Bossiere leads NE from Ecluse Francois Premier Lock into Bassin de Lancement and Canal de Tancarville.

Several bridges, which may best be seen on the chart, span the passages leading between the basins. Generally, these bridges can be opened at any time during daylight and on request.

The port provides facilities for general cargo, tanker, chemical, bulk, ferry, ro-ro, reefer, passenger, container, LPG, and fishing vessels.

In addition, the port has several floating repair berths, which can handle vessels up to 300,000 dwt and 550m in length, and a number of dry docks. The largest dry dock is 313m long and 38m wide.

Berths.—The port provides about 15 miles of total quayage with over 140 berths for commercial ships. The following is a list of the principal berths:

1. Bassin de la Manche—Terminal de Grande Bretagne, on the N side, has two ro-ro berths with depths of 5m, which can handle ferries up to 165m in length. Quay Roger Meunier, on the S side, is 500m long and has a depth of 8.5m alongside.

2. Bassin Bellot—Quai Hermann-du-Pasquier, on the S side, is 1,524m long and can handle vessels with bulk cargo up to 210m in length and 8.5m draft.

3. Bassin Theophile Ducrocq—Quai Pierre Callet, on the NW side, is 598m long. Quay Joannes Couvert, on the N side, is 720m long and has a depth of 10m alongside. Mole Central Ore Berth No. 6, on the NE side, is 240m in length and has a depth of 16m alongside. Oil Basin No. 1, on the SW side, is a methane berth for vessels up to 230m in length and 10m draft. Oil Port Berth No. 8, on the SE side, has a depth of 15m alongside.

4. Bassin Rene Coty—Terminal l'Atlantique for containers, on the NW side, includes Quai de l'Atlantique, which is 800m long and has a depth of 12m alongside. Terminal Europe Atlantique for containers, on the NE side, includes Quai des Ameriques, which is 500m long and has depths up to 13.4m alongside. Terminal de Normandie, for containers, on the S side, includes Quai de l'Asie, which is 620m long and has a depth of 13.1m alongside. Bassin du Pacific Terminal, a container terminal on the SE side, includes Quai d'Osaka, which is 450m long and has a depth of 14.5m alongside. Oil Port Berth No. 10, on the SW side, has a depth of 19m alongside and can handle vessels up to 280,000 dwt.

5. Canal Bossiere—Terminal de l'Europe, a terminal for containers on the SW side, includes Quai de l'Europe, which is 910m long.

6. Darse de l'Ocean—Quai de Bougainville, on the E side, is 1,625m long and can handle vessels up to 13m draft.

7. Grand Canal de Havre—Multivrac Bulk Center, situated on the S side about 3 miles E of the entrance, can handle vessels up to 150,000 dwt and 17m draft. Sogestrol Terminal Berths, on the N side about 0.8 mile E of the entrance, can handle chemical and LPG vessels up to 240m in length.

Canal de Tancarville.—Canal de Tancarville leads E for about 12 miles to the locks at Tancarville where it connects with La Seine Maritime. At Gonfreville L'Orcher, about 2

miles E of Bassin de Lancement, there are berths for coastal cargo, tanker, and LPG vessels up to 100m in length and 5.3m draft. Between these berths and the locks at Tancarville the maximum permitted draft is 3.5m.

There are two locks leading into La Seine Maritime. The northernmost lock is 177m long and 28m wide with a depth of 0.4m over the sill. The southernmost lock is 200m long and 23.8m wide with a depth of 3m over the sill.

Aspect

A lighted range, which may best be seen on the chart, indicates the Approach Channel. The range lights are intensified within 1° on each side of the alignment. The channel is also marked by lighted buoys. A directional sector light indicates the entrance fairway.

A light is shown from a prominent tower, 15m high, standing on the N breakwater head.

Numerous prominent oil tanks stand on Digue Ouest, which extends along the S part of the port. The church of Saint Joseph, with a conspicuous tower, stands about 0.5 mile NE of the harbor entrance.

A prominent signal station (port control tower) stands on Quai des Abeilles, about 0.5 mile E of the harbor entrance.

A powerful white light is shown occasionally in dense fog from a structure, 3m high, standing on the NW end of Quai de Roger Meunier, about 0.2 mile SE of the signal station tower.

For additional principal landmarks and aids in the vicinity of Le Havre, see paragraph 5.10.

Pilotage

The limits of Le Havre Compulsory Pilotage Area are, as follows:

1. The NE limit is a line joining Cap d'Antifer Light to position 49°46'N, 0°01'E.
2. The N limit is the parallel of 49°46'N.
3. The W limit is the meridian of LHA Lanby (0°10'W.).
4. The S limit is the parallel of 49°27'N.
5. The E limit is the easternmost extremity of Le Havre port.

Pilotage is compulsory for vessels of 70m or more in length, all vessels carrying dangerous cargo, and all vessels not equipped with VHF.

Vessels should send a request for pilotage 24 hours in advance or on departure from the last port of call. The message should include the vessel's name, call sign, draft, and any possible damage.

Vessels should then contact Le Havre Pilots or PH (for helicopter) 3 hours prior to arrival on VHF channel 12 or 20. Vessels must state name, call sign, possible technical problems, possibility of boarding by helicopter (winch or landing stage), and route (N or W).

The method of embarking the pilot will be specified to the vessel. After the pilot has boarded, instructions will be given on VHF channel 12 or 20.

Pilots board vessels calling for the first time at Le Havre in the following positions:

1. Vessels with a draft of 12m—49°30.7'N, 0°05.2'W.
2. Vessels with a draft of 16m—49°33.0'N, 0°09.8'W.

3. Vessels with a draft of 18m—49°34.4'N, 0°14.0'W.

4. Vessels with a draft between those specified in 1, 2, and 3 above—in a position between the specified boarding positions.

Pilots board vessels proceeding to Port du Havre-Antifer about 1 mile N of Antifer A5 Lighted Buoy (49°46'N., 0°17'W.).

Signals.

Visual traffic and lock signals are displayed from various signal stations around the port area. The pilot should be consulted for the details and meaning of the various codes.

Vessels carrying dangerous cargo or hydrocarbons should display a red flag by day and a red light at night.

Regulations

A Vessel Traffic Service (VTS) Identification Zone for vessels navigating in the Baie de la Seine has been established for the purpose of facilitating recognition of vessels bound to or from the ports of Port du Havre-Antifer, Le Havre, Rouen, and Caen-Ouistreham. The zone is bounded by an arc of radius 22 miles centered on Cap de Le Heve Light. For further information, see paragraph 5.10.

Special regulations and reporting procedures apply to vessels carrying hydrocarbons or dangerous substances bound for or sailing from Port du Havre-Antifer, Le Havre, Rouen, and other La Seine ports. For further information pertaining to these special regulations, see paragraph 5.10.

Vessels over 1,600 grt and carrying hydrocarbons or dangerous cargo should consider the Navigation Controlled Approach Channel to be a Mandatory Access Channel.

Anchorage

Designated Waiting Areas, within which vessels bound for the port may anchor, lie in the approaches to the Estuary of the Seine and may best be seen on the chart. For further details, see paragraph 5.10.

Caution

The alongside depths stated in the description of the port are approximate. The port authority of Le Havre does not provide exact figures for drafts permitted alongside the quays. The actual depths may be less due to siltation within the basins between the dredging schedules. The port authority publishes a quarterly timetable showing the maximum admissible drafts for large vessels for each tide.

Vessels are advised to consult the port authority for the latest depths within the constant level basins and the wet dock systems prior to arrival.

For additional cautions, see paragraph 5.10

La Seine Maritime

5.13 La Seine Maritime is that part of the river navigable by ocean-going ships from just below Berville-sur-Mer

(49°26'N., 0°22'E.), situated 5 miles E of Honfleur, to the Jeanne d'Arc Bridge at Rouen, a distance of about 57 miles.

Above Rouen, La Seine is navigable to Paris, where there is an inland port at Gennevilliers, and where there is access to the inland waterways.

The river is marked at each kilometer, indicating the distance from Paris. Navigation in the river is governed closely by the tides. Vessels ascend with the flood as soon as there is sufficient water to enter the channel.

The passage up river to Rouen takes about 6 hours and can be done on a single tide.

Winds—Weather

Fog constitutes the main danger to shipping in the Seine. It usually sets in around dusk during the autumn and winter months, and at dawn during the spring and summer. It usually disperses 1 or 2 hours after sunrise.

Fog occurs on an average of 29 days a year, on four of which it lasts throughout the day. Fog detectors stationed at various positions along the river transmit visibility information to the port information center at Rouen. The port center will provide visibility information via VHF on request.

Tides—Currents

The rise of tide within the Seine is complex, characterized by a double HW at springs, below Duclair. At neap tides the HW merge, and are indefinable.

At springs, the first HW becomes less and less important as the river is ascended.

At Rouen there is only one HW, but the rise of tide is rapid in the first hour after LW. Above Caudebec, the LWN are lower than the LWS. In periods of drought or certain meteorological conditions, the water level in the river may be lowered by as much as 0.8m. Tide gauges, some of which are lit, are placed at several points along the river.

In addition, the radar station at Honfleur broadcasts tidal information at the Honfleur harbor entrance on request, from 2 hours before to 3 hours after HW at Le Havre. The tide gauges and broadcast information are based on the Le Havre chart datum.

The pilot should be consulted for further details concerning the height of tide in the channel.

The MHWS and MHWN are, respectively, 7.9m and 6.7m at Honfleur, 7.6m and 6.4m at Caudebec (Km 311), and 7.6m and 6.5m at Rouen. The MLWS and MLWN are, respectively, 1.5m and 2.9m at Honfleur, 3.5m and 3.7m at Caudebec (Km 311), and 4.8m and 4.4m at Rouen.

Current rates in the river vary with the tidal stage, meteorological conditions, and the distance upriver. For example, the flood current does not reach Rouen.

At Tancarville, the spring flood current reaches a rate of 6 knots, while the ebb reaches 4 knots. Upriver of La Maillerieville, the flood and ebb reach rates of 2 to 3 knots.

A tidal bore, called Mascaret, is felt at the beginning of the flood current from Villequier, disappearing upstream from Rouen. Due to dredging and channel improvement projects, the bore is no longer considered to be a nuisance to navigation, but

does oblige vessels alongside a pier, or anchored to take precautions.

The pilot should be consulted for appropriate actions to be taken if a tidal bore is forecast. Small vessels avoid trouble by riding out the bore in the middle of the river. The pilot should be consulted for further information.

Depths—Limitations

Depths within Chenal de Rouen are subject to variation from several causes. The largest depth variations occur in the fairway between Honfleur (Km 56) and Tancarville (Km 338). The variation in this stretch may be as much as 0.3m per week and soundings are taken daily. Dredging is carried out on a continuous basis.

The maximum permissible length for vessels sailing to Rouen (Km 245), Port-Jerome (Km 332), and Poste Miroline (Km 353) is 280m. However, further restrictions may be imposed at night or on certain tides.

The maximum draft authorized for Chenal de Rouen varies on a daily basis and is closely related to the height of tide available. The La Seine Pilotage Service publishes a forecast of maximum drafts for the channel monthly. The information refers to salt water drafts for the upriver passage and fresh water drafts for downriver. The maximum drafts given assume normal meteorological conditions.

The published drafts may be increased or decreased at the stage of a vessel's arrival or departure if the water level differs considerably from that predicted.

Draft restrictions may be imposed for certain areas. Further restrictions may also be imposed, particularly at night, depending on the vessel's handling and any deficiency of the radio or radar equipment.

It is reported (2000) that the maximum draft for vessels proceeding upriver is 9.7 to 11.7m, depending on the height of tide. Vessels with drafts up to 9.5m can enter on all tides. The maximum draft permitted for the downriver passage is 10m.

Deep-draft vessels, capable of speeds over 12 knots, can proceed downriver in two stages, either mooring at buoys at Villequier (Km 314), or dolphins at Vatteville-la-Rue (Km 318) with the aid of two tugs. Under these circumstances a greater draft than normal is permitted on certain tides. Vessels can also proceed in three stages, mooring at the buoys or dolphins and at Radicatel Quay. This programmed descent of the river is not authorized for tankers which are not gas free.

It is reported (2000) that vessels proceeding downriver in the above stages may be permitted a maximum draft of 10.8m.

The Pilotage Service should be contacted well in advance of arrival for maximum draft information, which should be confirmed when the pilot boards.

Overhead power cables cross the channel at Km 336, Km 331, Km 298, Km 274, and Km 262. Bridges span the channel at Km 353, Km 338, and Km 309. The minimum vertical clearance of all these obstructions is 49m.

Aspect

Digue Basse du Nord and Digue du Ratir, which are two training walls, border the N and S sides of Chenal de Rouen. These walls, which cover, extend about 4 miles W of Falais des

Fonts Light and are marked by beacons. Digue Basse du Nord, on the N side, is 3 to 6m above chart datum and Digue de Ratir, on the S side, is 2 to 5m above chart datum. The outer head of Digue de Ratir is marked by a light.

The fairway within Chenal de Rouen is marked by lights and lighted buoys, which may best be seen on the chart.

A main sector light (Falais des Fonts) is shown from a prominent white tower, 18m high, standing 0.7 mile W of the entrance to Honfleur.

The access channel leading from Rade de la Carosse to Chenal de Rouen is marked by lighted buoys.

The city and port installations of Le Havre stand along the N side of the entrance to Chenal de Rouen and are prominent.

For further information concerning landmarks and navigational aids in the approaches to La Seine Maritime, see paragraph 5.10.

Pilotage

Pilotage for La Seine Maritime is provided by the La Seine pilotage service at Rouen. Pilotage is compulsory for all vessels entering La Seine Maritime of more than 45m in length.

All inbound vessels should send an ETA and request for pilotage to the Rouen Port Control at least 5 hours prior to arrival. They should send amendments up to 3 hours before arrival if earlier than their previous ETA or 3 hours before their previous ETA if later. The message should include ETA at the boarding position, draft, and speed (maximum speed without notice).

All inbound vessels should then contact Rouen Port Control on VHF channel 73 to confirm ETA and receive instructions.

Pilots generally board vessels in the vicinity of RN Lighted Buoy (49°29'N., 0°01'W.).

La Seine pilotage service also provides pilots for Honfleur, Deauville-Trouville, Caen-Ouistreham, and Dieppe.

Regulations

A Vessel Traffic Service (VTS) Identification Zone for vessels navigating in the Baie de la Seine has been established for the purpose of facilitating recognition of vessels bound to or from the ports of Port du Havre-Antifer, Le Havre, Rouen, and Caen-Ouistreham. The zone is bounded by an arc of radius 22 miles centered on Cap de Le Heve Light. For further information, see paragraph 5.10.

Special regulations and reporting procedures apply to vessels carrying hydrocarbons or dangerous substances bound for or sailing from Port du Havre-Antifer, Le Havre, Rouen, and other La Seine ports. For further information pertaining to these special regulations, see paragraph 5.10.

A Vessel Traffic Service (VTS) system is also in effect for the waters of La Seine Maritime between the estuary of the Seine and Rouen. It is mandatory for all commercial vessels.

The system covers the working area of the Honfleur radar (49°26'N., 0°14'E.) at a range of 20 miles and along the Upper Seine to Pont Jeanne d'Arc (Km 242) at Rouen.

Vessels must receive permission to enter the access channel of La Seine Maritime from the Rouen VTS Control Center.

All vessels should maintain listening watch on VHF channel 73 between Rade de la Carosse and Rouen.

The Rouen VTS Control Center provides details on VHF channel 73 of visibility in the estuary, tidal conditions, weather, and navigation on request. Radar assistance is available from Honfleur Radar Station during reduced visibility or on request. This station will also provide navigational information on VHF channel 73 or 13.

Overtaking is permitted within La Seine Maritime providing the visibility is clear and no other ship can be seen approaching from the opposite direction.

Between Tancarville and Rouen, a speed limit of 15 knots is in force, but vessels must not cause excessive wash.

Vessels of less than 20m in length must not hinder ships in La Seine Maritime.

Anchorage

Two designated Waiting Areas for vessels bound for Rouen, which may best be seen on the chart, lie in the estuary of the Seine. For further information, see paragraph 5.10.

In the Seine, vessels anchor either to await the tide, or in case of dense fog. The pilot should be consulted as to the place of anchorage, as well as for the proper precautions to be taken on the arrival of the flood.

Directions

Vessels bound for ports in La Seine Maritime should head for LHA Lanby (49°31.7'N., 0°09.9'W.) and then RN Lighted Buoy (49°29'N., 0°01'W.), about 6.2 miles ESE, which is moored at the NW end of Rade de la Carosse. The outer entrance of the buoyed access channel lies about 3 miles SE of RN Lighted Buoy.

Caution

Ferries cross at various points along the channel, which may best be seen on the chart. The crossing points are marked by white boards with the word "BAC" or a violet light at night. In addition to their usual lights, ferries at night display three vertical lights. White, red, and green lights are shown when proceeding toward the right or N bank; and white, green, and red are shown when proceeding toward the left or S bank.

Dredges permanently operate within La Seine Maritime.

Instructions are frequently given by the authorities using the convention "left bank or right bank" referring to the position of the banks when headed downstream.

Honfleur (49°25'N., 0°15'E.)

World Port Index No. 35870

5.14 Honfleur is situated on the left bank of the estuary of La Seine. The port is approached from Chenal du Rouen and entered through an outer lock.

Winds—Weather.—See paragraph 5.13 for further information.

Tides—Currents.—See paragraph 5.13 for further information.

Depths—Limitations.—An entrance channel, 100m wide, leads between two tall jetties to the outer lock. This outer lock, which is 40m long and 23m wide, provides access to Avant-port. Vessels of less than 36m in length may use the lock. Vessels 36m and over in length must wait for HW slack to enter with both gates open.

Bassin de l'Ouest is entered from Avant-port through the W inner lock, which is 10.5m wide. This basin is 128m long and 77m wide, with depths of 2.2m. It is used by fishing vessels and yachts.

Bassin de l'Est is entered from Avant-port through the E inner lock, which is 16.5m wide. It is 295m long and 70m wide. Bassin Carnot is entered from Bassin de l'Est by a passage, 13m wide, which can be used by vessels with beams up to 12.5m. This basin is 788m long and 108m wide.

Bassin de l'Est and Bassin Carnot provide facilities for commercial vessels. Vessels up to 110m in length and 15.5m beam can be handled with drafts up to 6.2m at springs and 3.7m at neaps. These limitations are subject to change due to frequent siltation within the port.

Pilotage.—See paragraph 5.13 for further information.

Regulations.—See paragraph 5.10 and paragraph 5.13 for further information.

Anchorage.—See paragraph 5.13 for further information.

Caution.—Sluicing takes place at spring tides, during which time the entrance channel should not be used.

Honfleur to Rouen

5.15 Chenal de Rouen continues almost as far as the mouth of the riviere La Risle, about 5.5 miles E of Honfleur. Then as far as Rouen embankments confine the river to a permanent channel.

Quais Exterieurs de Honfleur are situated close E of Honfleur, on the S bank. These two quays are 122m long and can accommodate vessels up to 170m in length with drafts up to 7m at LWS.

Poste Miroline (Km 353) is a dolphin berth for tankers on the S bank. It is capable of handling vessels up to 60,000 tons. This berth is subject to rapid siltation and vessels must ascertain the depth alongside in advance.

Quai de Radicatel (Km 336), fronting a container terminal, is situated on the N bank. It is 411m long and has a depth of 10m alongside. Vessels up to 45,000 tons and 270m in length can be handled.

Port Jeromme (Km 332), which provides seven berths, is situated on the N bank. It can handle tankers up to 51,000 dwt, 220m in length, and 10m draft.

Quai de Saint-Wondrille (Km 307) is situated on the N bank. It is 645m long and can accommodate vessels up to 10m draft.

Quai de Trat (Km 300) is situated on the S bank. It is 210m long and can accommodate vessels up to 8m draft.

Several berths for coasters and river craft are situated at Caudebec (Km 310), Yainville (Km 299), and Duclair (Km 278).

Rouen (49°27'N., 1°06'E.)

World Port Index No. 35850

5.16 Rouen, a large port, lies about 62 miles above Honfleur. It is divided into two sections by Pont Jeanne-d'Arc. The Maritime Port Section, used by ocean-going traffic, extends from La Bouille (Km 260) to the bridge. The River Section lies above Pont Jeanne d'Arc. It is used by barges, pleasure craft, and small coasters, which can lower their masts.

Depths—Limitations.—The river banks provide a total of about 7 miles of quayage with depths of 5 to 11m alongside. In addition, there are five tidal basins lying nearly parallel to the river, with direct access. There are also several dolphin berths for vessels awaiting quay berths. The river has an average width of 200m and vessels always berth with their bows heading downstream.

The port provides facilities for general cargo, bulk, ro-ro, cruise, container, reefer, paper product, chemical, and tanker vessels. For information concerning the maximum dimensions of vessels for La Seine Maritime, see paragraph 5.13.

It is reported (2000) that the port is accessible by fully loaded vessels up to 40,000 dwt and partly loaded vessels up to 140,000 dwt, with inbound drafts up to 11.5m and outbound drafts up to 10.4m.

Below Bassin de Rouen-Quevilley (Km 246), there are many private specialist berths serving the industries situated on the left bank. The principal facilities are listed below.

Quai Grand Couronne Moulineaux (Km 256), on the left bank, fronts a container terminal. It provides 900m of berthage and has a depth of 11.5m alongside. Vessels up to 10.5m draft can be handled.

Grand Couronne Bulk Berth (Km 254), on the left bank, is 360m long and can handle vessels up to 10.7m draft.

Bassin au Hydrocarbures (Jupiter) (Km 253) provides two petroleum berths and one gas berth. Tankers up to 210m in length and 10.5m draft, and LPG carriers up to 160m in length and 8m draft, can be handled.

A riverside oil berth is situated close below Bassin au Hydrocarbures and can handle tankers up to 270m in length and 10.5m draft.

Quai de Petit-Couronne (Km 252), on the left bank, is a ro-ro berth. Vessels up to 10m draft can be handled. Another ro-ro berth is situated close below this quay.

Bassin de Rouen-Quevilley (Km 246), on the left bank, provides over 2,000m of berthage with depths of 10m alongside.

Bassin Saint-Gervais (Km 245), on the right bank, has an entrance 140m wide. Quai de l'Ouest, on its N side, is 700m long and has a depth of 8.8m alongside.

Pilotage.—See paragraph 5.13 for further information.

Regulations.—See paragraph 5.10 and paragraph 5.13 for further information.

Anchorage.—See paragraph 5.13 for further information.

Caution.—The port is subject to siltation. Inbound draft limitations are also dependent on meteorological and hydrological conditions. Vessels should contact the harbor authorities in advance of arrival for the latest information.

La Seine above Rouen

5.17 Above Rouen, several ports and berths are available to vessels capable of meeting the restrictions. Connections are available, by canal and river navigation, to the Mediterranean, the North Sea, and the Baltic. Vessels wishing to navigate N of Rouen are advised to contact the local authorities for guidance.

Depths—Limitations.—The dimensions of vessels are limited by the dimensions of locks and bridges, and the depth of water. There are eight locks between Poses (Km 202) and Paris, with a usable length of 180m and a usable width of 15.5m. These locks operate from 0700 to 1800 (0630 to 1930 in summer months).

Gennevilliers, an island port situated about 5 miles NW of the center of the city of Paris, lies on the left bank of the river, and is used by vessels proceeding upriver from the sea with a draft of about 3.5m, avoiding the necessity of transhipment at Rouen. The maximum size of vessel reaching this port, with 3,000 tons of cargo, is 120m in length, 15.5m beam, 3.5m draft, and 7.7m air draft.

Gennevilliers port comprises a series of six basins, dredged to a depth of about 4.7m, the entrance to which is 65m wide with a depth of 3.2m and slants obliquely down current.

No. 1 Basin is about 564m long and 90m wide. No. 2 Basin is about 800m long and 70m wide.

The W part of the port handles general cargo, and the E part is equipped for handling oil, petroleum, and coal. There is a container terminal equipped with a 35-ton gantry crane and a ro-ro terminal.

There are also port facilities at Limay, 50 km downstream from Paris; Conflans, at the junction of the Oise and Seine; Saint-Ouen-L'Aumone, 30 km NW of Paris; Bruyeres-sur-Oise, 40 km N of Paris; and Bonneuil, 10 km SE of Paris.

Aspect.—The port of Rouen is connected to the national rail system. There is connection by waterways to Paris. Between Rouen and Paris, a distance of approximately 133 nautical miles, the river is used by traffic consisting of pusher-barge convoys, totaling 3,000 to 4,000 tons, some of which are especially constructed for river navigation.

The quickest route from the English Channel to the Mediterranean Sea is up the River Seine from Le Havre to Paris and St. Mammes, then through Canal du Loing, Canal de Baire, Canal Lateral a le Loire, and Canal du Centre, and then down the River Saone and the River Rhone. The speed limit in the canals is 3.5 knots.

Inland waterways extend from Paris to the River Scheldt, the River Meuse, and the River Rhine, and to the River Rhone, and then to Marseille on the Mediterranean coast. They can be used by vessels not exceeding a length of 38.5m, a beam of 5m, a draft of about 1.8m, and a height of 3.5m.

Le Havre to Cap d'Antifer

5.18 Cap d'Antifer (49°41'N., 0°10'E.), a prominent cape, is fronted by a steep cliff, 122m high.

A main light is shown from a conspicuous tower, 38m high, standing on top of the cliffs at the cape.

The coast between this cape and Cap de la Heve, about 11 miles SSW, is formed by reddish-colored cliffs, about 100m high, except at the N end. At the N end of this stretch the cliffs



Cap d'Antifer Light

are white and can be easily seen from seaward when the sun shines on them.

A water tower stands 0.7 mile SSW of Cauville, about 5 miles NNE of Cap de la Heve, and is the most prominent landmark along this stretch of shore.

Port du Havre-Antifer (Antifer Oil Terminal) (49°39'N., 0°10'E.)

World Port Index No. 35835

5.19 Port du Havre-Antifer, a large VLCC oil terminal, is situated about 9 miles N of Cap de la Heve, close S of Cap d'Antifer. It is administered by the port authority of Le Havre.

Winds—Weather.—The port is exposed to winds and swell between S and W. Local regulations are in force to prevent incidents due to bad weather. Strong winds may reduce the water level in the port by up to 0.5m.

Tides—Currents.—The tides rise about 8m at MHWS and 6.6m at MHWN.

The tidal currents usually run parallel to the shore and attain a maximum rate of 3 knots at springs.

Depths—Limitations.—The Approach Channel, which may best be seen on the chart, is composed of an IMO-adopted Deep-Water Route, an Access Channel, and an inner Entrance Channel. The Entrance Channel is maintained by dredging at depths of 24 to 25m.

The Deep-Water Route, which is not buoyed, is entered 36 miles WNW of Cap d'Antifer and leads ESE for about 25 miles. The SE end of this Deep-Water Route, where it funnels into the Access Channel, is known as the Zone d'Engagement.

The Access Channel is entered about 11.5 miles WNW of Cap d'Antifer. It is 0.5 mile wide and leads ESE for 7.5 miles to the Entrance Channel. The Entrance Channel, 0.3 mile wide, leads ESE for about 4 miles from the SE end of the Access Channel to the terminal.

A Disengagement Area, which may best be seen on the chart, lies adjacent to the S side of the Approach Channel, about 4.5 miles WNW of the terminal. This area enables deep-

draft vessels to abort their approach, turn, and return to the Waiting Areas.

A Safety Area (Holding Area), which may best be seen on the chart, lies adjacent to the S side of the Entrance Channel. This area, 0.4 mile wide, enables outbound vessels, in special circumstances, to stay clear of the Entrance Channel.

A turning area, with a diameter of 1,450m, lies close S of the berths. Vessels are usually swung to starboard and berthed stern first.

An arm extends S from the center of the breakwater and provides two berths with depths up to 28m. Tankers up to 550,000 dwt, 400m in length, 65m beam, and 28.5m draft can be accommodated alongside.

It is reported (1999) that a tanker of 555,031 dwt, 414m in length, 79m beam, and 28.5m draft has been handled at the terminal.

Lighted sign boards are placed at each berth to assist in docking or undocking operations. The signs indicate the distance from the berth to the stem or stern of the vessel, and the vessel's approach speed in centimeters per second.

Aspect.—Antifer A5 Lighted Buoy (49°46'N., 0°17'W.), equipped with a racon, is moored about 21 miles NW of Cap de la Heve.

The Access Channel and the Entrance Channel are marked by lighted buoys. A lighted range, which may best be seen on the chart, indicates the fairway of the Entrance Channel.

An angled breakwater projects from the shore and protects the terminal. It extends 1,550m NW, then 1,000m W, and then 950m SW. A light is shown from a prominent structure, 17m high, standing on the outer extremity of this breakwater.

For further information concerning landmarks and aids, see paragraphs 5.10 and 5.17.

Pilotage.—For information concerning pilotage procedures, requests for pilotage, and ETA messages, see paragraphs 5.10 and 5.11.

Pilots board vessels proceeding to Port du Havre-Antifer about 1 mile N of Antifer A5 Lighted Buoy (49°46'N., 0°17'W.).

An electronic navigation system called Syledis is used in the approaches to the port. It provides information on the vessel's position and movement. The portable receiver unit is brought on board by the pilot.

Regulations.—A Vessel Traffic Service (VTS) Identification Zone for vessels navigating in the Baie de la Seine has been established for the purpose of facilitating recognition of vessels bound to or for the ports of Port du Havre-Antifer, Le Havre, Rouen, and Caen-Ouistreham. The zone is bounded by an arc of radius 22 miles centered on Cap de Le Heve Light. For further information, see paragraph 5.10.

Special regulations and reporting procedures apply to vessels carrying hydrocarbons or dangerous substances bound for or

sailing from Port du Havre-Antifer, Le Havre, Rouen, and other La Seine ports. For further information pertaining to these special regulations, see paragraph 5.10.

Vessels over 1,600 grt and carrying hydrocarbons or dangerous cargo should consider the entire Navigation Controlled Approach Channel to be a Mandatory Access Channel.

Vessels carrying hydrocarbons and vessels constrained by their draft must enter the port via the Approach Channel. Such vessels may enter or leave the Approach Channel only to the W of A7 Lighted Buoy and A8 Lighted Buoy (49°45'N., 0°07'W.).

Vessels constrained by their draft should display the appropriate international signals when entering the Deep-Water Route leading to the port.

Vessels carrying hydrocarbons and vessels constrained by their draft bound for the port must establish radio contact with Le Havre port radio station before entering French territorial waters. Such vessels must remain in continuous contact until berthed alongside.

Vessels carrying hydrocarbons and vessels constrained by their draft bound for the port must report any significant defects concerning propulsion machinery, steering or anchor gear, mooring winches, or radar equipment to the authorities prior to entering French territorial waters. Vessels with any defects will be required to complete a questionnaire.

Vessel carrying hydrocarbons and vessels constrained by their draft bound for the port must have a Le Havre pilot on board while within 7 miles of the French coast.

Inbound vessels constrained by their draft may not turn or leave the Approach Channel once they have entered it at A7 Lighted Buoy and A8 Lighted Buoy (49°45'N., 0°07'W.).

Vessels are prohibited from fishing, anchoring, or stopping, except in special circumstances, while within 200m of the Approach Channel or associated controlled areas.

Outbound vessels, except harbor craft, should stay in the Approach Channel or safety areas. Vessels not constrained by their draft, when W of A19 Lighted Buoy and A20 Lighted Buoy (49°41'N., 0°03'E.), may leave the Disengagement Area if navigation conditions allow provided that they have a pilot on board and they are in contact with the Traffic Control station.

Anchorage.—Two designated Waiting Areas, the limits of which may best be seen on the chart, lie adjacent to the S side of the Deep Water Route. These areas are exposed but good holding ground has been reported.

The area centered about 2 miles WNW of A5 Lighted Buoy is for vessels with drafts of 25m and over; the area centered about 1 mile E of A5 Lighted Buoy is for vessels with drafts of less than 25m.

Caution.—Numerous wrecks, some within the anchorage areas, lie in the approaches to the port and may best be seen on the chart.