

Baltic Gateway; The Sea Transport Infrastructure

Appendix

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1 Denmark

1.1 Copenhagen

There is an ambition in many countries to reduce the administrative cost and to coordinate the resources. This has been an ongoing process over the last 10–265 years in Scandinavia.

In 2000 Port of Copenhagen became a state owned limited company as a first step to merge with Port of Malmö. In December 2000 the boards from the two ports formally decided to merge and January 1, 2001 the fusion became a fact. This is the only known fully administrative and organisational merge of two ports from different countries in Europe.

The merge gave a possibility to organise the ports' resources in the two cities Copenhagen and Malmö and to position the handling operation to the most suitable location.



Figure 1: General view of Port of Copenhagen

The concept was to create a productive, ultra-modern harbour capable of providing its customers and the region with an efficient transport service. The harbour processes all categories of cargo, all year round, at all times of day.

General cargo is handled in the North Harbour, the South Harbour and the Inner Harbour. The general cargo port is divided in two areas; the Free Port and the Customs Port. The Free Port has a total of 2,000 meters of quay length with depth ranging between 7 and 10 meters. Total length of quays throughout the port is over 39 km. Maximum draft in port is 12 meters with, as in the rest of the Baltic Sea, an almost non-existent tidal variation that at a maximum may be of about +/- 0.3 meters.

In the Customs port there is a crane capacity of up to 120 tons and a large number of mobile cranes and fork lift trucks.

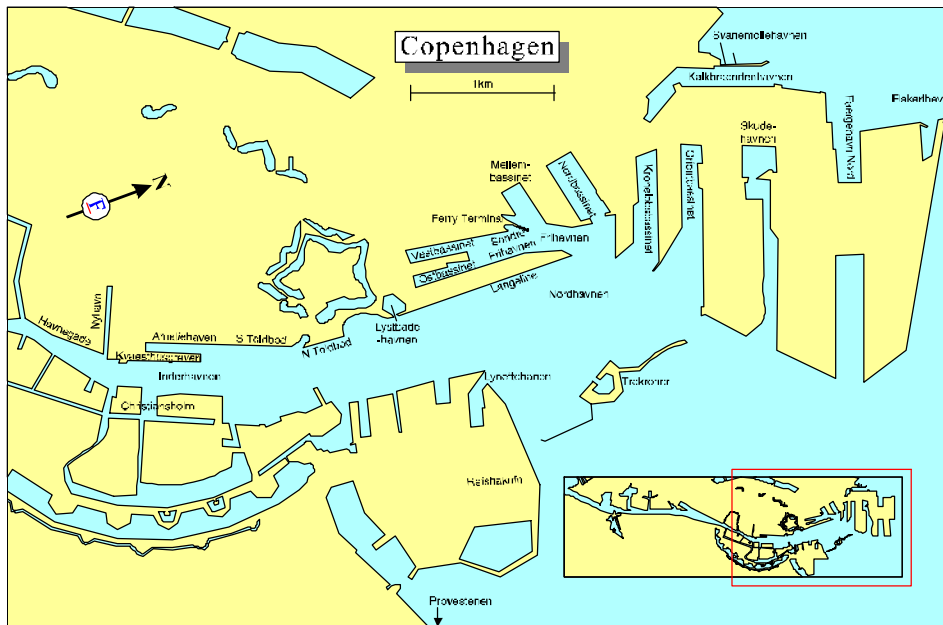


Figure 2: North East Port of Copenhagen

The Free port has also a crane capacity up to 120 tons. There are container trucks, terminal tractors, terminal trailers, straddle carriers for container handling and forklift trucks available. Prøvestenen harbour has a tank storage capacity of 1,000,000 m³ for inflammable liquids.

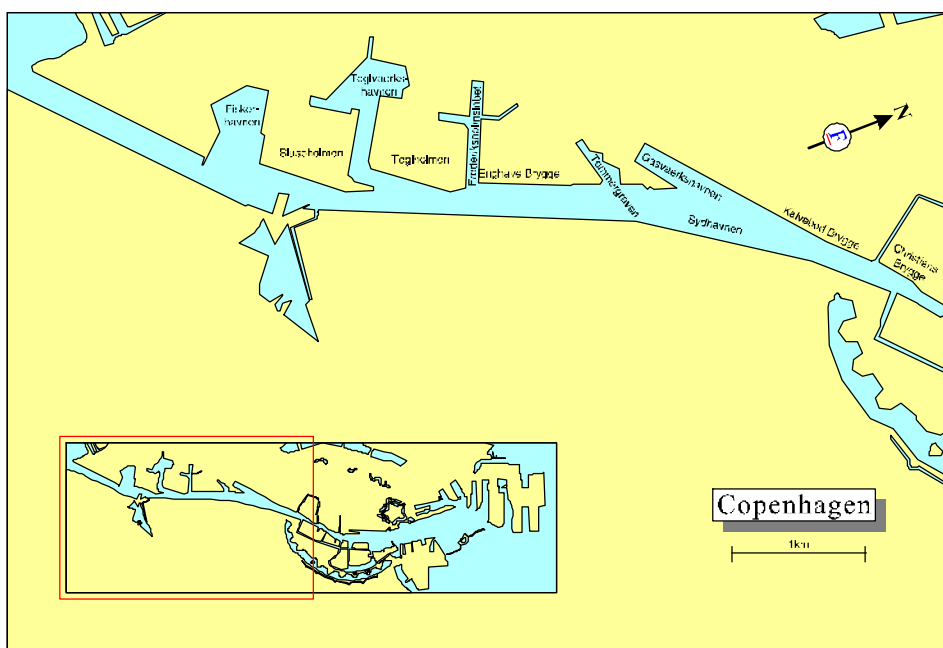


Figure 3: South Port of Copenhagen

There is a well-developed railway network around and in the port. The harbour is close to an extensive motorway network and to the bridge between Denmark and Sweden.

Less than 30 minutes away by car there is the central Scandinavian International airport, Kastrup.

1.2 Rønne



Figure 4: Port of Rønne

The summer season is the busiest period at the Port of Rønne which, during this period, also is called at by approx. 50 cruise liners. Port of Rønne is owned by Rønne Municipality but is run as a "municipal autonomous harbour", i.e. that the harbour is run as an autonomous business with its own board.

Port of Rønne had about 3.000 calls in 2002 and about 1.4 million passengers passed through the port the same year.

1.3 Bandholm

Port of Bandholm is located on the island of Lolland and has about 570 meters of stone quays. The East quay is 232 meters in length and the average draft at daily water level there is 5.8 meters. The North and West Quay are 81 and 188 meters in length respectively and the normal depth 4.4 meters.

1.4 Koge

Port of Koge is located about 30 km southwest of Copenhagen. It consists of a main basin with a general depth of 7 meters. Nordhavn is a separate basin with general depths of 5.3 meters. The port has direct access to the Danish motorway system via a 2.8 kilometre long direct road away from town area. The motorway system leads north to Copenhagen, south to Rødby and Germany, west to Funen and Jutland. There are railway tracks along all quays in the old harbour. The railway station with connecting cargo terminal is only 500 m from the port.

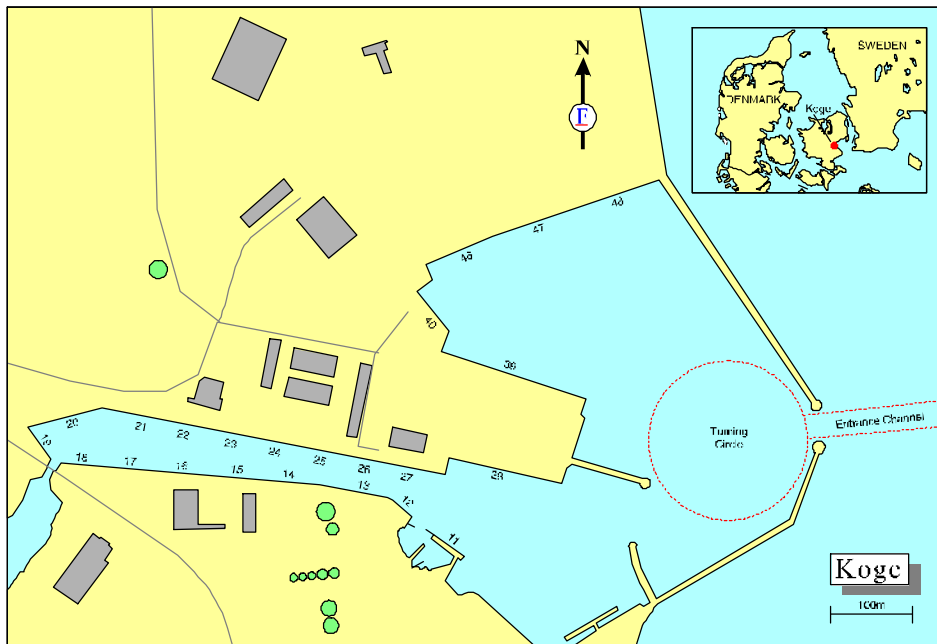


Figure 5: Port of Koge

The main basin has 3 cranes, mobile cranes with hook and grab, max capacity 28 tons and container equipment for 20' and 40' containers. There are 3 movable conveyor belts for grain loading/discharging, with a capacity of 150 tph and one fixed pipe for grain loading/discharging with a capacity of 200 tph. Forklifts with capacities from 2-30 tons are also available.

1.5 Naestved

Port of Naestved has about 20,000 m² of port area for storage and about 2,000 m² in warehouses. The port is located about 60 km southwest of Copenhagen. A tank installation with loading/unloading pipelines is available as well as mobile cranes up to 40 tons. Maximum draft in port is 5.6 meters.

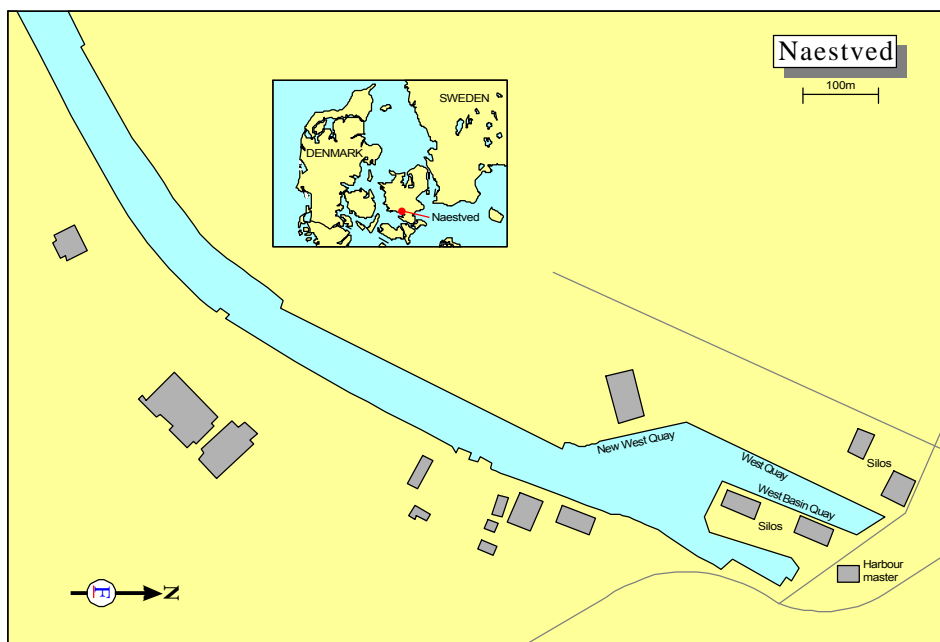


Figure 6: Port of Naestved

1.6 Elsinore, Helsingör

The port is a typical ferry port for short distance ferry service. Two operators call at the port and there is a ferry leaving the port at least at every 20 min. The Ferry service connects to Port of Helsingborg in 20 min sailing time. Maximum draft in port is 6.5 m. The port has about 44,000 ferry calls annually. It is located about 40 kilometres north of Copenhagen and west of Helsingborg (Sweden).

1.7 Nakskov



Figure 7: Port view over Nakskov

The port of Nakskov is located on the island of Lolland in southern Denmark. There are fixed and mobile cranes with a lifting capacity ranging from 20-150 tons. Maximum draft in port is 5.8 meters.

1.8 Nykøbing

Port of Nykøbing consists of the ports Falster, with 197 calls in 2002, and Orehoved with 15 calls 2002.

Falster

The port of Nykøbing is located on the west coast of the island Falster.

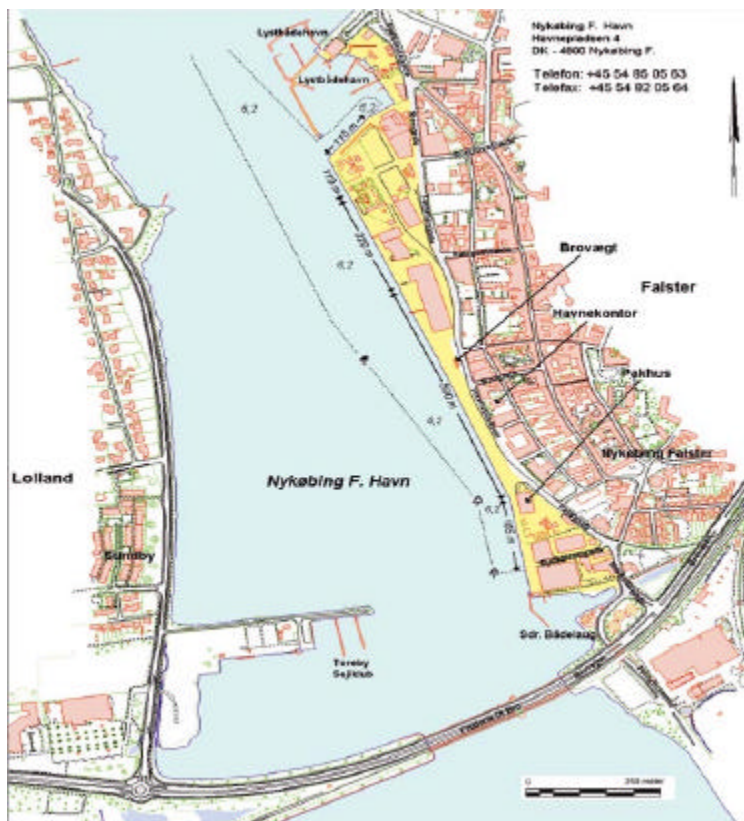


Figure 8: Port of Nykøbing (Falster)

A long and straight quay signifies the Port of Nykøbing, situated in the centre of the town located between the islands Lolland and Falster. The port is a 1.2 kilometres unbroken and straight quay.

The maximum depth of water is 5.80 metres. However, the depth of the basin is 6.20 metres. This means possible access for ships of approximately 4,000 gross tons.

The area of the harbour of Nykøbing F covers 111,000 m² of which 14,000 m² are open storage for loading and unloading. The access road and the rail tracks to the harbour area are behind the quay.

The port quay facilities are two cranes with 32 and 40 tons lifting capacity.

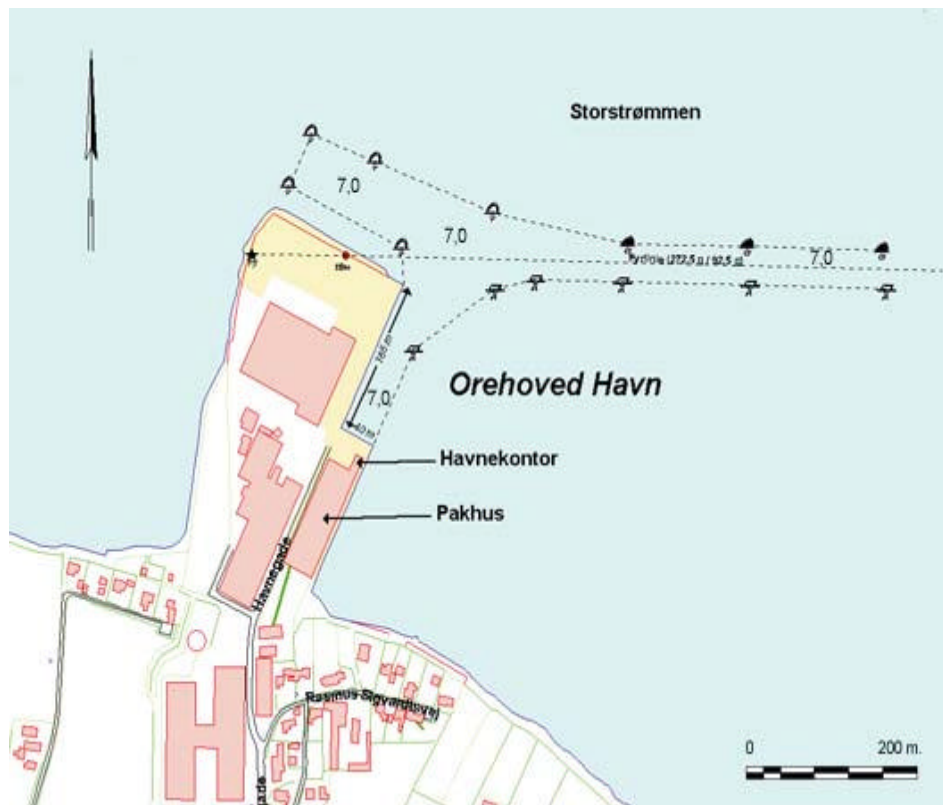
Orehoved

Figure 9: Port of Orehoved, Nykøbing

In 1998 the harbour of Nykøbing F acquired the harbour of Orehoved. There are also recently renovated storage facilities. The area for storage under cover is made up of two warehouses located at the quay side. Each warehouse covers 1,800 m².

A recently built Ro-ro loading ramp that has a width of 28 metres makes the harbour accessible for modern Ro-ro ships.

The port has 200 metres of quays, divided into stretches of 160 metres and 40 metres. The depth at the quayside is 7 metres.

1.9 Rødby havn

The port of Rødby is located on the island Lolland in southern Denmark.



Figure 10: Picture over port of Rødby

Rødby havn is a typical high frequent ferry port having around 17,200 ferry calls per year. The port connects to Puttgarden in Germany on a distance of 10 NM or 1 hrs sailing time.

There is also a commercial port area that has a water depth of 5 meters.

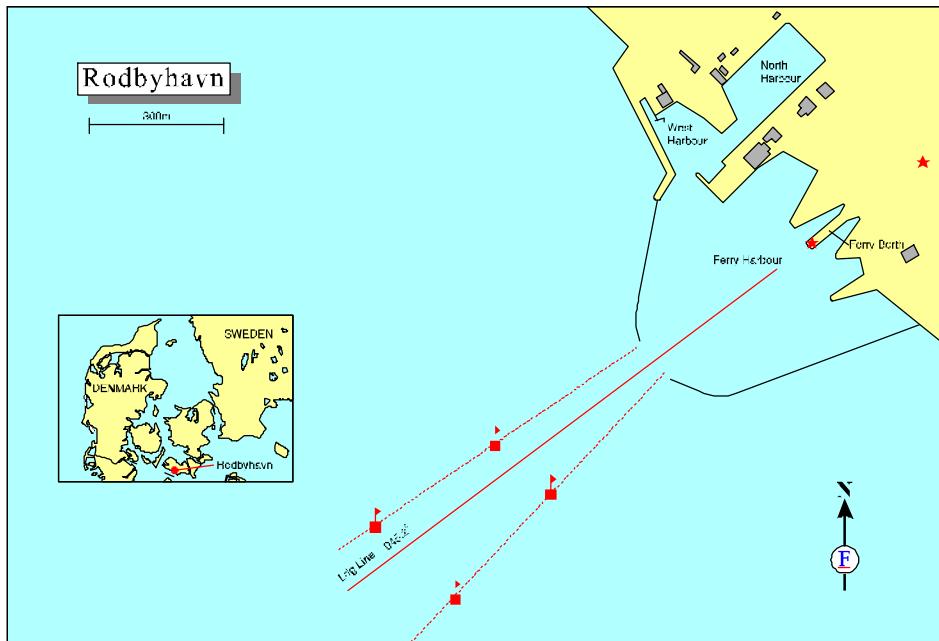


Figure 11: Port of Rødby

1.10 Gedser

Gedser is mainly a ferry port with ferry connection to Rostock in Germany. The crossing takes about two hours. Gedser has about 3,000 calls per year.

2 Germany

2.1 Kiel

Kiel is located in the northwest of Germany, directly north of Hamburg. The port has direct connection to the inland waterway, rail and road network. There is direct connection to the rail network of German Rail and a direct proximity of the motorway. The maximum draft in port is 9.7 meters.

Bollhörn Wharf, Sartori Wharf, Ostseekai and Norwegenkai are used frequently for cruise vessels. Ferries use Schwedenkai, Ostseekai and Norwegenkai. There are various sizes of forklifts for containers and forest products available.

Container berth facility is available at the Nordhafen, at Bollhörn Wharf and Ostuferhafen. Private tanker jetties are available at Scheerhafen and Kiel Canal. Ostseekai, Schwedenkai and Inner Harbour have extensive facilities for vehicles and passengers. Ostuferhafen have three ramps available with depth alongside berth up to 9.5 meters.

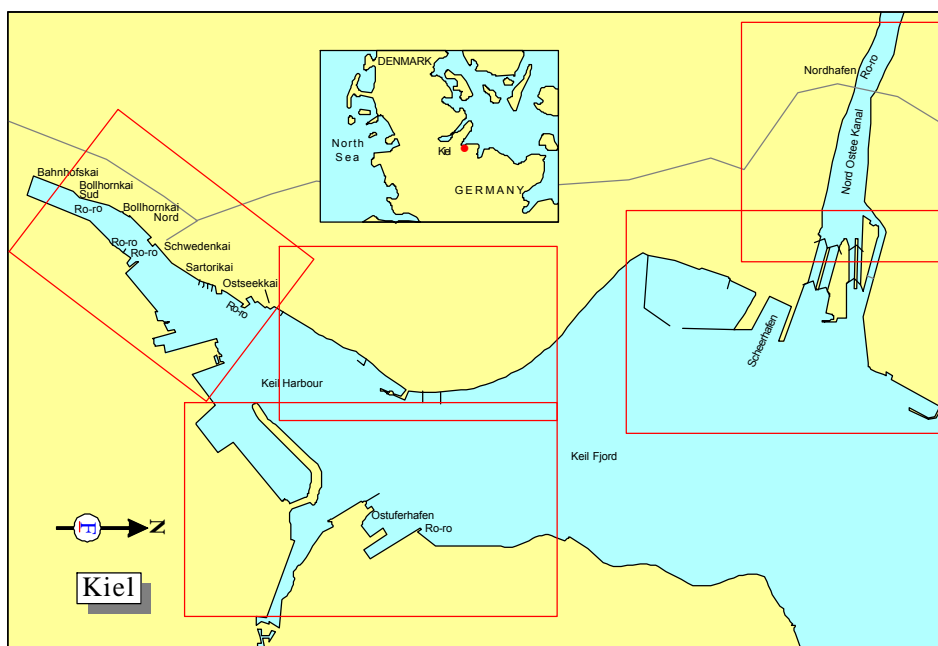


Figure 12: Port of Kiel

2.2 Lübeck

Port of Lübeck comprises several terminals from the city of Lübeck to the outer part of river Trave. Lübeck is located approximately 40 km northeast of Hamburg, in the Lübecker bay.

The three-lane motorway A1 in direction of Hamburg connects Lübeck with the main economic centres in Europe. The rail net offers a direct connection to and from the port. The Elbe-Lübeck Canal provides a link to the European inland waterways network.

Terminal Konstinkai

The terminal Konstinkai is a multi-functional port among Lübeck's city ports. The emphasis of the sea connections is targeted on Finland. The port of Hanko is served on a daily basis, offering a Ro-ro service to and from Finland. Cellulose is regularly handled by Lo-lo technique.

Rail handling capacity at Konstinkai terminal is used for direct handling of bulk cargo, such as salt, (ex railcar) into sea vessels. The loading system, installed in 1999, guarantees a productivity of 1,000 tons per hour.

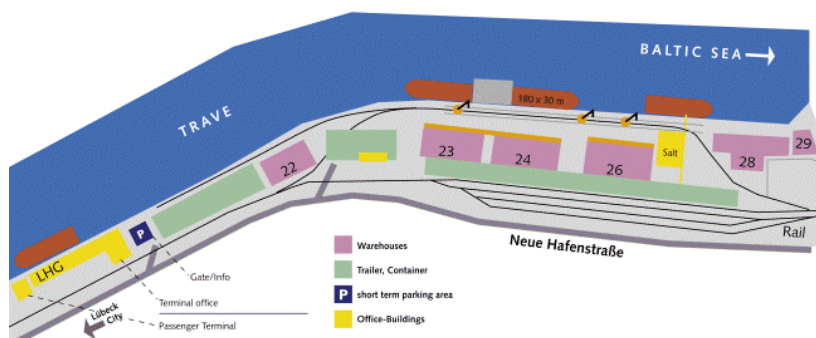


Figure 13: Konstinkai in Lübeck

The terminal has an area of 131,707 m²; shed capacity of 24,500 m², quay length of 1,108 m and two Ro-ro berths (Pontoon).

One reachstacker, 1 quay crane up to 45 t, salt- and bulk loader with a capacity of 1,000 tons per hour and trailer-check system is available. Maximum depth in the basin is 9.5 meters. The main focus is forest products, Ro-ro transport by trucks and trailers, combined transport, new cars and bulk goods. The total cargo volume in 2003 was 1.8 million tons.

Terminal Nordlandkai

The terminal has an area of 446,000 m²; shed capacity/roof area of 163,000 m², quay length of 1,550 m and five Ro-ro berths (one with upper-deck's ramp, three firm ones, one pontoon).

One reachstacker, van-carriers, 1 container-crane (max. load 100 tons) is available in the terminal. The basin depth is more than 9.5 meters.

Total cargo volume in 2003 was 3.4 million tons and the main focus is paper, trucks, trailers, containers and combined transport as well as new cars.



Figure 14: Terminal Nordlandkai

Terminal Nordlandkai, surrounding the "Vorwerker Hafen", is the largest terminal of the Lübecker city ports and represents the main Finland centre of the ports of Lübeck. The multi-purpose terminal is designed for paper and cellulose as well as for trucks, trailers and combined transport traffic. Nordlandkai terminal is also the centre for the automobile export, especially to Södertälje, Halmstad, Helsinki and other destinations in Finland and Sweden. These northbound transports allow further southbound departures with paper- and forest products, ensuring the balanced traffic for Lübeck and the Nordlandkai. The services offer daily traffic to Helsinki, Rauma, Turku and other Finnish ports.

A rail shuttle-link operates between Lübeck and Hamburg.

Terminal Schlutup

The terminal Schlutup represents a new generation of quay facilities developed and constructed in cooperation with the Swedish paper industry. According to their logistical concept, the forest products from Sweden are being cleared from the vessels in Schlutup and distributed into all parts of Europe.

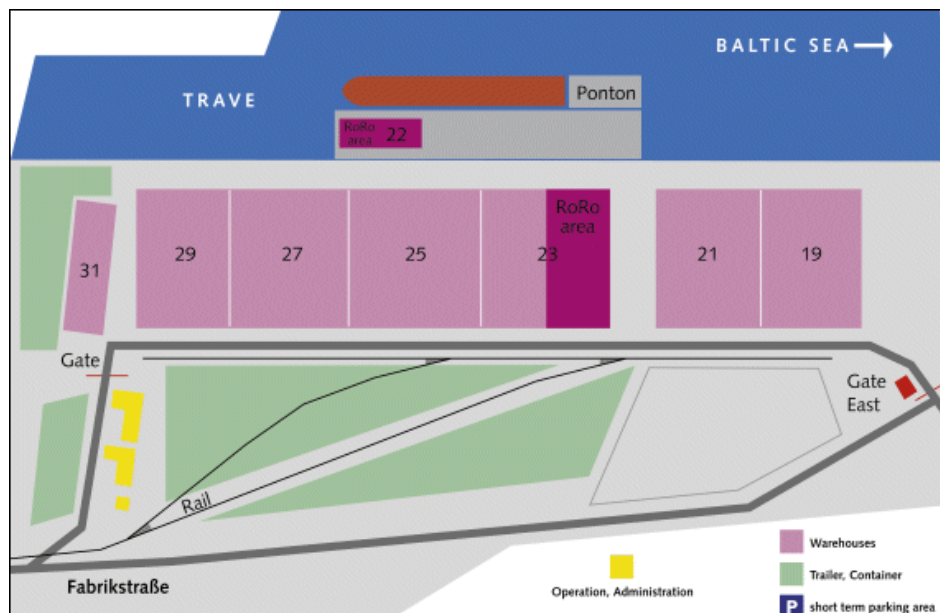


Figure 15: The Schlutup terminal

The terminal has an area of 258,627 m²; shed capacity of 64,000 m², quay length of 230 meters and one Ro-ro berth (as pontoon).

One reachstacker is available in the terminal and the basin depth is more than 9 meters.

Total cargo volume in 2003 was 1.1 million tons and the main focus is forest products (paper, cellulose), trucks, trailers, containers and combined transports, and bulk goods.

2.3 Travemünde

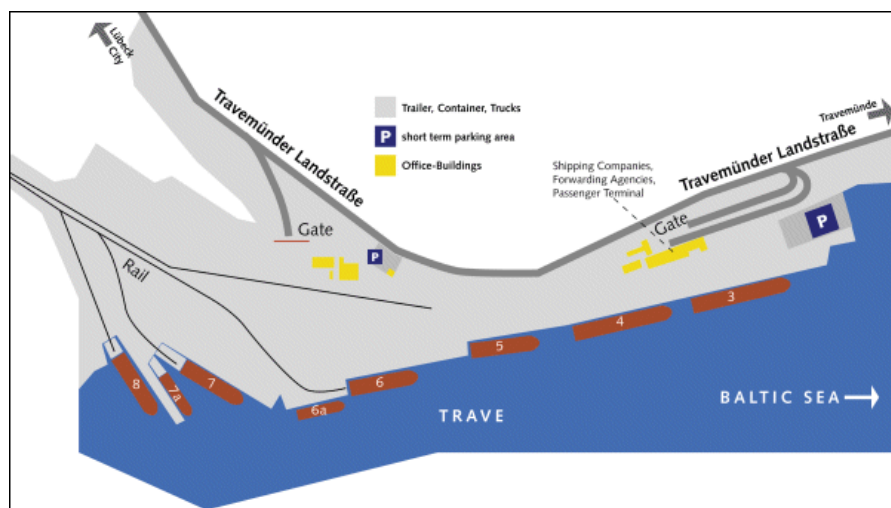


Figure 16: Skandinavienkai terminal Travemünde

The terminal Skandinavienkai is located directly at the delta of the river Trave. This is the largest part of port of Lübeck and also one of the largest Ro-ro- and ferry ports in Europe.

The terminal has more than 80 vessel arrivals and departures per week connecting Sweden, Finland, Russia and the Baltic States with the Continent. The ports of Gothenburg, Trelleborg, Malmö, Helsinki, Turku

and Hanko are served regularly with short frequencies. On some of these routes, there are up to five sailings per day. The terminal Skandinavienkai offers to its harbour clients a 24-hour-service on 365 days of the year.

In the year 2003, about 16.8 million tons of cargo was handled at this terminal. North- and southbound cargo volumes on road and rail transport are offered frequent ferry services.

The terminal Skandinavienkai is presently being reconstructed and extended. The terminal has an area of 658,129 m², quay length of 1,645 meters and eight Ro-ro berths (3 for train ferries, 2 with upper-deck's ramp, 3 pontoons). One reachstacker is available in the terminal and the basin depth is more than 9.5 meters.

2.4 Rostock

The Overseas port in Rostock , Figure 17 below, including Oil Harbour is the main port of Rostock and is owned by Hafen-Entwicklungsgesellschaft Rostock mbH that acts a landlord for the operators in the port.

Hafen-Entwicklungsgesellschaft Rostock mbH is responsible to keep the infrastructure in good condition and to expand it. Several terminal operators are doing the cargo handling. The most important of these terminal operators is the Seehafen Rostock Umschlagsgesellschaft mbH.

There is a large variety of rail-mounted shore cranes available with lifting capacities ranging from 3.2-63 tons complete with attachments for handling unitised cargo, steel coils, paper reels, containers, vehicles and bulk cargo. There are 43 berths available on more than 9,000 meters of quayside. Maximum draft in port is 11.6 meters.

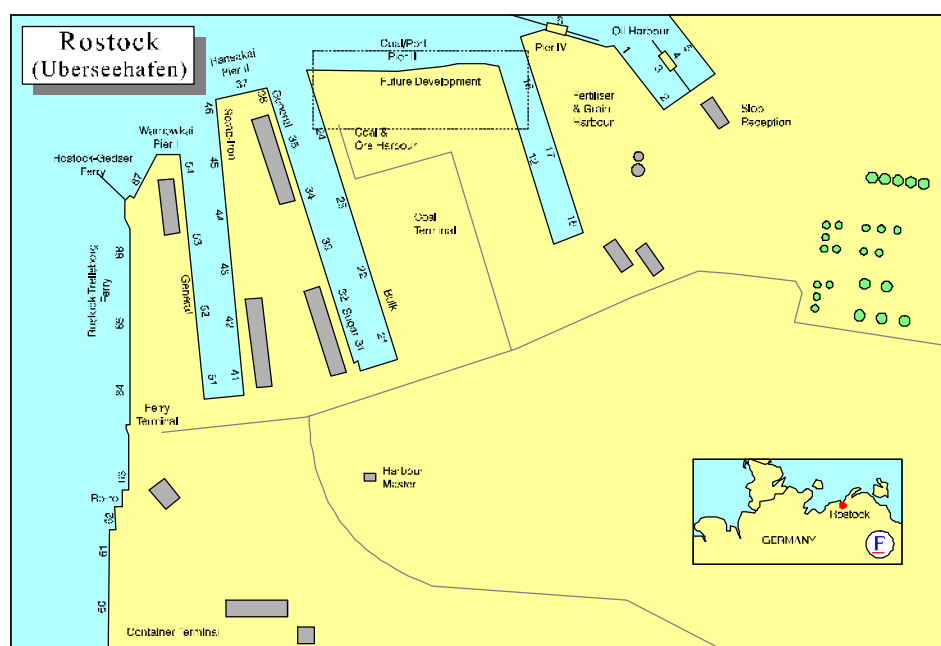


Figure 17: Port of Rostock (Overseas port)

There are 40 cranes in the Port of Rostock, including two ship unloaders for discharging coal, ore and fertiliser. Five cranes with hoppers for discharging coal, ore, fertiliser and road building materials, one shiploader connected to the warehouse by conveyor belt for loading fertiliser and calcium ammonium nitrate and one shiploader connected to the silos.

Five gantry cranes (bulk cargo); two unloading plants (ore/coal), three loading plants (fertiliser/sugar/grain), various types of mobile cranes and fork lifts are also available.

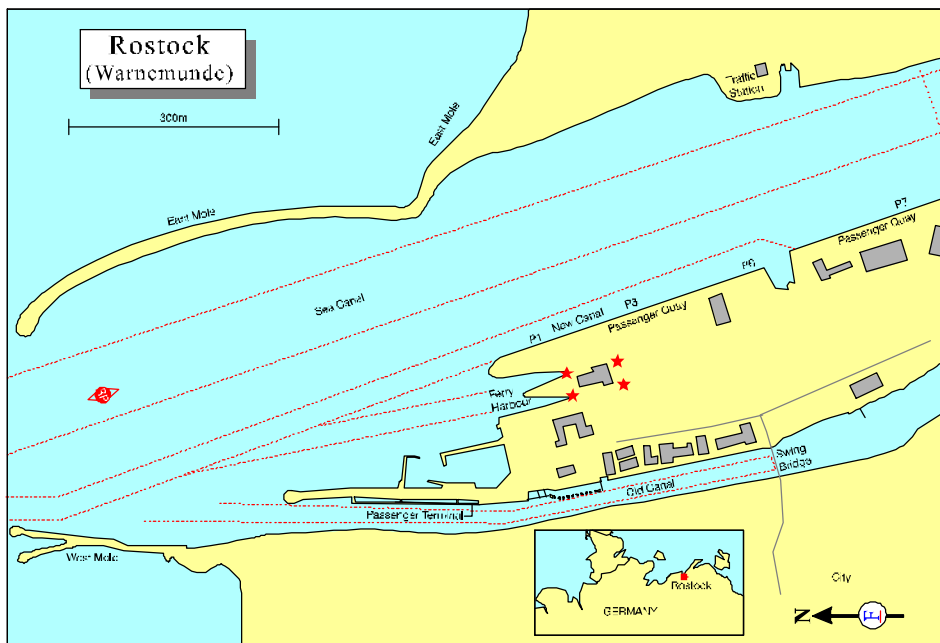


Figure 18: Port of Rostock

The port has a ferry terminal covering 140,000 m² with 6 berths offering several daily routes to Gedser (Denmark), Trelleborg (Sweden) and a Ro-ro ferry service operating on Liepaja. The Greece Superfast ferry operates a daily ferry connection to Hanko (Finland). New ferry service is planned to start in mid June 04 to Tallin and St Petersburg by Silja Line.

Two of the berths are also equipped to handle railcars.

A 1 km long road flyover links the ferry terminal with the A19 Rostock-Berlin motorway.

The port has direct rail and road connections. The motorway junction A19/A20 leads directly into the port and extends from a newly modernised national trunk road system. The railway terminal in the port has a total length of 180 km. A further 56 km of tracks lead directly to the berths. Pipelines link the oil port with the refineries in Böhlen, Leuna and Schwedt.

2.5 Sassnitz

Sassnitz is one of the large ferry terminals in the Baltic Sea with a history of an unbroken ferry service to Sweden before and after the reunion of the German state. It is located on the island Rügen in the northern Germany.



Figure 19: Port of Sassnitz

The port features both trailer operation and rail car operation having a capacity for both the Russian/Finland with of rail tracks as well as the European standard.

Even if the ferry services are dominating the traffic there is also conventional port handling operation readily available and in the port.

The port has about 2,000 calls per year.

A quay crane with 10 tons SWL and two portal cranes with 32 tons SWL, each with track connection for heavy goods and container handling are available in the port. It is also equipped with nine terminal trucks, five fork lifts handling 3-6 tons, two mobile hydraulic excavators 1.5 and 3 m³, one front loader 3.5 m³ and two bob cats. Maximum draft in port is 10.5 meters.

2.6 Stralsund

Stralsund is located just southwest of the island Rügen in the northern Germany.



Figure 20: Stralsund North terminal

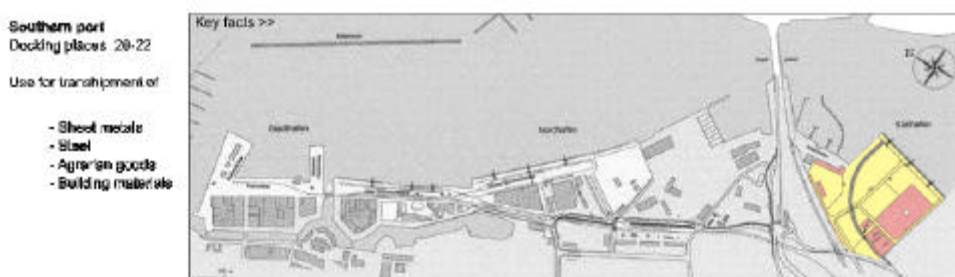


Figure 21: Stralsund South terminal

There are 19 berths with a total quay length of 1,830 meters with maximum draft of 6 meters.

Container handling is done by crane with a capacity of 25 tons. There is also a mobile hydraulic crane available for bulk materials. Some of the berths are connected to the rail.

2.7 Puttgarden

Puttgarden is located on the north side of Fehmarn and is one vital ferry terminal for the connection the Fehmarn Belt.

Puttgarden is a typical high frequent ferry port having around 17,200 ferry calls per year. The port connects to Rødby havn in Denmark on a distance of 10 NM or 45 min sailing time and regular sailings every half hour.



Figure 22: The ferry terminal in Puttgarden

There are plans to build a fixed connection between Fehmarn and Lolland over the Bælt. Such a link would give a very fast and direct connection between Germany and Scandinavia. The effect on the ferry

operation in the Southern Baltic Sea of such a link is expected to be of a much higher degree than the realisation of the Öresund Bridge.

2.8 Wismar

The port of Wismar is located in the former East Germany about 50 km east of Lübeck.

The seaport is part of the Trans European traffic network. The approximately 20 kilometres of private track lines in the seaport of Wismar are linked to Berlin and Hamburg, to the south of Germany and the economic centres in central and Eastern Europe via completely electrified railway lines. They are open to all railway transport enterprises. Maximum draft in port is 8.2 meters.

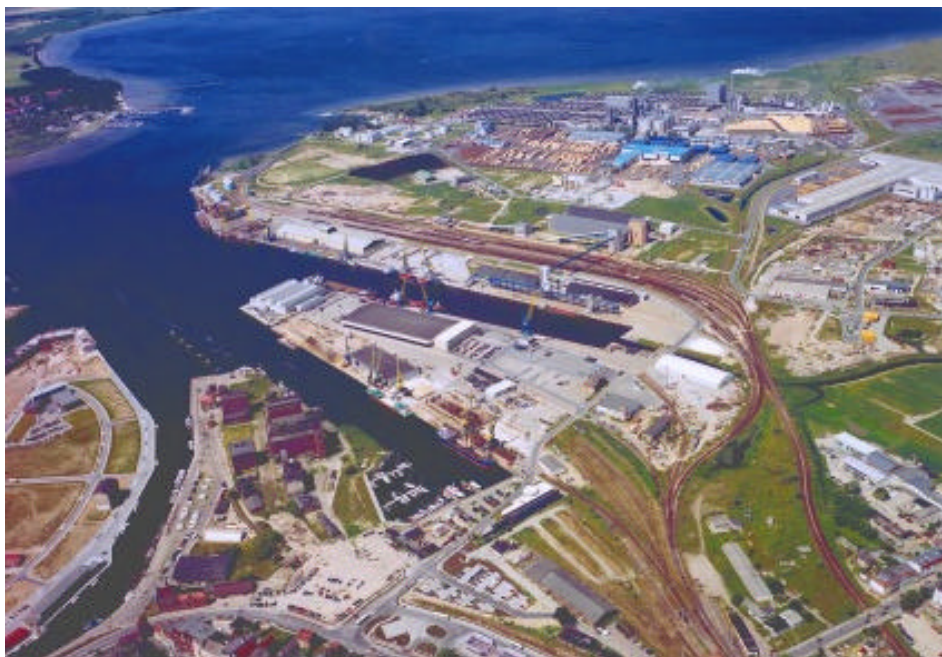


Figure 23: Port plan of Wismar

The coastal motorway A20 leading in an east-west direction passes Wismar at a short distance. The port is directly linked to the motorway network at the junction "Cross Wismar" via a north-east feeder road.

Table 1: Port terminals capacities

	General cargo	Ro-ro terminal	Peat-terminal	Bulk-terminal	Timber-terminal	Tank-terminal	Loading lane
total quay length	900		190	660	300	250	
ramp width (m)		27					
max. ship length (m)	210	210	210	210	210	150	
ship width up to (m)	28	28	28	28	28	28	
draught up to (m)	8,23	8,23	8,23	8,23	8,23	5,30 - 8,23	
electrified railway	X	X	X	X		X	X
uncovered storage m2	42.000	2.500		14.100	20.000		6.400
covered storage m2	14.000		5.300				
covered storage m3			30.000				
covered storage tons				60.000			
handling capacities tons/h				600		300	
crane capacities in Mp	5,3 - 45		6,3	12	20		>45
tank capacities in m3						16.000	

Neustadt/Griefswald

The port is situated at the coast of the Baltic Sea and the mouth of the Ryck River. Maximum draft in port is 5 meters and the port had totally 127 calls in 2002.

Wolgast

Maximum draft in port is 5.7 meters. Port acts as a link to inland waterway connections. The Main Port has a quay length of 650 m giving 7 berths. It has an open storage area of 15 000 m² and 2 000 m² in warehouse. It is equipped with 2 portal cranes and 8 mobile cranes. The South Port has a quay length of 900 m, open storage area of 8 000 m² and 2 000 m² in warehouse. It is equipped with 3 portal cranes and 1 mobile crane. The port had 218 calls in 2002.



Figure 24: Location of Port of Wolgast

3 Russia

3.1 Kaliningrad

Kaliningrad (54°42 N, 20°32 E) is situated on Russian territory, in an enclave bounded by Lithuania and Poland. The Port is the most western by comparison with the other Baltic ports and has the closest distance to the ports of Western Europe. It is the sole ice-free Russian port on the Baltic Sea Coast. There are three port areas of relevance for commercial shipping in the Kaliningrad region situated on the south eastern coast of the Baltic sea.

The City Harbour, the oldest and largest port which comprises three ports : Sea Commercial Port of Kaliningrad : located in the mouth of the Pregolya River; Kaliningrad Sea Port (the former deep sea fishing port) and River Port of Kaliningrad. *The Baltisk Port* is located on the peninsula between the Baltic Sea and the Primorskaya Bay and at the entrance of the channel to the city of Kaliningrad. *The LUK-oil export terminal* is located on the Vostochny peninsula along the channel through the Primorskaya Bay.



Figure 25: Overview of Kaliningrad Commercial Port

The port of Kaliningrad is located approximately 35 km north of the border between Poland and Russia. The annual turnover in 2003 was 4.5 million ton. There are 34,000 m² warehouse area, 36,000 m² open storage area and 4,000 m² scrap site area available in the port.

Kaliningrad port includes three separate stevedoring companies operating their own cargo handling facilities, warehouses and open storage areas.

Those companies are:

- Kaliningrad Sea Commercial Port,
- Kaliningrad State Fishery Port, and

➤ Kaliningrad River Port.

Kaliningrad Silo and GMB Terminal handles fertilizers in bulk for export. They are independent companies which are located at the territory of the Sea Commercial Port and are therefore using the port's infrastructure. Some oil loading takes place also in Baltiysk near the canal entry point and in Svetly. The cargo handling in the port is mainly transshipment. The figures in the last years has been as Table 2 indicates.

Table 2: Transshipment volumes in Kaliningrad

	1996	1997	1998	1999	2000	2001	2002
Dry bulk (1000tons)	1.100	1.150	1.200	1.520	1.630	1.850	1.629
Liquid bulk (1000tons)	500	600	850	880	950	1.870	4.874
General cargo (1000tons)	3.100	3.350	2.400	1.800	1.820	2.080	3.353
RoRo (units)	3.200	7.300	1.420	320	1.250	1.560	2.160
Containers (TEU)	2.300	12.000	10.875	9.122	16.280	21.313	22.850
Total tonnage (1000 tons)	4.700	5.100	4.450	4.200	4.400	5.800	9.510

The transshipment of the port amounted to 12,2 million ton in 2003 of which : dry bulk (16 %), liquid bulk (50 %) and general cargo (34 %).

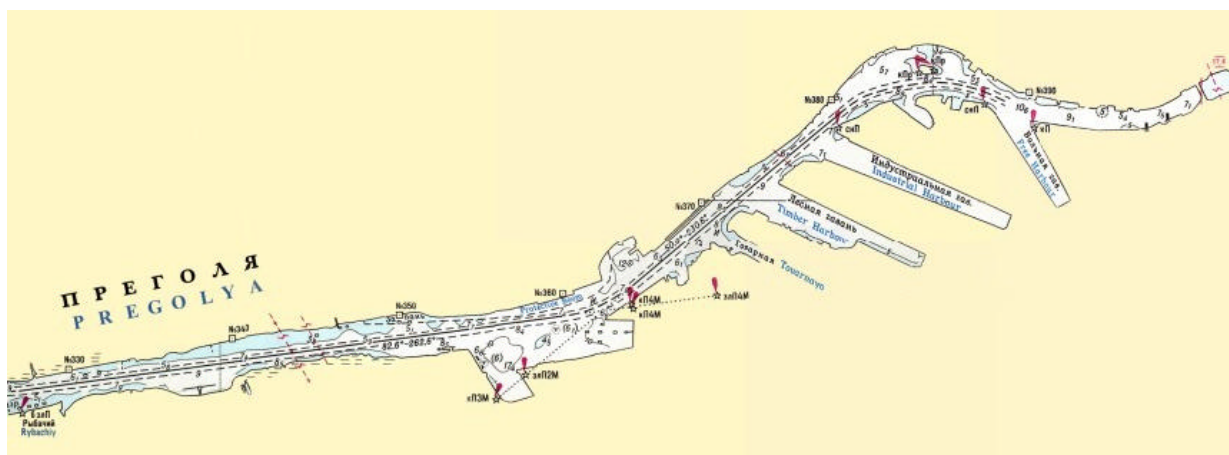


Figure 26: The port complex of Kaliningrad

Kaliningrad development of tonnage

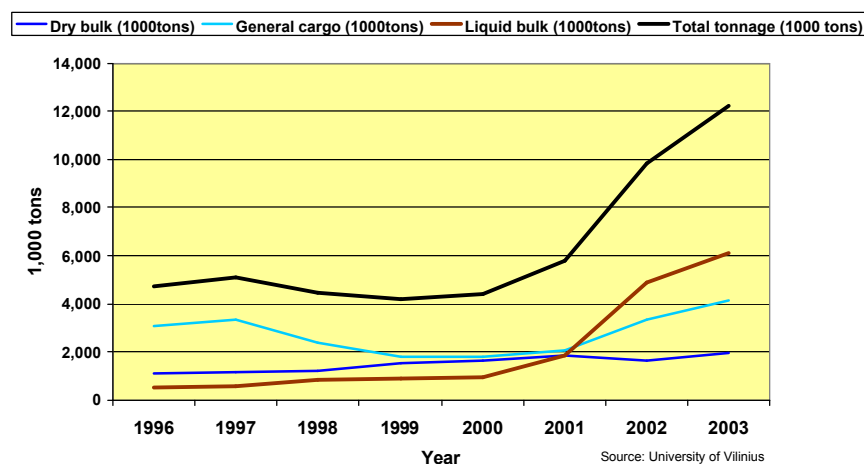


Figure 27: Cargo development in the Port of Kaliningrad

The sea routes from Kaliningrad port to Kiel, Hamburg, St.Peterburg and Lubeck are under operation on a regular basis.

Most berths have rail connection to the State railway system. The internal railway length is 13.5 km. Maximum draft in port is 8 meters.

Further development of Sea Port of Kaliningrad for the period until 2010 is included in the Programme for the Development of Kaliningrad Region and adopted by Resolution of Government of Russian Federation (on the 7th December 2001). The rapid increase of transshipments in the Sea Port of Kaliningrad is tied with implementation of this programme.

1: Construction of a deep-sea port of Vostochny: Vostochny will be located on a peninsula near the town Baltiisk and will act as a terminal for passenger ferries as well as railway ferries and container carriers operating on the line between Ust-Luga, Baltiisk and the ports of Germany. This large-scale project is part of the federal programme for the development of the Kaliningrad Region up to 2010. The new port became a necessity as the larger ships are unable to enter the shallow (9.0 m) 42-km-long sea channel of Kaliningrad port, which links the other ports to the Baltic Sea.

The railway section of the port will cost USD 87 million. This figure includes the development of the Kaliningrad-Baltiisk-Vostochny railway line for the 2003-2005 period and the construction of the Baltiisk-2 port railway station.

It is planned that the port of Baltiisk with a capacity of 8.3m tons of cargos a year (cargo turnover is expected to be 1.3 million tons with 330 calls per year) will be put into operation in 2006. A terminal for Ro-Ro vessels carrying railway wagons and trucks. One single berth will have a quay length of 215 m and a water depth of 11.5 m. Location of the planned terminal is east of Baltiisk and north of the Kaliningrad Canal. A new harbour basin is to be established between the terminal and the canal.

2. Completion of the construction of the container terminal in Commercial Port of Kaliningrad,

3. Completion of 1st stage of construction of Passenger- cargo complex in Svetliy town.

The port development programme is balanced with development of inland transport.

Individual section of the Pan-European Transport Corridor IXD as Nesterov- Tsherniakovsk-Kaliningrad, crossing the territory of Kaliningrad Region is under reconstruction. 80 km of roads have been reconstructed during the last year. Programme on further development of Russian Federation roads including Corridor IXD is planned for the period until 2010. Construction of bypasses, modernisation of existing

links, construction of a new border crossing point at Tsherniachovsk, rehabilitation works are foreseen in the said Programme. Development of the main motorway of Region will ensure modern connection with the Baltic countries and through Poland with Germany and other European countries.

In railways sector of Kaliningrad Region the following investment priorities were pointed out: renewal of rolling stock fleet, reconstruction of access roads leading to the Sea Port stations and modernisation of technologies aiming at decrease of overall costs.

Approximately 25 million EUR is estimated as the cost for the implementation of the above mentioned measures.

4 Latvia

4.1 Liepaja

The Port of Liepaja (56° 31 N, 21° 1 E) is located on the east coast of the Baltic sea about 210 km to the west from Latvia's capital Riga about 50 km north of the border between Latvia and Lithuania.. The port is protected from the sea by breakwaters and jetties with three 200m wide entrances between them.

Liepaja is a former naval base city with a population of 93.000 people. Traditionally it is an industrial, commercial and transit centre with a strategic importance for export from Russia to the West and vice versa. Table 3 contains the transshipment figures for the Port of Liepaja.

Table 3: Transshipment volumes in Liepaja

	1996	1997	1998	1999	2000	2001	2002
Dry bulk (1000 tons)	86	215	245	297	401	512	799
Liquid bulk (1000 tons)	174	360	106	297	484	587	888
General cargo (1000 tons)	1.349	1.721	1.946	1.731	2.067	2.161	2.631
Containers (TEU)	1.158	3.568	5.129	4.044	3.278	2.276	2.798
RoRo (units)	20.429	29.462	27.148	20.444	20.856	25.173	29.263
Total tonnage (1000 tons)	1.609	2.296	2.297	2.324	2.965	3.260	4.318

After a rapid increase in 1997, volumes stagnated in 1998/1999 and had potential to increase again in 2000, 2001 and 2002. In 2002 the total transshipment of the port amounted 4.32 million tons of which 18 % was dry bulk, 21 % liquid bulk and 61 % general cargo.

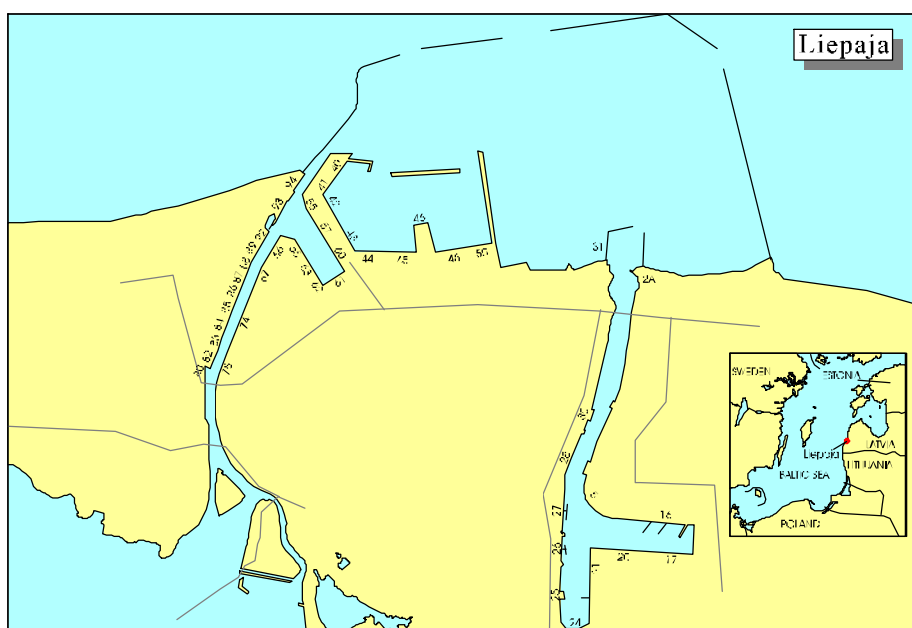


Figure 28: Port of Liepaja

The quay length in the oil harbour is 100 meters and depth alongside is 7.5 meters. The total tank capacity is 17,000 m³. The bulk and general cargo terminal covers a land area of 30 ha. Maximum depth is 8 meters but should increase to 10 meters after dredging.

The passenger and Ro-ro terminal covers an area of 40,000 m² with a quay length of 190 meters. Ferry services operate from this terminal.

4.2 Ventspils

Port of Ventspils is located approximately 40 km south of the border to Estonia and 90 km north of Liepaja. Ventspils was one of the major FSU oil terminals. The port is the one that has been the most affected by the Russian shift of export products to their own terminals in the Gulf of Finland.

The Port of Ventspils can be considered as one of the most important and biggest ports for transshipment of northwest Russian crude oil. The crude oil and the oil product transshipment terminals form the largest terminal complex on the East Baltic Sea coast. The Port of Ventspils (57°24 N, 21°32 E) is located on the eastern coast of the Baltic Sea at the Venta river.

The following table contains the transshipment figures for the Port of Ventspils (1996-2002).

Table 4: Transshipment volumes in Ventspils

	1996	1997	1998	1999	2000	2001	2002
Dry bulk (1000tons)	3.903	4.573	5.193	6.280	5.913	7.398	7.606
Liquid bulk (1000tons)	28.988	28.578	27.466	25.706	27.275	29.496	20.539
General cargo (1000 tons)	2.854	3.629	3.388	2.151	1.444	1.042	559
RoRo (units)	0	0	4.651	0	879	2.882	3.526
Containers (TEU)	0	0	862	195	207	0	1.044
Total tonnage	35.745	36.781	36.046	34.137	34.632	37.937	28.704

The transshipment of the port amounted to 26.7 million tons in 2003 of which 26 % was dry bulk, 72 % liquid bulk and 2 % general cargo. Between 1998 and 1999 volumes fell as a result of competition from the new oil terminal in the Port of Tallinn (Muuga harbour). The decrease in 2002 was among others a result of the opening of the new oil terminal of Primorsk.

The total length of available cargo berths is 5,767 meters, with 3,205 meters for dry cargo and 2,562 meters for oil and chemical berths. There is 4,531 meters of berths available. Maximum draft in port is 15 meters.

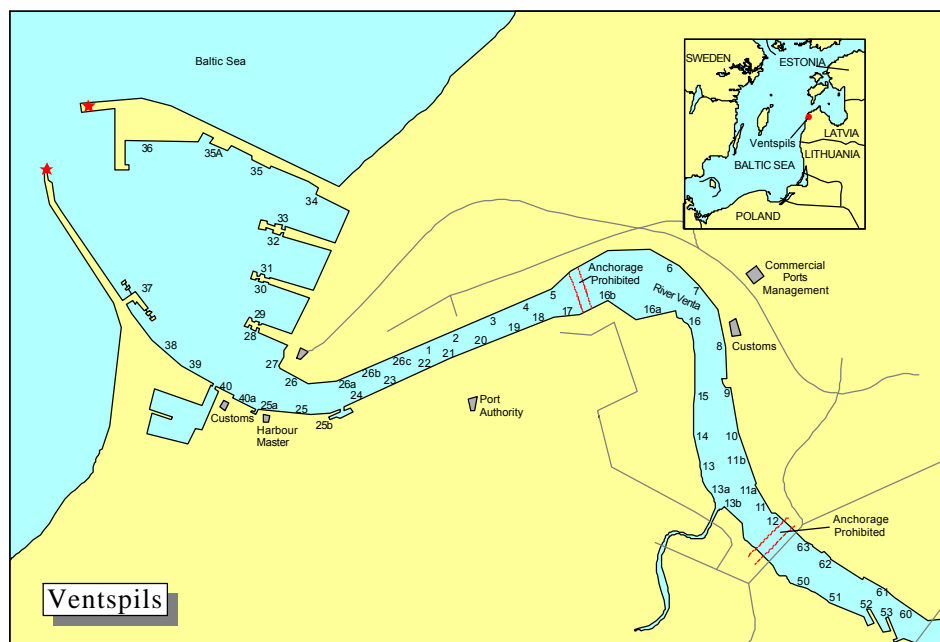


Figure 29: Port of Ventspils

A floating crane with a capacity of 100 tons, 30 gantry cranes with capacity of 40 tons and two special potassium salt loading systems with a capacity of 1,500 tph are available.

Development of Ventspils Sea Port is planned according to three main goals: development of infrastructure, development of new types of operations and development of industrial activities in the port.

State Investment Program (till 2010) Project Reconstruction of access road to Ventspils Port Terminals envisages various infrastructure improvements, directed at facilitation of access to terminals. Project framework includes reconstruction of motorways to Riga, Piltene, Kolka, Kuldiga, Uzava directions, as well as reconstruction of Venta river crossing bridge, i.e. expansion up to 4 lines. Project also envisages construction of a new viaduct to ensure direct railway access to port berths.

The goal of development new types of operations (Ro-Ro and container cargo transshipment) is achieved via construction of the technically modern container terminal. The capacity of the terminal is 150,000 TEU/year, and besides handling of containers, general and Ro-Ro cargoes, the terminal offers services for storage of cargoes and stuffing & stripping. Currently Ventspils Sea Port services 2 ferry lines between Ventspils and Nynashamn and Ventspils-Travemünde.

Ventspils Industrial Development Strategy was inceptioned in March 2003. The Strategy will identify principles in accordance with which the city can most successfully realize the industrial development plans. The overall territory of the park is 118.3 ha, out of which 70.8 ha are unoccupied and can be leased out.

5 Lithuania

5.1 Klaipeda

The Port of Klaipeda (55°43 N, 21°8 E) is located in a narrow strait “the Sea Canal” on the eastern coast of Lithuania approximately 80 km south of the border between Lithuania and Latvia. The port has the capacity to handle containers, general and bulk cargo, one berth is allocated for passenger/cruise vessels.

The Port of Klaipeda, is the only seaport in Lithuania, apart from the Butinge oil terminal and is of major significance for the Lithuanian transport sector in particular and the Lithuanian economy in general. The Port of Klaipeda can be considered as one of the largest ferry and RoRo ports in the Baltic States.

Table 5 consists of the transshipment figures in the Port of Klaipeda.

Table 5: Transshipment volumes in Klaipeda

	1996	1997	1998	1999	2000	2001	2002
Dry bulk (1000 tons)	1.250	1.780	2.317	2.823	2.903	2.939	3.957
Liquid bulk (1000 tons)	4.195	3.591	2.234	3.915	5.198	5.121	6.738
General cargo (1000 tons)	9.384	10.747	10.452	8.233	11.295	9.176	9.045
RoRo (Units)	158.942	177.475	144.619	101.315	116.195	134.735	136.082
Containers (TEU)	35.057	36.736	32.328	28.668	39.955	51.675	71.609
Total tonnage (1000 tons)	14.829	16.118	15.003	14.971	19.396	17.236	19.740

The transshipment of bulk and general cargo in the port amounted to 21.1 million tons in 2003 of which: liquid bulk: (29,8 %) general cargo: (53,3 %) dry bulk: (17,1 %).

A total of 154.735 units of RoRo and 118360 container TEUs were handled in 2003.

The biggest increase of transported units in 2003 compared with 2002 were achieved on these Ro-Ro lines: Klaipeda – Karlshamn (79 %) with total number of transported units- 27 940, Klaipeda – Copenhagen(17% -24 689), Klaipeda- Aabenraa- Ahus (15%- 13 657) and Klaipeda –Kiel (12%-69 984).

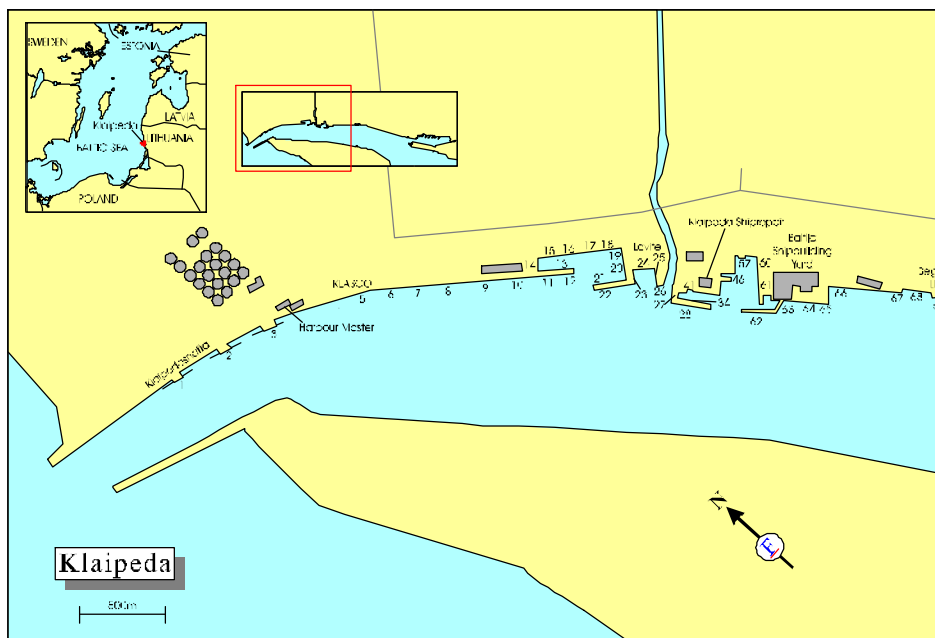


Figure 30: Port of Klaipėda I

The oil berths are located on the north side of the canal, adjacent to the harbour entrance. Oil products are exported from Klaipėda. Crude oil is received both by road and rail.

The maximum draft in port is 10.5 meters.

Cranes up to a capacity of 40 tons and floating cranes up to 50 tons capacity are available. The tank farm for oil cargoes belongs to the refinery. Warehouses and concrete floored sheds are available in the port.

The container terminal and the ferry terminal with connection to Germany and Sweden, is located in the inner part of the port area.

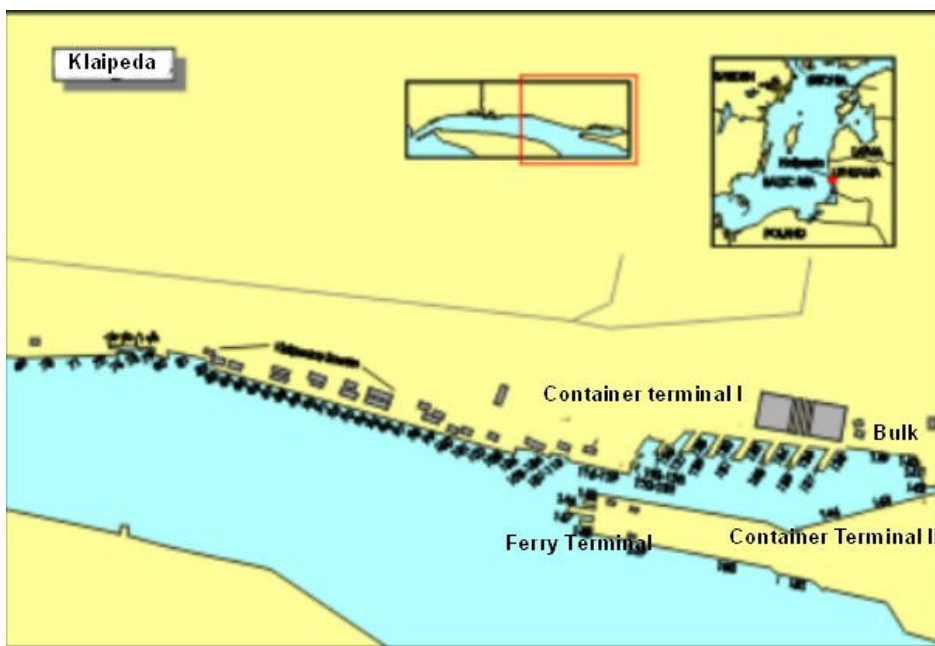


Figure 31: Port of Klaipėda II

The main measures that are planned to implement in the Klaipėda Sea Port till 2005 are following; development of the container terminal,

development of the storage facilities, warehouses, creation of added value centres, development of refrigerated warehouses, construction of specialised timber terminal, construction of vehicle and container washing facilities and development and modernisation of the port infrastructure (including access roads and railways).

At present time the long term Strategy (till 2025) of the Klaipeda Sea port is under preparation. Preliminary it is foreseen till 2015 to invest for: road and pavement works; improvement railways access to port and development its network in the port area; drainage, water supply, electrical work; construction of cargo handling facilities and buildings – in total about 300 million EUR.

5.2 Butinge Marine Terminal

The port of Butinge is one part of a major Lithuanian oil and gas complex controlled by the company Maizekeiku Nafta which operates the port, as well as Lithuania's and the Baltic states only oil refinery, Mazeikiai, and a pipeline system connecting the complex to Russia and to Latvia. Maizekeiku Nafta's two main shareholders are the Russian oil major Yukos (53.7%) and the Lithuanian government (40.66%). Butinge was designed with both import and export capabilities, giving the Latvians the option to import oil should Russian supplies be disrupted.

The refinery underwent modernization in September 2003 enabling the refinery to produce higher-grade gasoline compliant with EU standards. The region also imports petroleum products from Russia and is heavily populated by filling stations branded by Russian oil major LUKoil.

There is a 91.6 km 22 in (559 mm) onshore pipeline connecting the Mazeikiu Refinery pumping station to Mazeikiu Butinge Nafta Branch Terminal.

At the terminal there are 3 crude oil tanks of 50,000 tons capacity, complete with transfer pumping station to a 2.5 km, 36" (914 mm) onshore pipeline and a 7.3 km 36" sub sea pipeline. This connects to the PLEM of a CALM type SPM buoy to handle export/import of crude oil tankers with segregated ballast system.



Figure 32: Butinge SPM (Single Point Mooring) bouy

Maximum loading and discharging rate is 6,500 m³/hr. Phase 1 operations 1,700 m³/hr. The terminal has today a turnover of about 1 million ton per month.

6 Poland

6.1 Gdansk

Gdansk is located about 70 km west of the border to Russia and approximately 20 km south of Gdynia.

The Port of Gdansk has a network of rail connections with the hinterland. In Gdansk there are railway connections with all strategic directions. Two rail trunk lines connect Gdansk with the south of Poland through Lodz/Warsaw to Katowice/Cracow. Gdansk also has two electrified rail connections with Poznan and Wroclaw, as well as electrified one - track rail connection with Szczecin and district of Kaliningrad.

The suspension bridge of John Paul II, opened on 9th of November 2001, is an important transport link to the port and the domestic and international road network. It helps to avoid directing heavy traffic streams through the city centre.

The inner port is equipped with 85 shore cranes with lifting capacities of 3-40 tons, 2 x 40 tons rail mounted gantry cranes, 2 floating cranes of 60 tons and 100 tons, mobile shore cranes of 60 tons and 5 grain elevators. There is a total warehousing and shed space of 78,500 m², open storage yards have a total area of 330,850 m² and grain silos has a capacity of 25,000 tons.

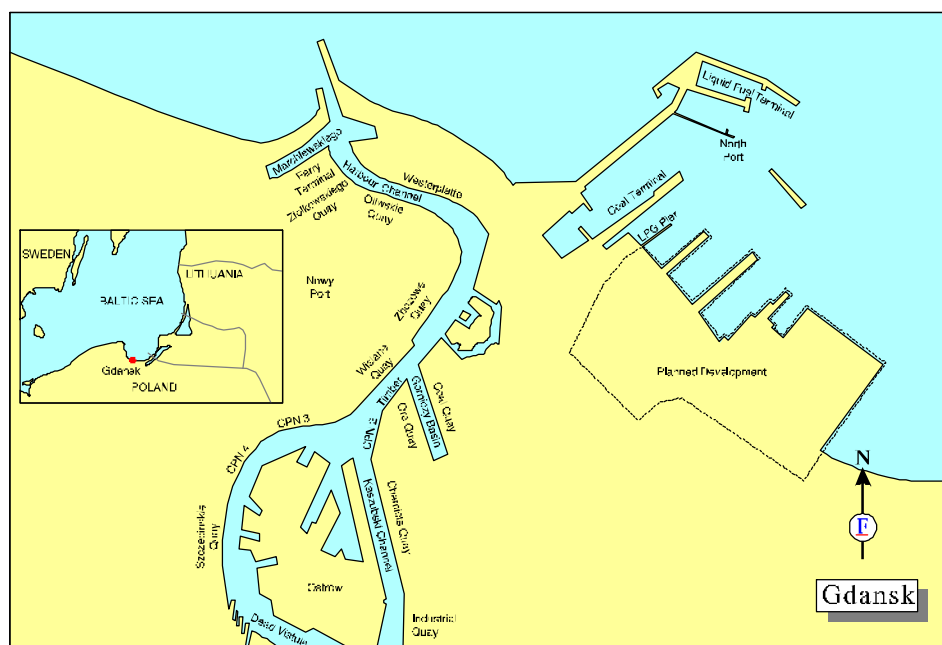


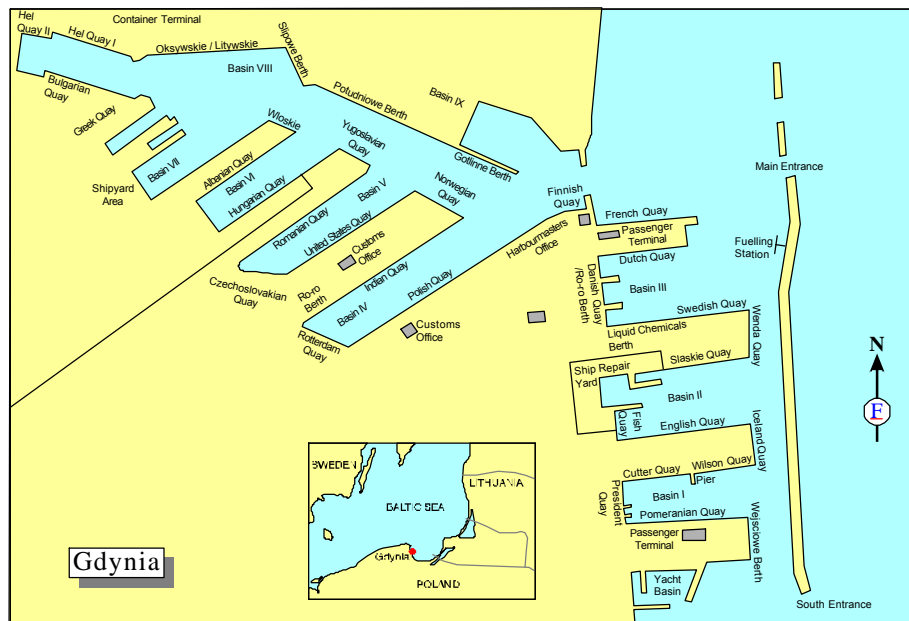
Figure 33: Port of Gdansk

The northern terminal has a storage yard of 600,000 tons capacity.

The coal terminal has a wide range of belt conveyor systems with a loading rate of 50,000 tpd.

Maximum draft in the port of Gdansk is 15 meters.

The port is located approximately 20 km north of Gdansk.



Parts of basin V is dedicated to Ro-ro transshipments and all kinds of cranes (fixed, mobile, and floating with lifting capacity of up to 100 tons), elevators and straddle carriers are available. There are warehouse area of more than 240,000 m² (including chilled storage space) and outdoor storage of 400,000 m² available

There is a Ferry Terminal at Helskie II with regular links to Karlskrona in Sweden.

Indyskie quay, at Baltic Grain Terminal Ltd, provides berths for vessels not exceeding 245 meters. Grain silos with 26,000 m³ capacity are equipped with the latest generation shore based loading systems. The terminal can handle ships up to 35,000 dwt loading and 70,000 dwt discharging, offering rates of 7,000 tpd for both import and export cargoes.

A wide range of activities from pure freight cargoes, warehouses of 125,000 m² and open storage of 120,000 m² exists at the Baltic General

Cargo Terminal Ltd. The Ro-ro berths have 3 warehouses of 26,800 m², 2 sheds of 126 units for trailers, and open storage areas.

A new Ro-ro terminal is situated on USA quay. The terminal is equipped with 2 Ro-ro ramps and 1 container gantry crane. Maritime Bulk Terminal Gdynia Ltd operates all types of dry and liquid bulk cargo, including hazardous cargoes. Open storage of 12,350 m² and warehouse of 36,300 m².

The Liquid fuel terminal is situated in the inner side of the northern breakwater. It can accommodate ships not exceeding 210 meters with drafts of up to 10.7 meters. LPG Terminal at Slaskie Quay offers storage capacity of 400 m³.

The Baltic Bulk Terminal Ltd, located on the Szwedzkie Quay has two self-contained systems for dealing with liquid and bulk cargoes. Three 21,000 m³ silos for liquid products, offer a combined storage capacity of 27,000 tons. Four dome type silos designed for bulk products and storage capacity of 60,000 tons are also available. The maximum draft in the port of Gdynia is 13 meters.

6.3 Kolobrzeg

The commercial port of Kolobrzeg is situated on the East bank of the River Parseta. The port handles dry bulk cargo, grain, feed stuff, timber and general cargo totalling 155,000 tonnes per year.



Figure 35: Port of Kolobrzeg

The port has 11 mobile cranes with lifting capacities of up to 16 tons. The storage consists of two warehouses of 6,000 m² and one 6,000 tons capacity grain silo. There are open storage yards of 55,000 m². Maximum draft in port is 4.5 meters.

6.4 Swinoujscie

The port is located just by the border between Germany and Poland, about 50 km north of Szczecin.

The port has a terminal for vessels of 35,000-65,000 dwt. A shiploader of 2,000 tons/hr, 2 carriage tipplers, defrosting station, stacker-reclaimers and belt conveyor systems are available. There is a fully mechanised open coal storage yards of 120,000 m². The barge quay has a length of 100 meters and is equipped with 2 x 10 tons cranes with loading rate of 100 tons/hr.

The Duty Free Zone is situated in Baltycki and Atlantycki Basin and provides 2,200 meters long fully equipped quays. Duty Free Zone covers 46 ha of port grounds with two cold storage plants of 15,000 tons capacity and 32,000 m² of other covered storage.

The port is equipped with terminal trucks, 6-20 tons trailers, 10-90 tons mobile cranes, forklift trucks of 4-21 tons capacity and 2 x 16 tons floating cranes. Maximum draft in port is 12.8 meters.

The port is connected with the hinterland by the river Odra.

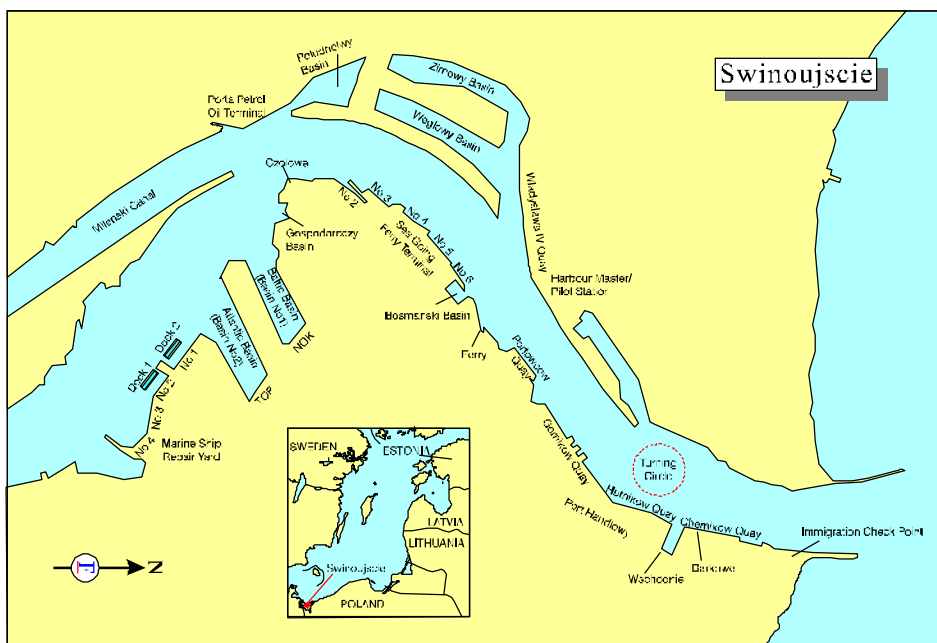


Figure 36: Port of Swinoujscie

6.5 Szczecin

Port of Szczecin is located 50 km south of Swinoujscie, by the river Odra.

The bulk cargo port handles steel products, unitised general cargo, timber and bulk cargo. The coal port specialises in handling and storing coal, other bulk cargo and various kinds of general cargo, animal feed and liquid cargo. The MAS port handles ores and ore concentrates, coal and other bulk and general cargoes.

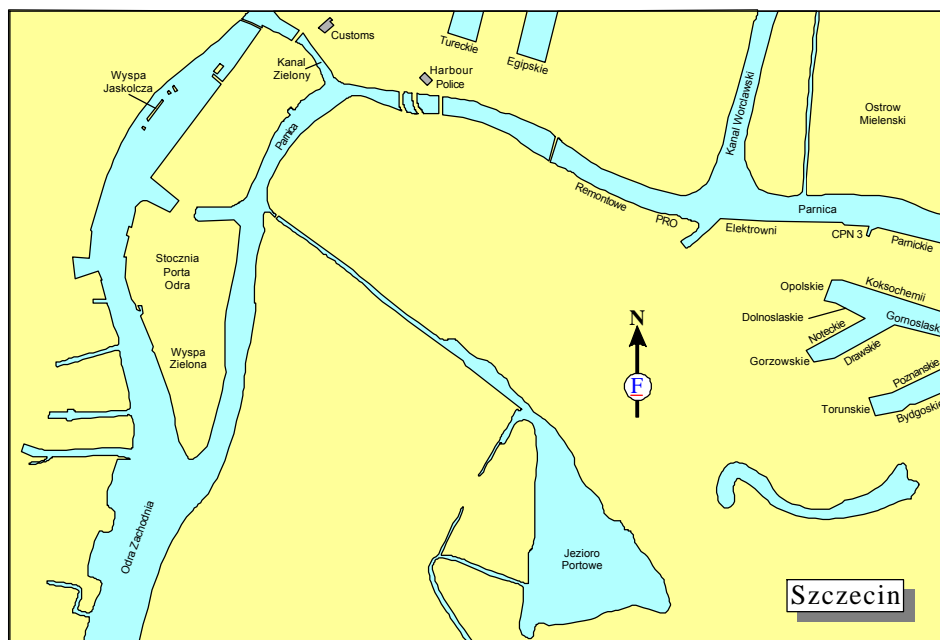


Figure 37: Port of Szczecin

Cargo handling appliances can handle imports and exports at a loading and discharging rate of 3,600 tons of grain per day from or into wagons or 3,000 tons of grain and 1,200 tons of soya beans a day from ships. For self trimming vessels daily loading rates are 3,500 tons of grain and 1,500 tons of pellets.

Shore cranes up to 16 tons for bulk cargoes, shore cranes up to 25 tons for general cargoes, floating cranes of 90 tons and 200 tons for heavy lifts, mobile cranes up to 65 tons capacity and a mobile container crane of 50 tons capacity are available.

The port has open storage of 240,000 m² for bulk cargo and 370,000 m² of timber and general cargo; covered storage of over 100,000 m² for general cargo, 100,000 tons capacity for bulk cargo and grain silos of 60,000 tons; cold storage with a 12,000 tons capacity. Maximum draft in Szczecin is 9.1 meters.

The port is connected with the hinterland by the river Odra. Szczecin is connected via a motorway with nearby Berlin, where a network of motorways reaching Western Europe is available.

7 Sweden

7.1 Helsingborg

The port of Helsingborg has a well developed infrastructure both in and around the port considering both rail and road connections. There is also nearness to several airports in the region.

Helsingborg is located approximately 60 km north of Malmö and about 10 km east of Elsinore (Denmark).

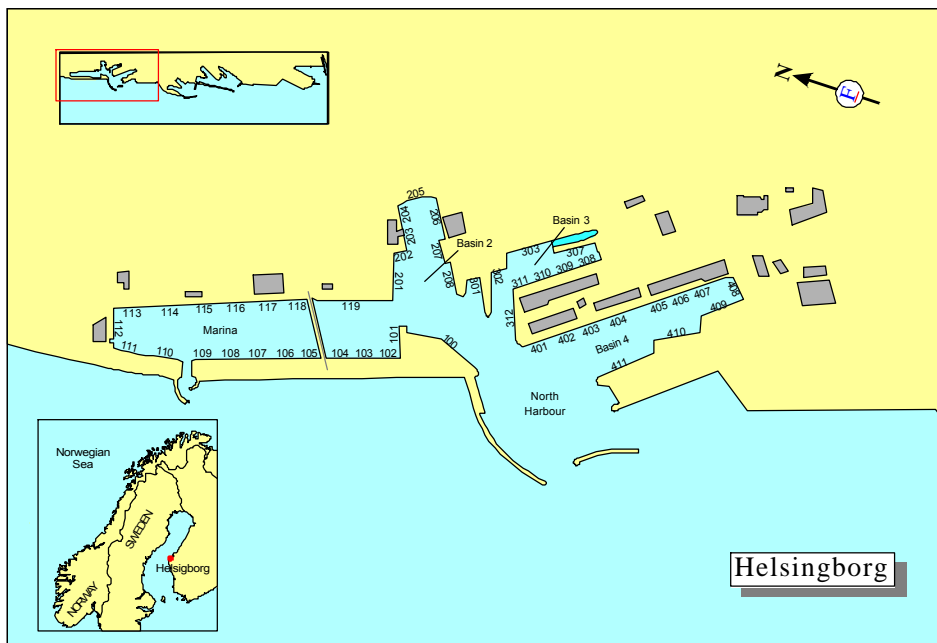


Figure 38: Port of Helsingborg I

The north harbour is mostly used for ferry traffic and does also consist of a yacht harbour.

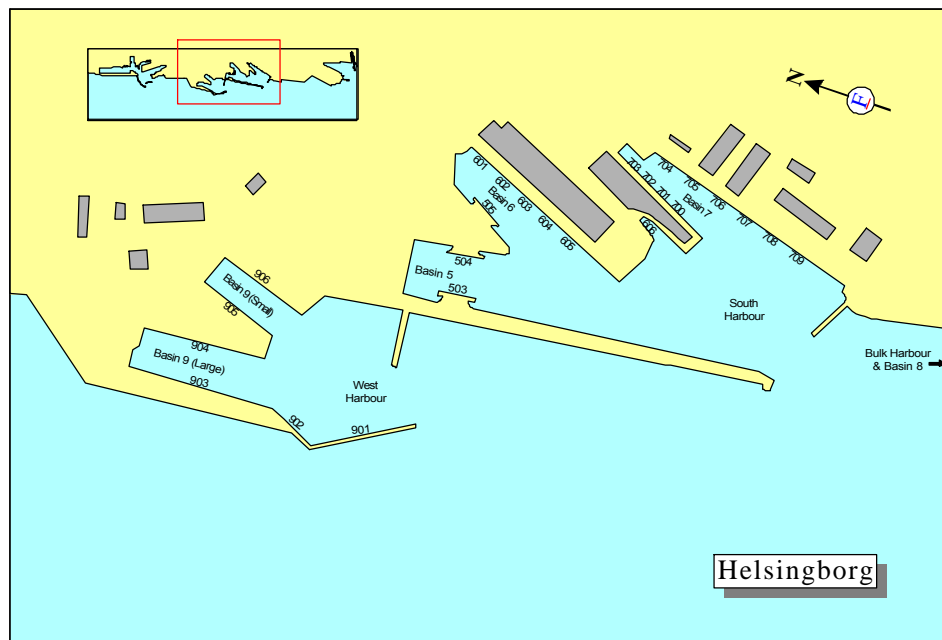


Figure 39: Port of Helsingborg II

The ferry terminal has warehouses and cranes for general cargo handling. The facilities are mainly used for unloading of general cargo and fruit. There are also refrigerating and freezing stores.

A modern car ferry terminal with two Ro-ro berths is situated at the entrance to the North Harbour. Three level luffing cranes from 3-10 tons capacity are available there. Also 15,870 m² of warehouse space and 3,315 m² of refrigerated warehouse space are available.

The west harbour is a fully equipped container terminal with 1,000 meters of quayage and three Ro-ro berths. One mobile crane with 20/40 tons capacity, 3 container cranes with 30.5/42 tons capacity are available. There is 6,000 m² heated warehouse and 2,000 m² large shield-roof with side walls. The major part of the 150,000 m² terminal area is concreted. Also a large storage area for the handling and storage of coal which is imported via the West Harbour and a large warehouse for storing pellets are available. All types of cargo are handled in the South Harbour. There is also an Oil Harbour with three berths for the unloading/loading of petrol, fuel oil and chemicals.

7.2 Karlshamn

The port is situated approximately 70 km west of the east coast of Sweden, about 160 km east of Öresund.

Four berths for general cargo and bulk cargo are available; Stillerydshamnen, Innerhamnen (West and East) and Sternö. Container and Ro-ro traffic runs at Stillerrydshamen. Sutudden, Oxhaga, Kölöhamnen and Västra kajen handles oil, gas and chemicals. The maximum draft is 11 meters (14 m for tankers) and the storage capacity is 44,000 m² indoor and 550 000 m³ in liquid bulk in port. Good rail and

road connections to and from port are available and the road connects to E22 and R29. In total the port comprise 8 harbours that includes Ronneby and Elleholm.



Figure 40: Roro terminals in port of Karlshamn



Figure 41: Lay-out of port of Karlshamn

7.3 Karlskrona

The port of Karlskrona is situated 20 km west of the east coast has ferry traffic between Karlskrona and Gdynia daily. The trip takes about 10.5 hours one way.



Figure 42: Port of Karlskrona

The new ferry terminal was opened 1998 and it is equipped with a modern passenger terminal of 4,000 m², 120,000 m² open storage for vehicles and port warehouses. The port is only 10 minutes from the city of Karlskrona and it is connected to the E22. The area is connected to the “Coast – to – Coast” railway between Karlskrona and Gothenburg, to the Blekinge coast railway and to the southern rail way net.

Except the ferry terminal another three quays with 6–10 meters depth and large storage areas are available at the Verkö port. The port area is about 400,000 m² with additional options of 500,000 m² and the quays have rail connection. The maximum draft in the ferry terminal is 10 meters. The Ro-ro terminal has a depth of 7.7 meters.



Figure 43: Ferry terminal in Karlskrona

7.4 Malmö

Malmö is situated in the south of Sweden, about 30 km west of Copenhagen. The 1 January 2001 the two ports Malmö and Copenhagen merged into one. The concept was to create a productive, ultra-modern harbour capable of providing its customers and the region with an efficient transport service. The harbour processes all categories of cargo, all year round, at all times of day. Swede Harbour bulk terminal has two berths and the Oil Harbour has two ocean jetties and five coastal jetties. Bulk Harbour South has four berths and the Industrial harbour has several berths with maximum draft 5.5-8.4 meters.

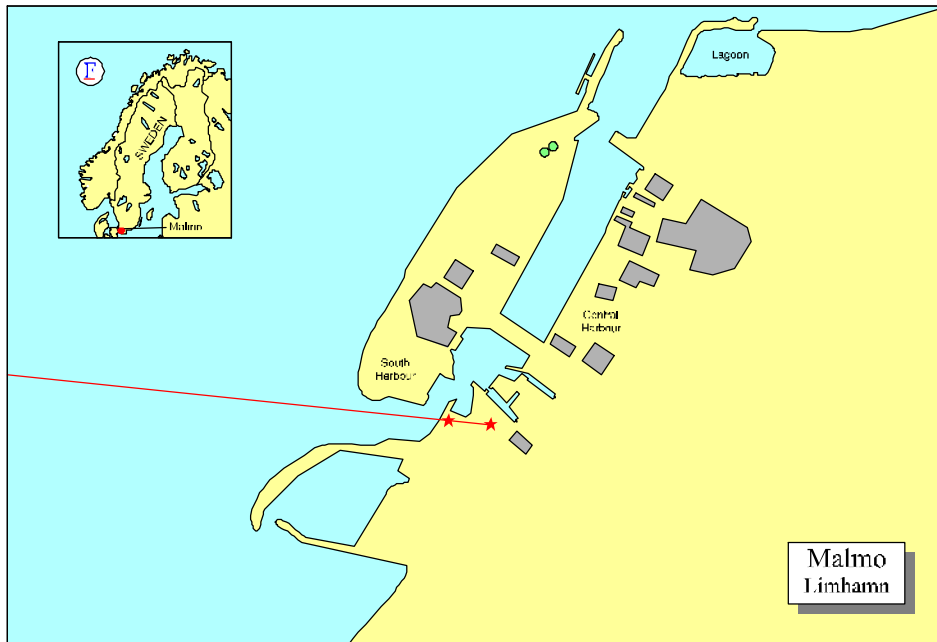


Figure 44: Port of Malmö (Limhamn)

The Free port has a container terminal and handles general cargo. Nyhamnen handles Ro-ro traffic to Germany. The inner harbour has ferry service to Copenhagen. A container terminal is available in the Free Port with 500 meters of quay. The Oil Harbour has a total of seven jetties, five for coastal tankers and two for ocean going vessels. A total of ten berths are available throughout the port for Ro-ro traffic.

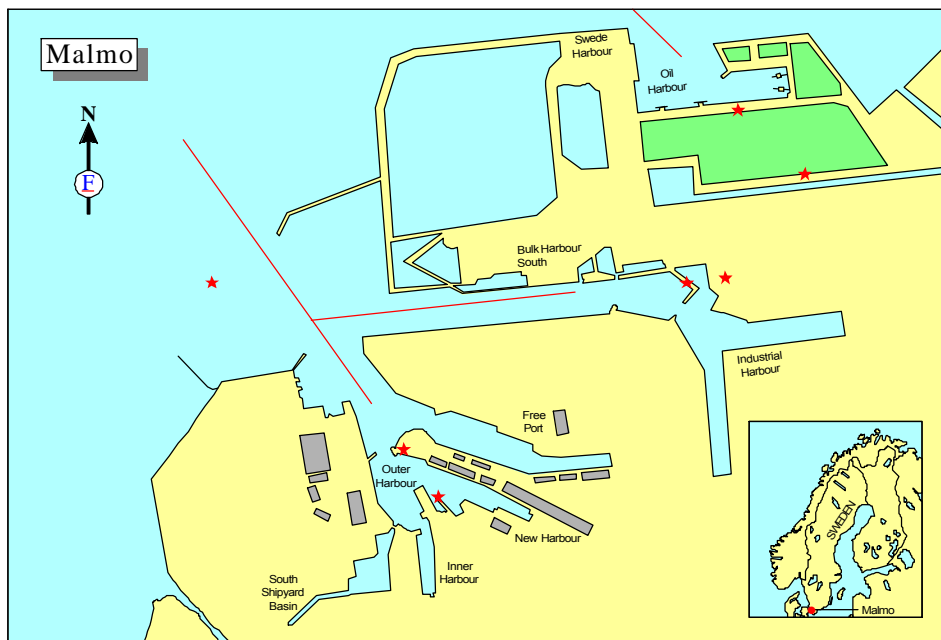


Figure 45: Port of Malmö

Various loading/unloading facilities are available in the port of Malmö. Eleven shore cranes, 1 x 40 tons container crane and one Kone crane up to 40 tons. Both open and covered storage facilities are available. Maximum draft in port is 12.5 meters.

Both and road connections are good to and from the port. The Öresund Bridge connects Malmö with Copenhagen which makes Kastrup airport also easy reached from Malmö.

7.5 Solvesborg

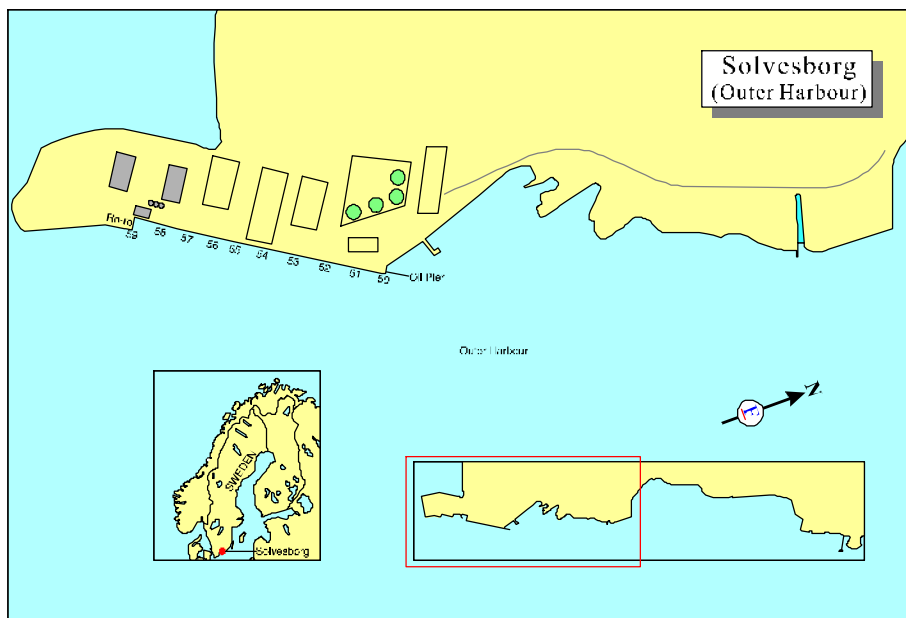


Figure 46: Port of Solvesborg (Outer harbour)

Solvesborg is situated on a peninsula in the south of Sweden, only about 30 km southwest of Karlshamn. The Ro-ro berths are situated at the south end of the outer harbour.

Length of the Inner harbour is 300 meters and depth is 6.5 meters.

Railway is available to all quays in the Inner harbour.

There are 4 x 5-40 tons harbour cranes, one mobile crane (30 tons) and fifteen 3-30 tons forklifts available in the port. There is warehouse capacity of 28,000 m² and a fenced area of 70,000 m² available and maximum draft in port is 7.7 meters.

7.6 Trelleborg

Trelleborg is the major ferry port in Sweden with several terminals. It has an annual turnover of about 7 million tons in trailer traffic and 3 million tons of railway cargo per year. See Figure 49 in the report.

The Port of Trelleborg is located at the southernmost point of Sweden, only 85 km from continental Europe and both rail and road connections to and from port are good. The road E6 and E22 connects with the city.

There are seven Ro-ro terminals with three hydraulic, two stationary and two railway ramps. The warehousing facilities cover a total area of 77,600 m² and the silo buildings have a total capacity of 27,000 m³. Maximum draft in port is 7.6 meters.

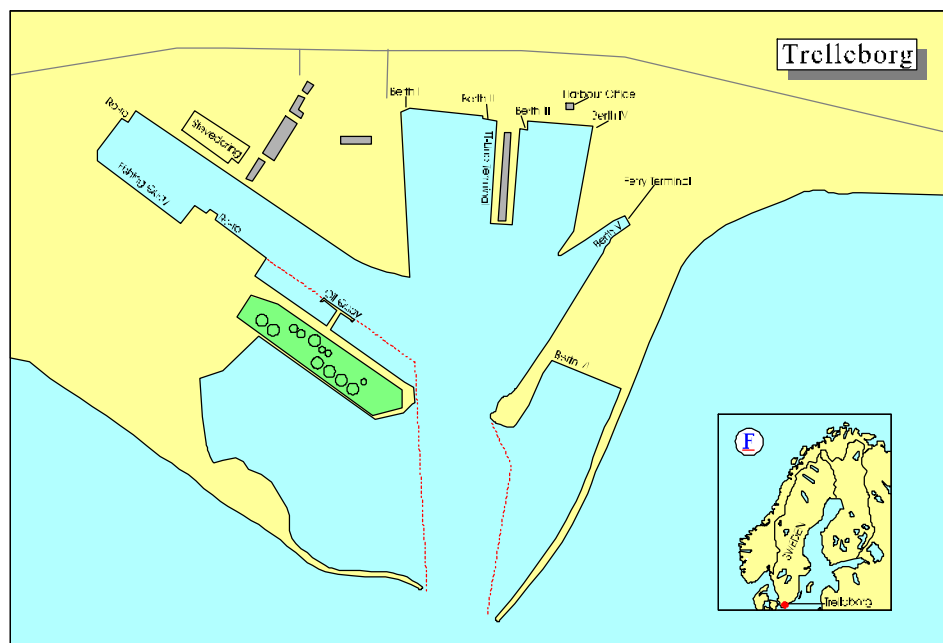


Figure 47: Port of Trelleborg



Figure 48: Port of Trelleborg



Figure 49: "Bridge to the Continent" gate in Trelleborg

7.7 Ystad

Ystad is one of the major ferry terminals in the south of Sweden having had a long tradition of ferry services for road and rail traffic to Poland. See Figure 55 in the report. The road and rail connections in the Port of Ystad are good. The road E65 from Malmö runs to the city. Ystad is situated about 55 km southeast of Malmö and 35 km east of Trelleborg.

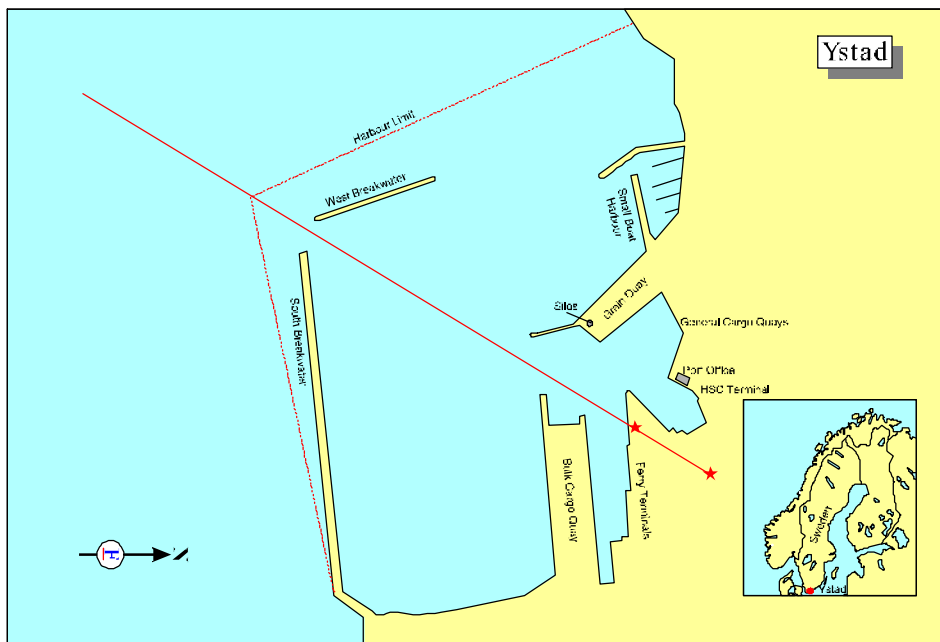


Figure 50: Port of Ystad

There are no dedicated container berths but it is possible to handle containers on the cargo quay. There are three Ro-ro berths and also a ferry terminal. One railway berth with a fixed car ramp to upper deck is also available. Maximum draft in port is 6.7 meters. There are 6,000 m² of general cargo warehousing, 10,600 m² for fodder, 7,000 m² for fertiliser and a grain silo of 52,000 tons capacity. There is also parking space of 55,000 m² for ferry traffic and 55,000 m² for other traffic.

7.8 Åhus

The port of Åhus is one of southern Sweden's most important bulk ports and is the largest container port in the Southeast Sweden. The bulk handling is about 60 % of the total goods handling volume in the port.



Figure 51: Port of Åhus

Maximum draft in port varies between 4.2 and 8.2 meters. The total storage area is 47,000 m² and open storage area is 62.700 m².

