

# **The Ports of Schleswig-Holstein**

## **Hubs of maritime economy between North and Baltic Sea and Continental Europe**

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### 1. Introduction

The range of Schleswig-Holstein ports is manifold: High performance installations for handling large numbers of passengers, bulk and mixed cargo, as well as of Ro-Ro freight are available in the major sea ports. A consolidated network of regular ferry and freight lines provide continuous service to the Northern European States, as well as to Russia and the Baltic States. Destination and source areas of the products handled in these ports extend from the German industrial centres far into mid-, western- and southern European States. Numerous regionally important harbours open the waterways for Schleswig-Holstein’s trades and industry, afford unobstructed traffic to the islands and create an essential basis for local fisheries. Schleswig-Holstein’s ports along the Lower Elbe between Hamburg and the North Sea are partly located on junctions of the Elbe and the Kiel Canal. Due to their location, the ports of Brunsbüttel, Glückstadt and Wedel, are ideal partners for Metropolitan Hamburg in managing its streams of goods and traffic by water, rail and road. These Lower Elbe ports are poised to relieve the strain on Hamburg’s traffic arteries.

Schleswig-Holstein also has, by nature of its location as a “Country between the Seas”, a traditionally strong maritime imprint in the tourist trade. With its 1,190 km of coastline, 250 lakes, the Kiel Canal and a multitude of rivers and creeks, Schleswig-Holstein possesses ideal conditions and development potential for aquatic tourism. Roughly 30,000 pleasure craft are home-ported here, and their skippers find attractive services for boating.

All told, roughly 47,000 persons are employed in Schleswig-Holstein’s maritime industry. In connection, the ports provide important transit functions for the handling of traffic via environmentally compatible sea routes and create the prerequisites for multifaceted revenue and employment in maritime industry branches, as well as in tourism.

## 2. Selected Ports as Examples for the Current Situation and Development

Approximately 86 % of the entire cargo turnover of Schleswig-Holstein are accrued by the ports of **Lübeck, Brunsbüttel, Puttgarden, Rendsburg, Flensburg** und **Kiel**. Of this total, 72 % consist of trade with other Baltic States, primarily Sweden, Russia, Denmark and Finland.

### 2.1 Lübeck – Germany's largest Baltic Port

The port of Lübeck is the southernmost trans-shipment centre on the Baltic Sea and has become the central hub for traffic between the traditional Western- and Central-European industrial centres and the rapidly developing Baltic Economic Area. Almost 33 million tons of goods were turned over in 2007, the Lübeck Port Corporation (LHG) amassing a 90 % share in these transactions.

One of the most important factors in the success of this by far largest German Baltic port with a market share of over 40 %, is the extremely high departure schedule of the regular shipping lines. The ports of Lübeck offer over 150 departures per week connecting to 25 partner ports along the entire Baltic Sea and, thus, afford the highest ability to deliver, as well as to safeguard the European cargo flow. The services to each destination are largely matched, so that the freight capacities of both the ferries, as well as the hinterland transports are always fully utilised. Thus, compared to alternative transportation routes, substantial financial advantages for transport companies can be expected.

Additionally, the Port of Lübeck extends the advantages of a logistics centre, commanding a high degree of quality and know-how. This goes especially for forestry products such as paper and pulp. Lübeck is the largest turnover and distribution centre for the Swedish and Finnish paper industry in Europe. Over 4 million tons of paper were shipped via Lübeck in 2007.

Lübeck's strength lies in RoRo transport, i.e. expedited cargo, which rolls on- and off-board on trucks, undercarriage units, owned by the shipping company, or railway cars. Individually tailored logistics systems provide the customer with the guarantee of optimum service, 365 days per year. Approximately 850.000 trailers and trucks, as well as 200.000 new vehicles are shipped annually via Lübeck. Handling of more than 200,000 standard containers (TEU) makes Lübeck the largest German container port on the Baltic. In addition, 700,000 passengers embarked or disembarked in the port of Lübeck in 2007.

The location of the Port of Lübeck offers an exceptional transportation network to the hinterland. The three-lane autobahn A1, via Hamburg, ties Lübeck to the major economical centres of Europe. The railway network is marked by its high efficiency in 'Dedicated and Combined Cargo Service'. Each week, approx. 150 block and dedicated trains depart for the major European industrial centres. The Elbe-Lübeck-Canal supports this connectivity by giving access to the European inland waterway system.

Over the preceding years, the number of employees in the port has risen steadily. At present, the LHG holds 1,050 workers in direct employment. In total, 7,000 jobs are directly dependent on the harbour. This makes the port of Lübeck a major contributor to the current revenue and economic stability of the region.

The LHG operates five port sections with a total area of over 170 hectares and 26 berths.

**Skandinavienkai Terminal:** Europe's biggest ferry port in Lübeck-Travemünde offers over 80 departures per week at 9 piers, of which two are equipped with railway access. In 2007, 22 million tons of cargo were turned over. Emphasis lies on handling all types of rolling goods such as trucks, trailers, new-production vehicles, railway cars, chassis, containers and passenger cars. The handling of mixed cargo is also possible. A railway terminal for 'combined freight transport' (KV) was opened in May of 2003 and handles about 100,000 units annually. In the previous years, the Skandinavienkai terminal has been substantially improved, expanding the area, creating new berths, a new access tract, areas for harbour-related industry, as well as a spacious administration building.

**Nordlandkai Terminal:** In 2007, the Finland-Centre of the Port of Lübeck showed a turnover of 3.9 million tons. Including five berths and a warehouse capacity of 130.000 square meters, the Nordlandkai is the primary distribution centre of the Finnish paper industry for all of Europe. Further goods being handled here consist of trucks and trailers, new-production vehicles, containers and all types of heavy lift and mixed cargo. Expansion areas, which would enable a substantial increase in the terminal's capacity, are currently being planned. In early 2007, a new concept based on specialised containers for paper freight handling was implemented on the Nordlandkai, involving new ships and handling installations.

**Schlutup Terminal:** Completed in 1994, the terminal is the leading European distribution centre for the Swedish paper industry with a volume of 1.8 million tons in 2007. The warehouse capacity amounts to 64,000 m<sup>2</sup>.

**Seelandkai Terminal:** The new container and RoRo-terminal has been operational since the late summer of 2006. On just under 20 hectares, trailers, new vehicles and containers are dispatched. Containers can be loaded either by the RoRo-system or by container bridges. In its first year of operation, 1.4 million tons were turned over.



Fig. 1: Aerial photo of the Skandinavienkai Terminal in Lübeck-Travemünde.  
Photo: LHG/Vögele

**Konstinkai Terminal:** The multi-functional RoRo-terminal for forestry products, trucks, trailer, new vehicles and heavy lift cargo and bulk material offers 24,500 m<sup>2</sup> of warehouse capacity. Following a restructuring in 2007, the Konstinkai Terminal is now the location of a new ferry connection to St. Petersburg, as well as of an additional handling centre for paper products from Finland.

## 2.2 Port Operating Company Brunsbüttel / Harbour Group Brunsbüttel and Glückstadt

The former federal state-owned ports of Brunsbüttel, *Elbehafen*, *Ölhafen* and *Hafen Ostermoor*, have been privately owned since 1999 and are operated and maintained by the Port Brunsbüttel Ltd. They continue to be “public ports”, servicing the industrial area of the Lower Elbe around Brunsbüttel, but also carrying out a supra-regional transshipment functions. The Port Association Brunsbüttel Ltd. is part of the privately held Schramm Group with headquarters in Brunsbüttel.

The Elbehafen Brunsbüttel, built in 1968, plays a decisive role for metropolitan Hamburg. It is located at the Elbe estuary downstream of Hamburg, at the junction of the Elbe and the Kiel Canal near the open sea. Thus, it is an ideal location joining water, rail and road transport. The Elbehafen specialises primarily in the handling of dry and liquid bulk cargo. In addition, a concentration on the up-and-coming bulk goods sector is complemented by a strong commitment to project logistics and to the container business. Ocean-going vessels profit from the easy access to the *Elbehafen*.

A little further upstream, the harbour of Glückstadt is located directly on the Lower Elbe as part of a chain of harbours along the Elbe estuary between Hamburg and Brunsbüttel. The harbour is federal state property and is operated by the Harbour Operating Company Glückstadt Ltd., under the auspices of the Port Operating Company Brunsbüttel within the Schramm Group.

With an emphasis on the Elbehafen, the Port Operating Company Brunsbüttel ranks sixth in volume among German seaports. The Elbehafen alone handles approx. 6 million tons of goods annually, among them hazardous materials. Thus, the port is subject to stringent safety standards. For 2007, the cargo volume of the Elbehafen can be broken up as follows: about 40 % fluid goods such as oil and gas, about 55 % bulk goods such as ore, fertilizer and coal, etc. and roughly 5 % heavy lift cargo and containers.

Enough flexible berths along the 1,100 meters of quay, handling equipment, stationary and mobile cranes are available to ensure short cycle times. Storage installations for bulk goods (250,000 m<sup>2</sup>), warehouses (in addition to the new copper ore storage for Norddeutsche Affinerie for 120,000 tons, ca. 12,000 m<sup>2</sup>), as well as storage areas for containers are available in abundance and can be easily expanded at short notice. On shore, high-performance conveyor belts are readily available and are constantly being upgraded. Several siding tracks connect to the main network. The entire site is closed off and barred to the public. The Operating Company has been ISO 9002- and SCC-certified since 1999.

The volume of goods turned over in Brunsbüttel has enjoyed a very positive development in comparison to previous years, showing a 50 % increase from 2006 to 2007. Thus, the Brunsbüttel Elbehafen ranks first among German seaports in percentage progression. The years since privatisation of the port in 1999 have been shaped by continuous growth and canvassing of clients, diversification of product types being handled, ranging from coal to fertilizer and lumber unto wind power plants. A container terminal for combined cargo



Fig. 2: Elbehafen Brunsbüttel, aerial view

traffic was built, alongside the continuous expansion and enhancement of storage space, warehouses and handling equipment.

One of the highlights of this development was the acquisition of the handling of raw materials (copper ore) for Norddeutsche Affinerie of Hamburg in 2007, with an investment volume of 38 million Euros in storage facilities, quay equipment and operating facilities. This was tantamount to a quantum leap for the Port Operating Company Brunsbüttel and proved their consistent long-term investment policies in securing the location and workforce. As a result, new employment opportunities at the company and within the Schramm Group were continually being created. The Norddeutsche Affinerie Project alone accounted for 40 new jobs. Currently, the Port Operating Company Brunsbüttel has a workforce of nearly 100.

Additional growth potential for the Elbehafen arises from the handling of coal and by-products for the newly planned coal-fired power plants in Brunsbüttel. To meet the potential requirements, the Port Operating Company is considering a possible extension of its capacities, in particular the lengthening of the quay by roughly 360 meters. The company is well aware of the port's central role for the Brunsbüttel industrial region and is willing to meet the challenges within the framework of economically responsible investment planning, coupled with support by investors and the federal state.

### 2.3 Rendsburg District Harbour

The Rendsburg District Harbour has been in existence since the opening of the Kiel Canal in 1895. The port has a traditionally high agricultural orientation. Two large animal feed plants are located here, which are supplied with raw materials from South America and

Africa via the port. The export of grain is of considerable importance to Rendsburg, with Northern Africa being the major destination. Further bulk goods being handled in large quantities particularly include building materials and mineral oil.

The District Harbour Rendsburg-Eckernförde counts among the most environmentally friendly in Schleswig-Holstein. It possesses a complex system for the treatment of surface water, as well as an encapsulated handling plant for fertilizer, unique to Northern Germany. In regards to port safety, Rendsburg meets the highest requirements.

Due to its central location in Schleswig-Holstein, the Rendsburg District Harbour offers ideal conditions for the onward transport of all kinds of imported goods to the interior. This applies equally to the storage and transshipment of export goods such as grain, lumber or bulk material. The port's connection to the railway system is currently shut down, but can be reactivated at short notice, when required.

The Rendsburg District Harbour is operated by the Business Development Association of the County of Rendsburg-Eckernförde, which – in cooperation with the municipality of Osterrönfeld on the opposite side of the Kiel Canal – will shortly begin construction of a new port with specialisation in heavy lift cargo and containers. Completion is scheduled for the fall of 2009. The new port will have a direct access to the A7 autobahn, and its main emphasis will be in handling of wind-power generators for off-shore operation.

## 2.4 F l e n s b u r g

The Port of Flensburg offers 800 meters of quays for ocean-going vessels with a length of up to 220 meters and a draft of up to 8,50 m, as well as inland vessels with approved seaworthiness. Separate sectors of the Flensburg Port are dedicated to loading and unloading of miscellaneous types of bulk and mixed cargo.

A direct link to the road network and the advantageous proximity to the Scandinavian and Baltic neighbours make the port of Flensburg an attractive transshipment location.

Passenger traffic has enjoyed a renewed growth over the last few years. In this respect, the Flensburg port profits from an attractive downtown core and the plentiful tourist attractions in the surrounding area. This has also been recognised by several cruise lines, making Flensburg a regular port of call for cruise ships in addition to the existing regular service ferries on the bay.

Core of the transshipment operations via the Port of Flensburg is the handling of bulk goods. For this year, the port counts on a volume of 550,000 to 600,000 tons. Last year's volume of 550,000 t was tackled with 5 cranes with a lift capacity of 5–40 t, a continuous conveyor system for bulk, a pneumatic suction device and two loading conduits. Warehouse and storage areas of 3,500 m<sup>2</sup> and 12,000 m<sup>2</sup>, respectively, emphasize the transshipment capabilities of the Port of Flensburg. Further storage facilities are privately owned and can be made available upon request.

In the new year, the first of two mobile high-performance cranes was handed over to the Flensburg Port Ltd.. With the support of its "big brother", it will tremendously increase turnover speed.

This shows that the Port of Flensburg is preparing for future challenges. After several difficult years for the port economy, it is now easily recognisable that the producing industry of the region, as well as the federal state government, have renewed their confidence in the port and its future potential. This can be rightfully claimed due to the port's ideal location.



Fig. 3: New harbour crane in Flensburg

Situated close to the border the Port of Flensburg is, furthermore, an integral part of the European domestic and foreign trade. The changing political climate and growing international trade support the increasing importance of the port, which takes on an additional role, while other, often larger ports reach the limits of their capacities in the way of ferry operations and container handling. Independent of that, industrial enterprises such as the shipyard of the Flensburger Schiffbau Gesellschaft Ltd. – a market leader in RoRo- and RoPax-shipbuilding – have taken good advantage of the unimpeded access to the open sea from their production facilities. Thereby, large vessel sections and engines can be delivered on the waterway.

Over the last 100 years, Flensburg, a port city with a 700-year old tradition, has proven that it will always meet new challenges and adapt to them. With an investment into new quays, piers and handling capacities, the local and regional economy has been given an attractive opportunity to use the sea as an increasingly advantageous transport route. This background assures the Port of Flensburg an ever growing significance.

## 2.5 Seaport Kiel – Logistics Hub and Germany's most important Cruise Terminal

The **Seaport Kiel**, with its many different harbour sections around the Bay (Kieler Förde), offers more than 5,000 meters of quays and piers for ocean-going and inland vessels of almost every size. Its ideal geographic location, continually navigable waters and direct access to the railway and road network, its direct connection with the busiest waterway in the world, the Kiel Canal, as well as with the European inland waterway system, make the



Fig. 4: Seaport Kiel

port equally attractive for transshipment and passenger service. Ferry operations make up about 2/3 of the total volume of over 5 Mio. tons, handled in 2007, and form the economic backbone of Kiel's port. The passenger volume of over 1.6 million travellers emphasizes the attractiveness and potential of Kiel for tourism.

The major proportion of harbour activities consists of transit cargo. Kiel's trading sphere stretches from Scandinavia over Finland and Eastern Europe down to Southern and South-western Europe. Combining high-performance installations, an advantageous geographical location and an extensive schedule of ferry and regular-route departures, the Port of Kiel has become a central gateway and logistics hub for domestic and foreign trade within the European traffic system. Thus, it is an important part of the European infrastructure.

Kiel has taken on this role despite its relatively brief history in comparison to other ports, owing much of its development to the emerging RoRo-traffic of the 1960's and the connected structural change in Baltic Sea shipping. Kiel availed itself of these opportunities through a constructive and progressive harbour and investment policy.

The 1961 construction of the former 'Oslokai' (now 'Ostseekai'), an installation for the handling of ferries with passengers and rolling cargo, laid the cornerstone for Kiel's reputation as 'Gateway to the North'. The following decades saw extensive port reconstruction measures, which shaped the appearance and broad range of services of today's port: the 'Schwedenkai', another terminal for combined ferry service, was constructed in 1982. The 'Ostuferhafen' – former shipyards taken over in 1985 – has been converted into a functional, high-capacity transshipment centre with financial support by the federal state, the federal government and the EU. It now includes 10 berths, 7 of them RoRo-docks, approx. 30 hectares of terminal area and 2.5 hectares warehouse space, as well as a handling facility for 'combined freight traffic' (KV). Along a total of 1,700 m of quays, with a water depth of up

to 11.5 m, the Ostuferhafen handles roughly half of the total volume of cargo in the seaport, especially for the Eastern European sector.

The former Oslokai could no longer handle increasing ship sizes and cargo volumes on the Norwegian ferry routes. In the mid-90's, this led to the construction of the 'Norwegenkai' with 2 docks for modern Combi-ferrries, 400 m of quays with a water depth of 10 m, a multi-level terminal building for passengers and the clearance of rolling cargo, as well as handling, storage and traffic areas.

Together with the traditional ferry and cargo traffic, the cruise ship business has been gaining an ever larger market share in Kiel. Within one decade, the number of departures has tripled, the number of passengers even increased eight-fold. With 114 departures, Kiel was Germany's most popular port of call in 2007 with the number of passengers rising to 173,000 (+ 12 %). 127 departures are already registered for the 2008 season; 190,000 travellers are expected. With financial support from the federal state of Schleswig-Holstein and the German federal government, the Ostseekai (the former Oslokai) was converted into a cruise terminal in 2006/2007 to accommodate the increased volume. With two berths with lengths of 360 m and 285 m, a guaranteed water depth of 10 m and an attractive, glass-front terminal building with two levels, which offers direct access to the ships via mobile gangway bridges, the old Oslokai was converted into one of the most capable installations of its kind in all of Northern Europe. With a total area of 40,000 m<sup>2</sup>, the terminal is ideally suited to serving large cruise ships and offers generous facilities for 3,000 passengers, as well as excellent accessibility by rail, bus and car.

The mean annual growth rate of 5 %, shown by external prognoses for the future development of the Seaport Kiel, is considered positive. Moreover, the RoRo- and container trade, particularly with Eastern European destinations, is allotted an especially positive growth potential. Even the cruise sector, according to industry prognoses, can look forward to a sustainable growth.

With this background, the conceptual planning for a powerful development of capacities for future transport requirements is currently being devised: the expansion of the Ostuferhafen, as well as of the Norwegenkai by a total of 5 hectares is already in the planning stages. Plans for the Schwedenkai call for the renewal of the terminal building with a significant increase of service area and handling capacities in light of the expanding cruise ship sector. Furthermore, numerous capital investments aim to strengthen the supra-structure and improve the quay equipment.

## 2.6 Puttgarden

Presently, the ferry port of Puttgarden is Germany's biggest passenger port and one of the most important transit passages for freight between Continental Europe, Denmark and Sweden. In 2007, the Scandlines Shipping Line carried roughly 7 million passengers, almost 1.8 million passenger cars, 388,000 trucks, 32,500 busses and 8,600 railway passenger cars on the Puttgarden-Rødby route.

The Port of Puttgarden is located on the northern tip of the island of Fehmarn, at the end of the E47 highway connecting to the A1 autobahn, and covers a total area of ca. 36,000 m<sup>2</sup>. Enclosed by two moles the harbour has a guaranteed depth of 8.50 m. A considerable percentage of the entire surface area of the port is staging area for outbound vehicles (cars, trucks, motor homes, busses, etc.). It also includes service areas for catering and maintenance of the vessels of the Scandlines Shipping Line, as well as their technical installations.



Fig. 5: Puttgarden Ferryport (Source: Scandlines GmbH)

Of the existing four ferry docks, two are in continuous operation for 24 hours a day. The four double-ended Scandlines ferries – commissioned between 1997 and 1998 are the – “Deutschland”; “Schleswig-Holstein”, “Prinsesse Benedikte” and “Prins Richard” – operate around the clock at 30-minute intervals. One of the piers allows the embarkation of the Danish IC 3 train set as well as of the German ICE-TD onto one of the double-ended ferries. As of December 9, 2007, the Puttgarden-Rødby ferry is part of the new ICE connection Berlin-Copenhagen. Another dock is used for the transport of hazardous goods on the FS “Holger Danske”.

In 2001, sheet piling was put up in the western part of the port, and a total area of 10.000 m<sup>2</sup> was reclaimed. As of late 2001, the “Portcenter” has found its new ‘berth’ here. It is home to Scandlines’ “Bordershop”, with a sales area of 6,000 m<sup>2</sup> on 4 floors.

The history of the Puttgarden Ferryport goes back to the year 1958, when the German and Danish governments signed an agreement on the extension of the “Vogelfluglinie” project, the most direct connection between the two countries. In the following construction phase, two moles of 630 m and 820 m were erected in Puttgarden, and 850,000 m<sup>3</sup> of sand were dredged in the harbour basin. With the completion of the ‘Fehmarn Sound Bridge’ and the two ferry ports, the ‘Vogelfluglinie’ Puttgarden–Rødby was officially opened by the Danish king Frederik IX. and the German Federal President Dr. Heinrich Lübke on May 14, 1963. The ferry service, originally operated by the German Federal Railways and the Danish State Railway, has now been taken over by Scandlines Ltd.

From 1996 to 1998, Scandlines invested approximately 270 million Euros in a sophisticated, future-oriented ferry concept and innovative port logistics. With the introduction of four modern double-ended ferries, the transit time has been reduced from 60 to 45 minutes.

The 'Vogelfluglinie' has been a success from the beginning: in the first year of its existence, 2 million passengers used this shortest ferry connection between Germany and Scandinavia. In 2002, their number had risen to 6.6 million.

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