Lloyd's Register Fairplay

The Baltic Palette

EU Interreg III b Project

MariTerm AB

The Baltic Palette: Infrastructure Connecting Urban Systems

Sea Transport Corridors

Final report

September 2004

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Summary

The mobility is the core issue for a healthy society and sets the possibilities for trading and exchange of culture. This report focuses on the passenger, car and trailer traffic in the central Baltic Sea area. The sea area encloses the Gulf of Finland and the mid-east coast of Sweden.

The approach used in the report focuses on the past development and present status of activities, techniques, legal and economic conditions as well as the trading development to form a platform for future development and possible changes in the transport systems and related activities.

The Business environment

The shippers' choice of transport solutions and transport service providers depend on a set of criteria varying in importance and/or value to different shippers. There is therefore a continuous trend towards more sophisticated logistic solutions and higher transport efficiency. In line with increased added value of services, we see rising demand for higher transport quality such as higher time precision and shorter lead times.

Cargo types are ever changing, causing operators and other transport service providers to adapt, find other solutions and seek ways of increasing productivity as well as quality.

High- and medium-value semi-finished goods are now being traded internationally more than ever, and this development is bound to continue. For shipping, this means increasing demand for primarily unitised transport media such as containers and trailers.

Ship operators' clients are increasingly appreciating safe and environmentally-friendly operations. This changing attitude will lead to great challenges, and opportunities, for ship owners and operators.

The EU enlargement is already here but the timetable for EURO zone enlargement will, according to several market actors, be delayed since several countries will have difficulty meeting the budget and inflation criteria. The Baltic countries are in the best position among the new EU members to join the ERM2 society.

Safety and environmental issues is not only talks but real action and new rules and regulations in shipping after a number of accidents like Estonia, Erika and Prestige.

The economic growth and trade

Enlargement of the European Union will boost trade within the union, but could put a lid on trade to and from it. The net effect on trade of incorporating the new EU member countries is expected to be positive. Even if short-sea shipping and inland navigation are supposed to benefit more than deep-sea shipping, it will open up business opportunities in a wider market.

In 2004 the main engine of growth will be private consumption, while in 2005 growth will be more broadly based, with larger contributions from exports and capital spending.

The trade between the Baltic Palette countries with unitised or palletised goods amount to some 4.2 M tons per year. These figures thus exclude bulk cargoes and some other special type of cargoes that are primarily transported by air. If the trade with Norway is added then the total volume will amount close to 5.6 M tons. The figures for Norway should be considered since

substantial parts of those volumes are transited through Sweden and Finland.

Trade imbalances are substantial on most trades if measured in tons. The largest imbalance is in the trade between Finland and Russia where Finland exports 674 thousand tons more than it imports. It is important to remember though that a considerable part of this trade is transported on land. Sweden's trade with Russia is also largely imbalanced as is Norway's trade with Finland. It is also worth noting that some of the imbalances would diminish if the trade were to be measured in cubic metres instead of tons. Thus from a road hauler's perspective the imbalance might be less of a problem.

Trade growth in 2002 was slightly negative with a few exceptions, but in 2003 recovery was strong. The general outlook for 2004 to 2006 is positive following the expected continued upturn in the business cycle.

The EU enlargement came into effect in May 2004 and provided most likely some additional fuel for the intra-Baltic Palette trade growth.

The outlook is bright, but the growth has to be put into a perspective. The growth in 2001 in the intra-BP trade excluding Norway amounted to 272 thousand tons. Assuming that all of this growth was to be carried by trucks on Ro-ro vessels with an average weight per trailer of 16 tons, the entire growth could be carried by 17 thousand trailers. This is less than the growth in the sea borne trailer traffic between Sweden and Germany. Seventeen thousand trailers in a year is less than 47 per day – in the entire BP region.

The Baltic shipping market other than ferries

The age and type of ships moving in the Baltic area varies a lot. The relations in the countries are as follows:

- Sweden; Older – Dry cargo, Newer – Tanker
- Russia; Older – Bulker/Dry cargo, Newer – Tanker
- Latvia; Older – Dry cargo/Bulker, Newer – Dry cargo
- Finland; Older – Dry cargo, Newer – Ro-ro
- Estonia; Older – Dry cargo, Newer – Tankers

A conclusion is that the older ships trading on the Baltic Sea mostly are dry cargo ships and the newer mostly are tankers. One reason for this can be the IMO demand of phasing out of single hull tankers but also the fact that the ice class demands intact ships to keep up the ice class.

The group of 16 – 20 years old ships is the least represented with just over 7 000 calls. The group of ships with an age over 26 is only just dominating over the 0 – 5 years age group with 13 652 calls to 12 708.

Fairways and Dues

Dues on sea transports are of a level that acts as a means of control to shift transports to another transport mode. The strength of the sea transports are the low cost per ton-kilometre and the environmental friendliness in land use/land take, barrier effects, noise, congestion, use of energy, low maintenance etc. Service that is included in dues for a land transport mode, such as traffic control, is an additional cost for sea transports today (pilots, police, etc).

The governmental dues per ton goods for domestic traffic in Sweden are for a 500 kilometres long transport 7 times higher per ton for a sea transport than for rail transport and almost twice as high as for road transport. In the same way the governmental dues in Finland are very high for ships without a higher ice class. The reason for high-level dues in both the countries is the same. In both countries the administration of sea transports infrastructure is run by Administrations acting as commercial[1] entities, i.e. they should cover their own costs, while for the land transports the Administrations are financed from the state budget. Even if the ship's fairway dues are not as high in Sweden as in Finland the total fees for industrial shipments from the region is almost twice as high in Sweden as in Finland. The reason for this is that dues are also charged on shipped goods and also applies to domestic traffic. The dues act as means of control which in Finland is in favour for ships with high ice class and in Sweden favour ships with good environmental performance.

Ship					
Cargo ton	**GT**	**NT**	**Ice class**	**Trips**	
10 000	21 000	10 600	1A	34	
Annual shipment		340 000	tons		
Shipment from Finland		Fairway dues		109 140 €	
		Total Finland		**109 140 €**	
Shipment from Sweden		Fairway dues		77 538 €	Max envir. discount
		Cargo fairway dues		134 505 €	
		Total Sweden		**212 044 €**	

Figure 1: Example of the annual cost in dues for an industrial shipment service on Sweden and Finland

Winter shipping conditions can be considered equal for Finland and Sweden as regards the Gulf of Bothnia and equal for Finland, Russia and Estonia for the Gulf of Finland. The cooperation between the Finnish and Swedish icebreakers in the entire area works smoothly. The industries cover the total costs caused by the ice conditions. These costs come in two forms, partly the added cost for higher standard of ships designed for the winter environment and partly the direct cost for the icebreaking service paid in ports. These costs are covered by the shipper as fairway dues and added cost for ships of high standard.

Most of the ferries are very powerful and do not need assistance from icebreakers unless the conditions are severe. This arrangement is necessary as the ferries cannot depend on icebreaking service to uphold frequency. Ferries that need assistance from icebreakers are recommended not to leave the port until notice is given from the ice office.

Today there are high-level discussions regarding the possibility to have a joint allocation of the icebreaking capacity under EU, this in order to manage the whole Baltic Sea Area instead of having each country optimizing its recourses from a domestic demand.

There is no formal agreement and understanding between Finland and Russia how the icebreaking resources in the Gulf of Finland shall be managed in future. The only existing agreement is between Russia and Denmark regarding the service through the Belt.

[1] In Finland this covers only the daily services while in Sweden it should also cover the infrastructure

The ports in the Baltic Palette region

Table 1: The total annual turnover in the Baltic Palette region

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Stockholm	5,200	523	8,000
Kapellskär	2,200	-	1,300
Nynäshamn	350	-	100
Port of Harg	500	-	-
Port of Södertälje	800	183	-
Port of Oxelösund	5,000	79	-
Köping	1,500	-	-
Västerås	2,100	278	-
Uusikaupunki	1,300	-	
Naantali	7,000	1,300	100
Turku	4,000	149	4,000
Hanko	2,700	-	170
Inkoo	2,000	109	-
Helsinki	11,000	483	9,000
Sköldvik	17,600	3,500	-
Kotka	8,500	18	25
Mariehamn	-	-	2,199
Ekerö	-	-	866
Hamina	5,000	440	-
St Petersburg	23,200	9,980	-
Lomonosov	450		-
Vyborg	1,300		100
Vysotsk	3,100		-
Muuga	30,000		6
Old Port of Tallinn	3,400		5,800
Paljassaare	2,000		1
Paldiski	1,800		130
Riga	18,000	4,300	250
Skulte	620	-	-
Salacgriva	30,000	-	6
Total	190,620		32,053

The Cruise market

The **cruise** market is a tourist market rather than a transport market. The market grew by 13 to 14 per cent per year during 1998-2000, but in 2001 a close to zero growth was recorded followed by 5 per cent growth in 2002. Last year 63 per cent of the cruise passengers were American and 27 per cent were European. Early figures indicate that the cruise growth in year 2003 was about 12 per cent. In 2002, European cruises accounted for 23 % of the total market.

The Baltic Sea shows good geographical structure for cruises. During a given period, usually 7 or 14 days, it is important to be able to combine interesting destinations, preferably every day. This is not a problem on the Baltic market. Larger cities can easily be combined with smaller, why the mix is miscellaneous and interesting for the passengers. It is also considered to be a politically stable and calm area with very little risk of terrorism. This gives a growth of cruising in the Baltic Sea.

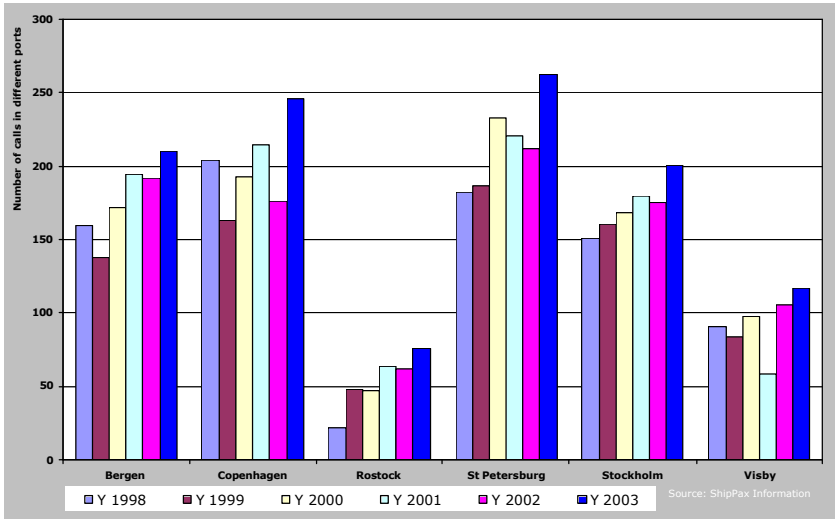
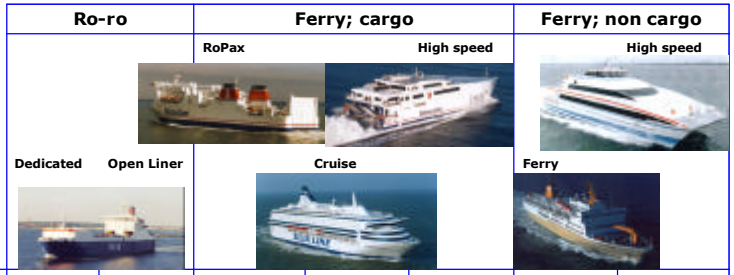


Figure 2: The number of cruise calls in some ports in the region

According to ShipPax Information the number of American tourists on the cruise ships in 2003 were as many as the Europeans, which is an interesting observation.

The ships that travel in the Baltic Sea area show a tendency to grow in size. That does not only reflect the general trend among cruise ships but also the fact that the big cruise operators these days choose to let the more modern ships cruise these waters. Out of the about 70 cruise ships that moved in the Baltic Sea region during July, the smallest are about 70 meters long and can accomodate 80 passengers. The largest has 2 496 lower berths and the longest is 294 meters. 16 of the ships are longer than 200 meters.

The ferry market



Cargo	Yes	Yes	Yes	Yes	Rarely	No	No
Trailers	Rarely	Yes	Yes	Yes	Rarely	No	No
Passenger	No	12 drivers	200 - 600	500 - 2000	200 - 600	500 -	100-1000
Train	No	Occasionally	Occasionally	No	No	No	No
Cars	No	Limited	Yes	Yes	Yes	No	No
Day cruise	No	No	Occasionally	Yes	Rarely	Yes	Occasionally
Conference	No	No	Yes	Yes	No	Yes	Rarely
Entertainment	No	No	Occasionally	Yes	Occasionally	Yes	Occasionally

Figure 3: The different kinds of ferries including Ro-ro ship with capacity to carry drivers

There are several different ship concepts that are referred to as ferries. The definition of a ferry is that the ship has the capacity of carrying passengers. Over the last years new ferry concepts has been developed to meet the new market after the tax-free abolition in Europe. This type of ferry is called RoPax that is short for a Ro-ro ship having passenger capacity. The previous North European/Scandinavian ferry concept was more focused to passengers as the main source of income. A consequence was that the most common tonnage was a combined ferry or a cruise ferry. Figure 16 illustrates the different type of ferries.

Historically the ferry traffic in Northern Europe has grown by transporting passengers and offering on-board entertainment. Since the abolition of the tax-free system the revenue focus has shifted from passengers to cargo. A great deal of the ferry industry has adapted the tonnage to the new situation.

The ferry service is to a large extent a link in the land transport infrastructure where the rail and/or road are connected to water-ways that cannot be bridged by a permanent road connection. This type of ferry operation is a shipping service in the way business is done but as infrastructure it is a part of the road /rail/land infrastructure.

Following the enlargement of the EU alcohol tourism will increase but the ship operators will mainly be credited by an increased number of passengers. The increase cannot be compared to the income from tax-free sales onboard the ferries in the past. The only way the ship operator can be compensated is to increase the ticket price and the freight on the ferries. This development has already started.

The newly developed market for shopping taxed alcoholic products from a country that has lower taxes on alcohols attracts a lot of travellers. Before the abolition of tax-free in the EU, a number of polls and “stated preference” studies where made. The studies show that the passengers have strong price awareness that was clearly demonstrated by the responses. Crossing time and trip frequency are not as important for the shopping category of

travellers. The travelling relates to tourism in the summer season. The new tourism for shopping alcohol is more related to private occasions and seasons such as Easter, Christmas etc.

Figure 4: The ferry links within the BP area 2003. (Million passengers)

The passengers put great value to the service onboard. It is important to them to have access to both shops and restaurants. The business and visiting travellers appreciate the transport function rather than the service onboard but give priority the ticket price. This means that they would travel more frequently if the price of the ticket were reduced. They also give priority to a faster service in way of shorter crossing time.

The ferry services

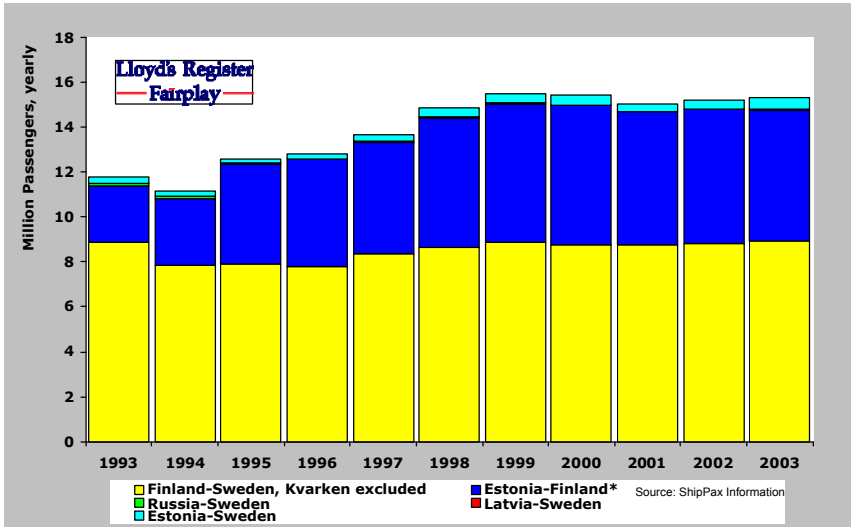


Figure 5: Passenger traffic between the Baltic Palette regions

* include cruise traffic and temporary service Helsinki-Tallinn-Riga

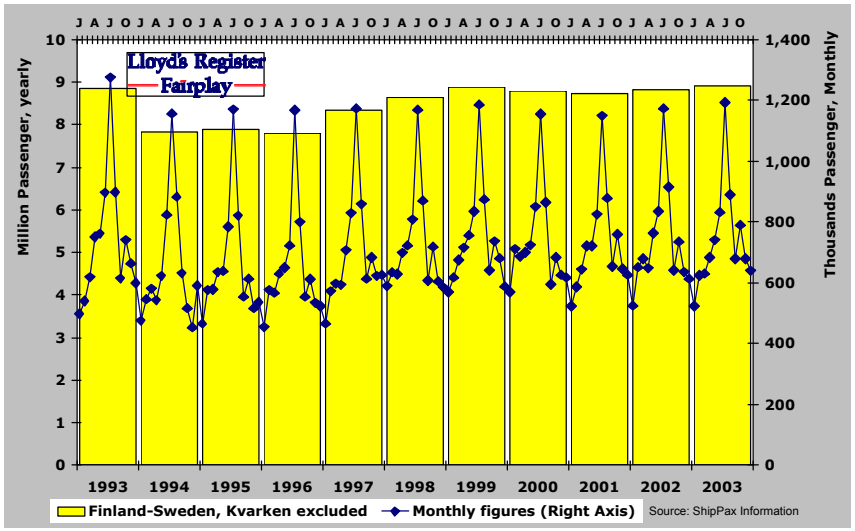


Figure 6: The annual and monthly trends of passengers between Finland and Sweden, excluding across Kvarken

As Figure 5 indicates the passenger flows at an aggregated level within the region has been stable over the last six years. A large part of the passengers are heading to or from Helsinki, Finland. The tax-free abolishment is hardly noticeable due to the exception from the tax rules in EU for Åland. The ferry operator are still benefiting from the system as the sales of products onboard are profitable for the operators. The service between Stockholm and Finland has a character of conference, cruising and visiting passenger service. The variations over the year can also be noticed in Figure 6 where the summer traffic is twice the volume of the winter traffic.

The cargo transports on ferries

The factors that determine the choice of transport system are:

Destination	Character of consignee (end user or agent)
Transit time	Schedule and frequency of the service
Batch size	Type of cargo carrier
Costs	Cargo handling equipment

The cost of the transport can be a dominating part of the cargo value for some shippers. Hence, the design of the transport systems is as important for the shipper as for the consignee. The integration of storage and logistic functions between manufacturer and the consignee increases. It is quite common that when the manufacturing industry assumes the responsibility for the supply of the products to the clients, it also includes guarantees to manage the clients stock and the frequent supplies/deliveries from stock. The higher the goods value the stronger the integration. The logistics is more and more considered to be an active means of competition and is presented as a sales argument for the customers.

Ferry services are designed from a demand of short lead-time, customer controlled production and safety regulations. The result is a door-to-door service that reduces handling and storage which justifies the higher frequency of shipping and more expensive way of distribution. In this context truck, trailer and Ro-ro based traffic has the advantages of short lead times, high time precision (due to door to door transportation) and lower risk of damage (the driver can supervise the loading and unloading and is personally responsible for the cargo all the way on road between the ends).

The combination of the location of the terminals, the speed of the ship and the timetable will give the prerequisites for the chance that one specific industry favours the specific ferry service.

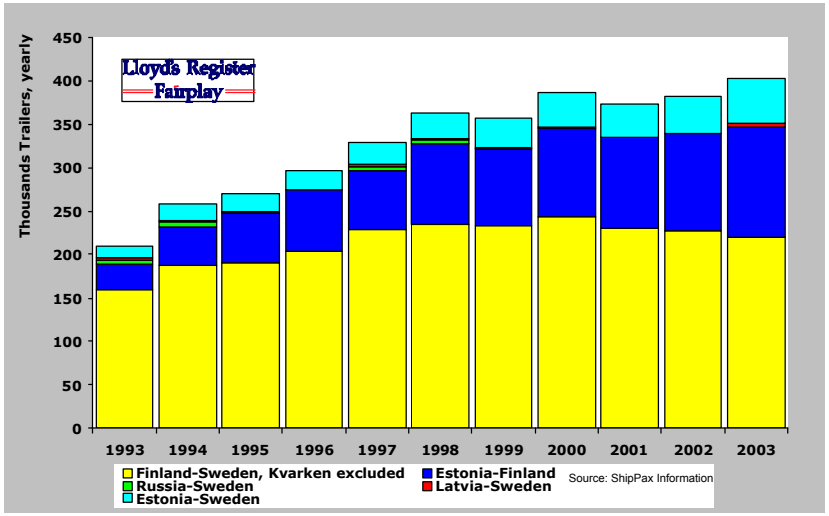


Figure 7: Trailer traffic between the Baltic Palette regions

The trailer traffic within the region has increased the last decade. It is the traffic to and from Estonia that has shown the strongest development. As opposed to the passenger numbers, in Figure 26 the traffic between Estonia and Sweden is clearly visible. Most of the ferry activities are combined trailer – passenger transports.

The trailer is the most flexible transport unit reaching from door to door. The trailer can be shipped as an individual unit or with truck and driver that will make sure the products are delivered to the proper address in good shape.

In parallel to the ferry service there are container feeder services in the Baltic Sea that connects the ports. The main function of these services is to transport containers between the continental hubs and the Baltic ports. As yet a very limited number of containers are employed in an intra European service.

The European infrastructure is not built up for container handling. The consequence of this is that the container in Europe is a port-to-port unit that is stuffed and stripped in the port and moved to the container depot. The depot is the base or home of the container from where it is employed by its operator.

Most countries have a forwarding routing systems where the trailers are employed and handled by the local hauler between the terminals. The trailer is also better suited for the handling structure in Europe where all pallets normally are handled over the side of the trailer by forklifts. To enable this the normal type of trailer is the so-called tilt trailer, a trailer that is covered by a tarpaulin that allows access from the side by lifting or folding away the tarpaulin. A disadvantage with these types of trailers is that it lacks the protection of safety, as the tarpaulin is the only cover. The cover is good enough for a TIR classification but it does not require all that much violence to open up the trailer.

The future and demand on spatial planning

The increased trade with the liberated Eastern Europe has created a new demand for transports of passenger and goods in the last decade. This demand is still growing and the growth in trading in the east – west direction is growing at a high path. The demand stresses the ports and communities to arrange for increased capacity.

In a stage where a long-term establishment of a terminal is at hand the ports and their communities that can be of interest in the region often are eager to participate in building up a terminal to meet the service. The competition is in this respect strong and the communities are all interested in being selected as it can give added value in:

- employment
- stronger infrastructure
- additional services around the port activities
- increased turnover in the port

The demand on the shipping system differs a lot when it comes to the different kind of trade or passenger transport. Table 42 gives indications of differences, all very important when it comes to spatial planning.

Shipping bulk commodities is in a way very simple but since the products has a very low value the transport cost has to be low. This gives that no one is prepared to put up a lot of money for the shipment and especially not for the infrastructure around the shipment. When developing a bulk trade initially the business will try to fine the closest facility that can meet the basic demands to ship the products. When the trade is settled both the seller and the buyer will try to work out the best way to reduce shipping costs in order to establish a long term trading relation. If a very long term trading settlement can be agreed upon both parties can be willing to invest in a suitable terminal for the future shipment or contract a port to provide the facility on a long term basis.

Table 2: Demand on the shipping system

Type of Product	Value	Demand on shipping system					
		Cost	Terminal	Quality	Location	Infrastructure	
						Land	Sea
Bulk	Low	Lowest	Functional	Low	None	Heavy rail/road to port	Deep
Ferry Ro/Ro	High	Lowest	Functional	Medium	Close to land infra.	Close to main road/rail	Short access
Ferry Passenger	High	Lowest	High quality	High	Urban centre	Close to main road/rail	Short access
Container	High	Lowest	Demanding	High	None	Main road/rail to port	Deep, short access

Table 3: Link character determines the demand of service

Terminal 1	Terminal 2	Link	Pass.capacity	Trailer capacity
Capital city	Capital City	TEN road-TEN road	High	High
Capital city	Terminal	TEN road-TEN road	Drivers ++	High
Smaller city	Smaller city/ terminal	TEN road-Main road	Medium	Medium, must carry the cost of the service
Smaller city	Terminal	TEN road-Main road	Drivers +	Medium, must carry the cost of the service
Smaller city	Terminal	TEN road-Access road	Drivers	Medium, must carry the cost of the service
Smaller city	Terminal	Main road-Access road	Drivers	Medium, must carry the cost of the service

The main character of the route determines the demand for passenger capacity. See Table . In general the two tables above say that only pure passenger and combined passenger and road traffic can be located to the city centres while all other traffic rather demands a high quality access to the best land transport infrastructure giving as little disturbance on urban areas as possible. The shorter the trip the higher the number of passengers that choose to travel in combination with a short vacation.

In the east-west direction, the tourism has increased. As the tourism practically was zero historically it is not surprising. Today it is mainly the wealthy people that afford to travel and to them there are no alternatives to fly and to go to the large cities for shopping and entertainment.

The cruising people are assumingly:

- from a large city
- of middle class west European level
- enjoys dancing, eating and a good show
- valuate the opportunity to shop in another large city
- can assimilate and function in an international environment

St Petersburg is a city that could fit into the profile of a category that it can be the base for a regular ferry service

As the ferry service is an open “transport infrastructure” the operator normally is willing to take some risk in starting up the service. Therefore there are and will continue to be services that starts up an operation over the Baltic Sea but terminates it after a while. This is a costly operation for the operator. The testing of the market can in some cases lead to bankruptcies but if the operator on the other hand is successful he will have the advantage of being first and could sign good long term contracts with the clients.

The Ro-ro service can be based on;

- a road situation that needs a Ro-ro service to connects major roads as a bridge
- an existing industrial shipping capacity that is offered to external clients
- a shortcut of the road

The most common base for a service is the provision of a floating bridge. The ferry system does function as a part of the land infrastructure and they even in some odd cases also carry rail cars. As the commercial traffic values the time the shorter passage the more cost effective crossing. The trailer operators choose normally the shortest sea passage (best service level) in comparison to other alternatives.

In the area we have seen a build up of the container handling at the Finnish side since the port in Russia was not able to handle them, but that is changing. The benefit of the container is that the products are delivered to the consignee through a number of ways depending on how the customs regulations are built up. Some products are shipped to Finland and;

- the containers are transferred to rail and customs cleared at the border
- the containers stripped and the products stored in the forwarders warehouse awaiting delivery order to be delivered by truck
- the containers are trucked to the destination and cleared at the local costumes clearance office

There may be additional options but the result of the shipping system and the unbalanced transport flows are a surplus of containers in the region. The surplus is mainly absorbed by the domestic Finnish demand for containers in distribution service of forest products to the deep-sea market. The Finnish –Russian example show how the shipping systems are interacting to cover the demand created by the market.

The container operation is almost totally controlled by the deep-sea operators who decide the way the containers are going and were they are handled. The operator can choose between using a feeder operator for moving the containers in the area or to employ a fully dedicated feeder service under own flag. In container operation the most significant increase of containers are found in St Petersburg and in the ports in the vicinity of St Petersburg.

General strategies for the ports

From a spatial point of view there are a couple of basic strategies that must be followed:

- Bulk ports, General cargo ports, Ferry cargo ports (trailer operation) and Container terminals should never be located in or close to habitat areas but close to major rail and road systems
- Oil terminal should preferably be located at a distance from habitat areas
- Passenger ferry terminals should be located a close to a city centre as possible for operational point of view. From an environmental point of view the terminals should always be able to:
  - Provide receptions facilities for grey and black water
  - Provide reception facilities for sludge and oil contained water
  - Provide reception facilities for garbage, sorted in fractions
  - Provide high voltage current (10 kV) from the quay for power service during ships stay in port
  - Terminal area for parking car on it way in and out
- All port should fulfil the IMO ISPS code of port safety. In this respect it means that the port area is enclosed and controlled by gates

A few of the ports concerned are today built from these criteria. Other and mainly the oldest ports has problems mainly because of lack of area for modern operation and the fact that the habited areas demands space and are more has strong economy that gives added value to the owner in comparison to the port operation that always is in competition to other ports and terminals.

Content

Figures

Tables

1 Introduction

This report presents and analyses the sea borne transports in the middle part of the Baltic Sea area that is covered by the EU Interreg III b project; The Baltic Palette. The focus of the report is to support Action Group 2, "Transport Corridors", by assessing the sea transport of passengers and trailers. This gives a description of the present and future mobility as basic information to be used in the spatial planning.

1.1 Objectives

The objective of the report is to describe the present sea corridors in the area concerned and their development in the future. In the presentation the historical development is described statistically with comments on events that have resulted in effects on the transports. Comments are also given on anticipated future development will affect the market as a guidance for spatial planning.

A brief reader's introduction to the report:

Chapter one describes the methodology used in this report.

Chapter two presents the general business environment with focus on the enlargement of the European Union and other factors with effect on sea borne transports. The chapter narrows down to specifics concerning the Baltic Palette (BP) countries.

Chapter three gives an overview of the economic growth and trade both in Europe in general and in the BP countries. It also covers the sea borne trade within the area.

Chapter four takes us through the Baltic shipping market, which highlights the port calls, fairway dues and the ice conditions.

Chapter five browses through the different ports in the area. Statistics of tons handled and type of commodities are presented.

Chapter six handles the cruise market, first world-wide and then with a focus on the Baltic.

Chapter seven presents the ferry market in both a general and a Baltic perspective. Monthly traffic figures are presented for the 1993 to 2003 period for both passengers and trailers. This is followed by a description of the competition for cargo between the Ro-ro (ferry) systems versus the container and general cargo systems.

Chapter eight outlines the anticipated picture of the future for sea borne transports within the Baltic Palette area. The chapter gives a background for the anticipated development based on past events and development. It also discusses strategies for handling this and the different demands put on the spatial planning of ports and terminals from the various types of commodities.

Chapter nine highlights the complexity of the development and which knowledge is needed to develop a better understanding of how to meet the future in the region.

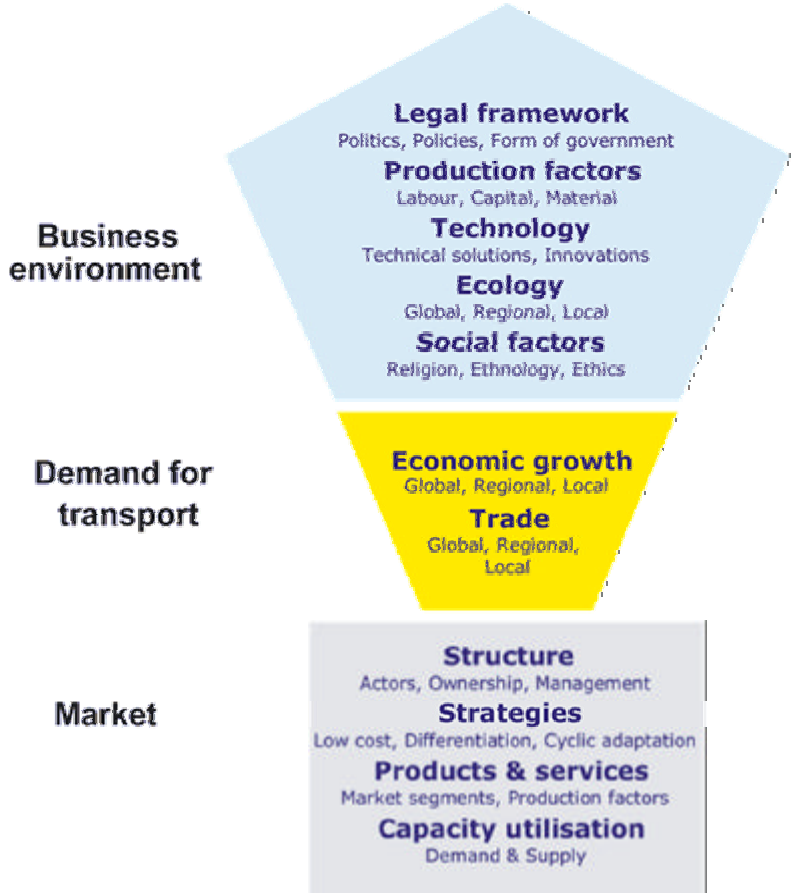
1.2 Methodology

The figure to the right illustrates Lloyd's Register – Fairplay Research standard analytical approach. In brief; changes in demand for sea borne transport capacity are a function of economic growth and international trade, which in turn result from changes in the business environment.

The effects of changing demand for sea borne transport capacity depend on how the markets are organised; the market structure (e.g. monopoly, oligopoly etc), strategies used to meet demand and products and services developed to meet demand, as well as the different components of utilisation.

Hence is the development a function of all the conditions that applies to do business, supply the demand of transports in order to distribute the products in the local, regional, continental and global markets.

The approach focuses on the past development in activities, techniques, legal and economic conditions as well as the trading development to form a platform for future development and possible changes in the transport systems and related activities.



2 General business environment

The world population is growing at a pace causing great concern to everyone. According to UN forecasts in 1998, the world population stood at 5.7Bn in 1995 and was projected to be 6.3Bn in 2002 and 7.3Bn in 2013. The average annual growth rate was estimated at a good 1.3 %. Another billion people will lead to an enormous increase in demand for energy, even if living standards are frozen at current levels.

Changes in total consumer prices in the OECD have been falling slowly for almost ten years; from close to six per cent in 1996 to some 2.5 % by the end of last year. During the same period, energy prices fluctuated dramatically.

Inflation stopped being a problem in the economy during the 1990s.

SHIPPING

The rapid development of information and communication technologies affects transactions between consumers and producers as well as co-operation between organisations. This takes place by integrating parts of or the entire flow of information. We will see a development of global transport and logistics service providers based on outsourcing of services and third party logistics.

The shippers' choice of transport solutions and transport service providers depend on a set of criteria of varying importance or value to different shippers. There is therefore a continuous trend towards more sophisticated logistic solutions and higher transport efficiency. In line with increased added value, we see rising demand for higher transport quality such as higher time precision and shorter lead times.

Cargo types are ever changing, causing operators and other transport service providers to adapt, find other solutions and seek ways of increasing productivity as well as quality.

High- and medium-value semi-finished goods are now being traded internationally more than ever, and this development is bound to continue. For shipping, this means increasing demand for primarily unitised transport media such as containers and trailers.

Ship operators' clients are increasingly appreciating safe and environmentally-friendly operations. This changing attitude will lead to great challenges, and opportunities, for ship owners and operators.

Competition authorities around the world monitor conference freight rates even more closely, making it difficult for liner operators to make unannounced rate rises. Recent actions in Australia and the EU support this.

2.1 Europe

ENLARGEMENT

On May 1, 2004, Estonia, Latvia, Lithuania, Poland, Hungary, the Czech Republic, Slovakia and Slovenia as well as Malta and Cyprus become members of the European Union. All except Cyprus have held referendums. A majority in favour of accession has been achieved in all these countries. The next stage on the path towards the introduction of the EURO in these countries will be participation in the EU's Exchange Rate Mechanism (ERM2), which means that each respective national currency will be pegged to the EURO at a fixed exchange rate, known as the central rate. A

fluctuation band will also be established. Some time may pass after the beginning of EU membership, but as early as in the summer 2004 the first countries can participate in the ERM2. The establishment of the ERM 2 central rate will be an important issue, since in most instances the central rate that has been selected has also become the conversion rate upon a country's transition to the EURO.

The timetable for EURO zone enlargement will, according to several market actors, be delayed since several countries will have difficulty meeting the budget and inflation criteria. The Baltic countries are in the best position. In order to switch from a national currency to the EURO, a country must fulfil the convergence criteria according to the Maastricht Treaty.

- The inflation rate may be no higher than 1.5 percentage points above the inflation rate in the three EU member countries that have achieved the best results in terms of inflation
- The public sector deficit may not exceed 3 % of GDP
- The public sector debt may not exceed 60 % of GDP
- Participation in the ERM must last at least two years and no devaluations may have occurred during that period
- The long-term interest rate may be no more than 2 percentage higher than in the three EU countries that have achieved the best results in term of inflation

Some flexibility seems to exist as regards the convergence criteria, especially for the debt and deficit criterion. The actual time for EURO transition will thus vary from one country to another, but EU would most likely work with groups of countries.

Table 1: ERM2 accession and transition to the EURO

Country	ERM2 accession	Euro transition
Czech Republic	2007	2009-2010
Estonia	2004	2008
Hungary	2004	2008-2009
Latvia	2004	2008
Lithuania	2004	2008
Poland	2006	2009-2010
Slovakia	2005	2008-2009
Slovenia	2005	2008

Source: SEB Baltic Outlook - October 2003

SHIPPING

In the aftermath of the *Erika* and *Prestige* accidents, the EU has formed its own shipping governmental body; the European Maritime Safety Agency (EMSA). EMSA's role should not be regulatory, but rather to ensure that maritime safety legislation is applied properly across the EU. Some players however speculate that the Commission intends that EMSA eventually replace national bodies, describing it as "the thin end of the wedge towards uniform European standards".

A recent example of this is the European MPs vote at the beginning of June 2003 for a faster phase-out scheme of single hull tankers in EU waters and for a ban on such vessels carrying heavy grades of oil as from September 1 last year.

The proposal by the European Commission to tighten pollution regulations has met strong opposition by the industry and to some extent by European transport ministers. This is yet another step by the Commission to go beyond rules agreed in the International Maritime Organisation (IMO). The IMO is seriously concerned with the EC activities that might undermine its position.

Meanwhile, the EC has an ambition to become a "full" member of the IMO[2]. The EU currently enjoys observer status since only states can be members under the present convention.

Another effect of the EU enlargement is that the manning issue has become a delicate problem for the EU-member states. With the applicant countries entering the EU, this matter will be revisited since the manning costs are significantly lower in these registers.

2.2 The Baltic, focusing on the Palette countries

In Poland the government has a rather limited public support following corruption scandals and other events, but most observers seem to think they will stay in office at least until next election in 2005.

In Lithuania preparations for next autumn's parliamentary election have begun. The opposition is there so the outcome is by no means clear. There are a few government alternatives that could emerge.

ESTONIA

Since the liberation from the Soviet Union, Estonia has been the economically most stable and successful of the three Baltic countries. The budget policy has been disciplined, and the public sector debt is clearly lower than elsewhere. This picture is clouded nowadays, reason being the current account deficit and the absence of a policy for corrections. At the same time imports have risen faster than exports. One strong reason behind the weaker export demand is that Estonian sub-contractors are hard hit by the global telecom and electronics slump. Since 2000-2001 the current account deficit has more than doubled. The government enjoys a majority in the Parliament (about 60 %) and there are currently no speculations about a change of government. There is however some sensitive issues such as the reform of local government boundaries that are on the agenda the next couple of years. The Estonian government has a detailed five year programme with major issues, one being the implementation of a major tax reform.

There is a latent risk that Latvia's lagging economic policy reform work could lead to an economic crisis. If not addressed properly, an economic crisis could turn into a political crisis.

LATVIA

Government changes in Latvia have been frequent over the recent years. As per the beginning of 2004 Repse is the tenth prime minister since 1990 and new parties can emerge rapidly and unexpectedly. Latvian politics is more focused on individual politicians rather than on political parties. Should the government fall the alternatives are uncertain.

Speculations have it that a government without Repse could mark the end to the fight against corruption and the clean-up of the state civil service. The Latvian Lats is pegged in a narrow fluctuation band to the IMF Special Drawing Rights (SDR) currency basket, in which the US dollar weighs heavily. According to plans, on January 1, 2005, Latvia will peg its currency to the EURO as a preparation for transition to EURO.

Putting a lid on inflation will be a high-priority issue for economic policy over the next few years, since Latvia will be working to qualify for EURO zone accession by 2008 and must show low inflation in the preceding years, according to the Maastricht criteria. Unemployment will probably remain above 10 %. There

[2] International Maritime Organisation, IMO a UN organisation that sets the rules for the world wide safe and environmentally sound sea transports

are structural problems on the labour market in the forms of educational gaps between urban and rural areas. Thus more attention is needed on basic and higher education.

The rising current account deficit is perhaps more serious, should it become unsustainable. Credit growth is rapid, especially to households. Real wage and salary growth, at a historically high 8 % rate during the first half of 2003 and low interest rates for the next year at least point towards continued rapid growth in borrowing.

RUSSIA

Presidential power is strong but a cooperative Duma has been crucial to the reforms so far in the new century. Given his 75 % support in public opinion, the re-election of President Vladimir Putin is probably not threatened. Positive to long-term economic and political stability in Russia will be continued efforts in simplifying bureaucracy and reforming the banking and energy sectors as well as the judiciary. The Russian economy is dependent on the oil sector, but the sensitivity to declines in oil and raw material prices is substantially less today than previously.

The banking sector is slowly being reformed and lending has expanded, but capital spending is financed mainly by the major exporting companies, which are bringing home a rising share of their hard currency earnings. They have also taken advantage of the access to loans in the international capital market. Initial progress in improving corporate governance has helped boost foreign direct investments, mainly in the oil industry.

The long-term prospects for increasing direct investments are good, although the arrest at the end of October of the managing director of Yukos-Sibneft – the fourth biggest oil company in the world – with charges of tax evasion, fraud and embezzlement has been a reminder of the instability of the Russian system. Stability in recent years is seen by analysts as the main contributor to Russia's growth. The action on Yukos highlights the problems that still exist in doing business in Russia, and some ventures are now at stake.

FINLAND

The inflation has fallen during the past six months and stands at one per cent – clearly lower than the EURO zone average.

The strengthening of the EURO during the first half of 2003 has not yet had a full impact on prices in Finland. Capacity utilisation is expected to remain fairly low over the next few years while inflation will be pushed down following the lowered taxes. One of these tax cuts is on alcoholic beverages and tobacco products following Estonia's upcoming EU-membership. Unemployment was unchanged up to the beginning of 2003, when the number of lay-off notices and dismissals climbed significantly.

SWEDEN

The official target of a public sector budget surplus totalling 2 % of GDP currently appears distant. The government seems to be forced to borrow more than SEK 40Bn in 2004. Budget policy is subject to the alliance between the Social Democratic Party, the Left Party and Green Party. This grouping will effectively postpone structurally changes in the tax system, and only minor adjustments are expected. Unemployment has risen over the last few years and necessary structural changes on the labour market are hard to come by with the current parliamentary situation. In addition, sick leave has increased drastically. The number of people actually working fell by 0.7 % during 2002 and has continued to fall at the same pace during 2003.

3 Economic growth and trade

World economic growth is in a fragile situation where the gloomy 2001-2002 years should be replaced by a healthy market upturn. The upturn is there and the International Monetary Fund (IMF) expects a business cycle peak in 2004 with a global GDP growth of 3.1 % (revised down from four per cent).

The US economy has been the growth engine in the world for a long time. Long-term interest rates are very low in the US now, but investments are not yet materialising. The main reason for this is the surplus capacity in the American industry built up during the long growth period.

There are significant differences in growth rates in different parts of the world. It is important to keep in mind that even if growth rates are higher in many countries/regions in the developing world, North America, Western Europe and Japan will continue to account for almost two-thirds of world trade in the next five years.

Growth and welfare depend on a functioning transport system. The production system, from raw material to end-user product, is increasingly fragmented geographically.

The trade flows between countries of comparable size, per-capita income and culture, to a large extent consist of differentiated but similar products being traded in both directions (e.g. cars & electronics). For many of these products, branding and marketing are important.

For dissimilar countries, trade is mostly one way; low- to medium-value goods in one direction and finished goods the other.

The success of the World Trade Organisation's (WTO) Doha Development Agenda is extremely important to global growth and development. According to estimates by the World Bank and the IMF, elimination of barriers to trade in both industrialised and developing countries could result in gains amounting to as much as $620Bn annually, of which a significant part would be to the benefit of developing countries.

The US economy holds the key to the momentum of growth in the rest of the world. In order to secure consumer demand and overall growth, employment has to increase. In addition, increased employment levels would send positive signals across the board that would probably increase confidence enough to trigger further investment and recruitment decisions. Businesses are still cautious, though.

Unemployment levels in Europe and Japan seem to have stabilised, but at a much higher level in the Euro zone than in the other areas. In Germany the labour market situation still is worrisome and in France there are few signs of relief. Southern Europe is providing the Euro zone with crutches, however rickety.

Long-term GDP forecasts (2001-2025) put US growth at an average annual rate of 3 %, Western Europe at 2.3 % and Japan at 1.8 %.

3.1 Europe, General

Enlargement of the European Union will boost trade within the union, but could put a lid on trade to and from it. The net effect on trade of incorporating the applicant countries into the EU is expected to be positive. Even if short-sea shipping and inland navigation are supposed to benefit more than deep-sea shipping, it will open up business opportunities in a wider market.

Europe needs a growing US economy to ignite its growth engine. The current €/$ exchange rate is not helping, but at least consumer spending in France and consumer confidence in Italy are positive.

The EURO zone is at the bottom of its economic cycle and the upturn will be a lengthy process. Domestic demand is hampered by the weak capital spending needs of companies, as well as by slow household income growth and an uncertain labour market. Export growth is being held back by the stronger EURO. Euro zone GDP will grow by 0.5 % this year, 1.7 % in 2004 and 2.4 % in 2005.

Next year, the main engine of growth will be private consumption, while in 2005 growth will be more broadly based, with larger contributions from exports and capital spending.

3.2 The Baltic, focusing on the Palette countries

The enlargement of the EU sets the scene for increased trade within the Baltic, which is likely in the long run to result in increased demand for short sea shipping (Ro-ro & ferry; cargo and intra regional container trade).

According to SEB Baltic outlook in September 2003 the three Baltic countries remain Europe's fastest-growing region. They anticipate that the annual GDP growth will be in the 5.5-7.0 % range over 2004 - 2005. The growth so far has been driven by strong domestic demand, but will broaden as demand in Western Europe gradually strengthens.

The abolition of tax-free sales onboard ferries in the Baltic Sea region will also change the demand structure, favouring Ro-ro cargo.

With the exception of Russia, the Baltic Sea is to become in effect an inland waterway of the European Union. Shipments of goods to and from the Baltic states are bound to increase, yet transit to and from Russia via the three states might fall further.

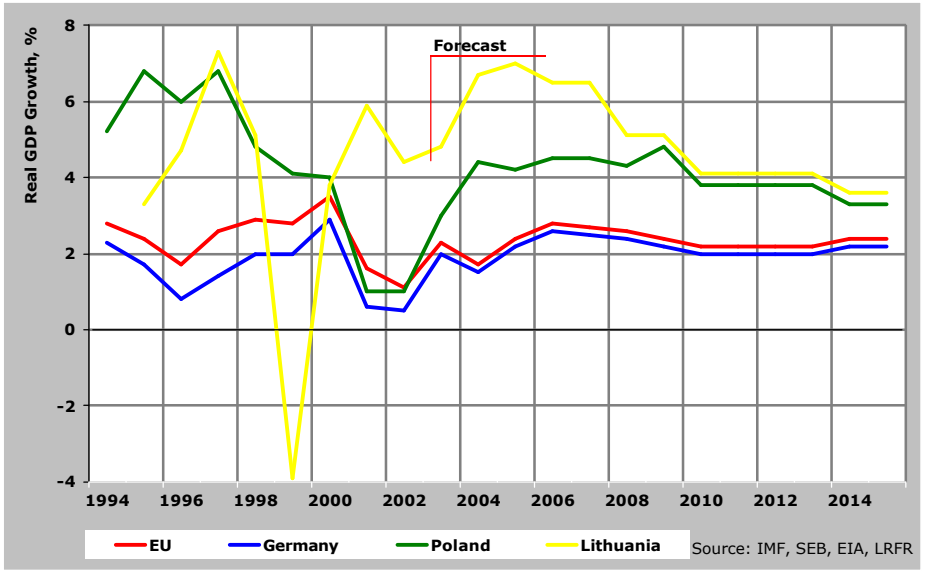


Figure 1: GDP growth; EU, Germany, Poland & Lithuania

Lithuania's tight fiscal policy has laid the ground for accelerating economic growth, with private consumption contributing more and more via rising real wages. 1999 was an exception year with the Russian crisis affecting Lithuania. Exports have shown good growth figures despite a stronger currency and the current deflation will most probably turn into mild inflation this year.

Poland is right now experiencing export-led recovery at a higher level than the EU. A highly expansive fiscal policy is fuelling domestic demand, but as always there is chance that this kind of policy leads to budget crisis.

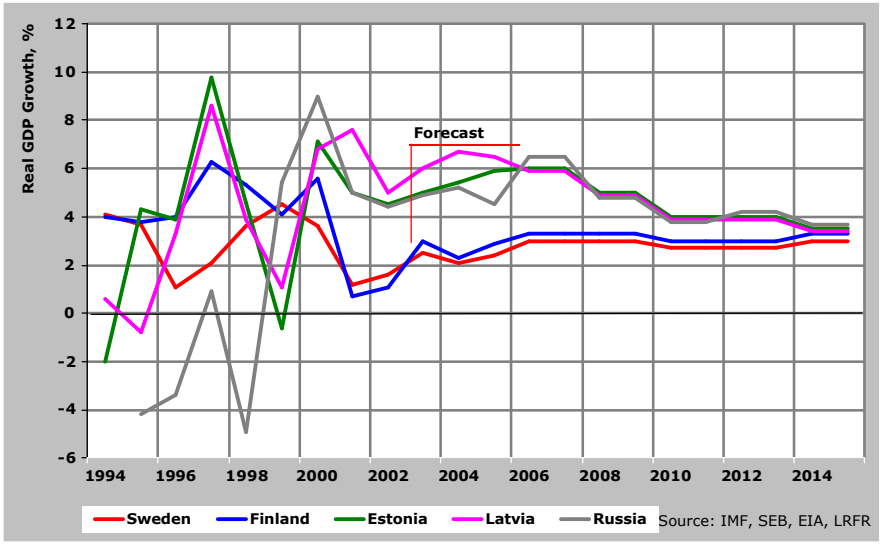


Figure 2: GDP growth; Sweden, Finland, Estonia, Latvia & Russia

ESTONIA

In a sharply formulated statement in August 2003, the IMF called for tighter fiscal policy in Estonia. There is no sign of that yet however, despite Estonia's past record of tight fiscal policy in the mid-1990s. Meanwhile inflation will climb due to EU harmonisation of taxes as well as higher prices for energy and water. This means that real interest rates will remain low. Real wage and salary increases will decelerate marginally from this year's 7-8 %.

The GDP growth is however quite stable on the above four per cent level.

Estonia's public sector debt remains low and the financial markets have not reacted to the imbalances in the Estonian economy thanks to the EU-accession. Interest rates have been relatively stable and have followed the international pattern. Furthermore, interest rates on lending have been pushed downward by stiff competition in the banking sector.

Both Nordea and SEB predict an export growth the next years of around 10 % and imports at a high 10-15 % annual rate, driven by strong private consumption and capital spending. Capital spending will be fuelled further by Estonia's accession to the European Union and transfer payments from this.

LATVIA

Of the three Baltic countries Latvia was the one least affected by the Russian financial crisis in the late 1990s. Latvia has enjoyed high growth coupled with low inflation since 2000. Growth prospects for the next couple of years remain good. The growth will remain broad with positive contributions from both domestic demand and foreign trade. Capital spending will be an increasingly powerful driving force.

In the short and medium term import growth will lead to a high (and expanding) current account deficit.

Exports will probably grow more than 15 % this year. Despite the economic slowdown of the past few years in the West, Latvia's exports have risen by 11-12 % annually in recent years.

Imports will also grow by more than 15 % this and next year, thanks to the ever developing economy with huge domestic demand growth. A large proportion of imports are investment-related goods, which is positive for economic growth viewed in a longer perspective.

RUSSIA

Since 1999 Russia's GDP has doubled in dollar terms to more than $400Bn, about the same as Sweden and Finland combined.

Growth looks like exceeding six per cent in 2003, provided that oil prices do not collapse.

Private consumption is driven by continued high real pay increases. Capital spending rose significantly in 2003, reflecting an improved business climate and greater faith in economic and political stability.

FINLAND

SEB forecasts a continued strong increase in consumption during 2004 and 2005, with gradually rising support from exports and capital spending. Overall, they expect the Finnish GDP growth to strengthen from 1.3 % in 2003 to 2.3 % in 2004 and 2.9 % in 2005, initially driven by increased private consumption.

The appreciation of the EURO will result in a very modest export growth. In value terms the exports fell last year due to price pressures in telecom and forest products.

SWEDEN

Private consumption is the engine of the Swedish cyclical upturn. In short term the outlook is favourable with low inflation and modest wage increases. In the long run, however the increasing long-term sick leave and disability retirements will cut the growth potential.

Robust balance sheets will give households room to cut back on their high savings. Despite a tighter fiscal policy, the growth in private consumption can accelerate. Exports will rise relatively fast despite a stronger krona. Sweden will probably have a faster growth than the EURO zone both this year and in 2004.

Overall, exports will grow by some five per cent in 2004.

3.3 Sea borne trade between the Baltic Palette countries

The trade between the Baltic Palette countries with unitised or palletised goods amount to some 4.2 M tons per year. These figures thus exclude bulk cargoes and some other special type of cargoes that are primarily transported by air. If the trade with Norway is added then the total volume will amount close to 5.6 M tons. The figures for Norway should be considered since substantial parts of those volumes are transited through Sweden and Finland.

The figures are based on trade rather than transport. From that follows that not all of that trade is sea borne. The Finnish-Russian trade incorporate significant volumes that are transported on land and a minor part of the Swedish-Finnish one is land borne as well. Other relations where the majority of the trade is transported on land are the ones between Latvia-Estonia, Latvia-Russia and Estonia-Russia. However, these latter three categories are not included at all in the trade figures above.

Table 2: Intra-Baltic Palette trade, tons

Exports+Imports; tonnes To-From	1993	1994	1995	1996	1997	1998	1999	2000	2001
Finland-Sweden	1,255,792	1,393,543	1,345,106	1,518,794	1,668,455	1,793,485	1,676,964	1,773,677	1,714,853
Finland-Latvia	17,406	56,585	42,412	58,182	74,045	79,196	70,755	91,501	94,635
Finland-Estonia	175,908	233,219	242,082	287,294	353,585	391,592	372,326	427,965	455,769
Finland-Russia	484,265	691,442	638,376	837,259	1,110,044	1,026,014	879,034	1,006,303	1,242,727
Sweden-Latvia	20,595	57,890	51,195	77,130	91,081	117,256	98,967	125,251	133,134
Sweden-Estonia	53,404	101,471	75,632	128,981	185,925	200,351	180,799	225,392	252,924
Sweden-Russia	88,921	246,872	200,267	232,132	256,999	236,532	176,232	245,834	274,149
Direct trade	2,096,290	2,781,022	2,595,070	3,139,772	3,740,133	3,844,427	3,455,078	3,895,923	4,168,191
Norway-Finland	507,462	656,185	687,924	729,236	945,023	1,056,918	1,062,500	1,193,594	566,424
Norway-Latvia	21,074	29,128	41,688	71,925	98,078	50,821	34,453	48,764	58,508
Norway-Estonia	4,850	17,012	23,498	24,368	48,051	37,828	36,183	49,283	82,499
Norway-Russia	166,317	299,682	560,616	675,013	739,317	606,307	671,127	689,714	734,740
Total trade	2,795,994	3,783,030	3,908,796	4,640,313	5,570,602	5,596,301	5,259,341	5,877,277	5,610,362

In volume terms, trade with Finland dominates followed by Sweden and Russia and the exchange between Finland and Sweden adds up to 1.7M tons.

The intra-Baltic Palette regional trade doubled in volume over the 1993 to 2001 period despite the marked effects of the Russian crisis back in 1998.

Table 3: Intra-Baltic Palette imports, tons

Imports - tonnes To-From	1993	1994	1995	1996	1997	1998	1999	2000	2001
Finland-Sweden	544,218	610,849	608,489	676,091	868,076	914,947	816,553	862,994	841,312
Finland-Latvia	5,871	6,416	6,320	9,301	10,471	11,223	11,150	16,160	20,143
Finland-Estonia	71,209	80,072	88,549	94,179	118,600	144,174	155,494	184,180	213,432
Finland-Russia	166,411	168,109	122,826	128,062	132,400	149,646	168,582	227,261	284,374
Sweden-Latvia	3,300	23,957	8,236	21,937	21,164	26,478	30,610	31,901	36,829
Sweden-Estonia	16,500	45,892	23,133	63,845	77,739	92,614	102,124	112,384	134,127
Sweden-Russia	19,439	161,292	74,735	101,006	83,945	98,783	66,589	92,480	69,642
Direct imports	826,948	1,096,585	932,288	1,094,420	1,312,395	1,437,863	1,351,101	1,527,360	1,599,859
Norway-Finland	287,857	335,457	339,099	368,687	347,393	357,183	355,741	436,058	432,635
Norway-Latvia	20,387	14,055	4,290	2,511	2,464	3,015	11,465	19,444	32,973
Norway-Estonia	3,556	8,007	8,189	10,753	12,436	15,902	20,372	28,207	56,984
Norway-Russia	124,786	172,347	377,887	445,495	452,054	381,422	441,295	449,858	434,032
Total imports	1,263,533	1,626,452	1,661,753	1,921,866	2,126,742	2,195,384	2,179,974	2,460,926	2,556,484

Table 4: Intra-Baltic Palette exports, tons

Exports - tonnes From-To	1993	1994	1995	1996	1997	1998	1999	2000	2001
Finland-Sweden	711,574	782,694	736,617	842,703	800,379	878,538	860,411	910,682	873,541
Finland-Latvia	11,534	50,170	36,092	48,881	63,574	67,974	59,606	75,341	74,492
Finland-Estonia	104,699	153,147	153,533	193,115	234,985	247,418	216,833	243,785	242,337
Finland-Russia	317,854	523,333	515,550	709,198	977,644	876,368	710,452	779,042	958,353
Sweden-Latvia	17,296	33,933	42,959	55,192	69,917	90,778	68,357	93,351	96,305
Sweden-Estonia	36,903	55,579	52,499	65,136	108,185	107,737	78,675	113,008	118,797
Sweden-Russia	69,482	85,580	125,532	131,127	173,054	137,750	109,643	153,354	204,507
Direct exports	1,269,342	1,684,437	1,662,781	2,045,352	2,427,738	2,406,564	2,103,977	2,368,564	2,568,332
Norway-Finland	219,605	320,728	348,826	360,550	597,630	699,735	706,759	757,536	133,790
Norway-Latvia	687	15,073	37,398	69,414	95,614	47,807	22,988	29,320	25,535
Norway-Estonia	1,294	9,005	15,309	13,614	35,615	21,927	15,811	21,076	25,515
Norway-Russia	41,532	127,335	182,729	229,518	287,263	224,884	229,832	239,856	300,707
Total exports	1,532,460	2,156,579	2,247,043	2,718,448	3,443,860	3,400,917	3,079,367	3,416,351	3,053,878

Finland-Sweden. Finland predominantly imports paper, paperboard, glass, chemicals and plastics from Sweden. In the opposite direction partly the same cargo categories are carried, but there are also substantial volumes of veneers, plywood and alcoholic beverages. Parts and accessories to motor vehicles do also form basic loads.

Finland-Latvia. Finland's exports to Latvia consist mainly of paper, paperboard, paint, varnish and glass. Imports are predominantly made up of different types of wood manufactures, furniture and transport carriers such as trailers. The volumes are small but the growth has been strong where the exports from Finland grew six-fold over 1993-2001.

Finland-Estonia. In 1993, Finnish-Estonian trade outpaced Finland-Latvian by a factor of ten; in 2001 that relation had decreased to just above four, which reflects the rapid growth of the latter but from a low level. As with Latvia, Finland's imports from Estonia are dominated by different wood manufactures and furniture. Since the end of the last decade imports of fertilizers have grown significantly. In the other direction paper, paperboard, pigments/paints/varnishes, glass and alcoholic beverages are transported.

Finland-Russia. There is a significant imbalance in the trade with unitised or palletised goods between the two countries. In 2001, Finland exported 958 thousand tons to Russia and imported a mere 213 thousand tons. More than half of the exports in 2001 were made up of paper products, printed matters, paints and cereal preparations. Imports consisted to a certain degree of similar products, but also large volumes of chemicals and fertilizers were traded. Imports of veneers and plywood have developed strongly in recent years.

Sweden-Latvia. A decade ago trade between these two countries were close to non-existent. Since then the development has been strong and up to 2001, trade had increased by 646% to reach 133 thousand tons. Despite this strong development this bilateral trade only accounted for two per cent of the total Baltic Palette volumes in 2001. Sweden's imports from Latvia are to a very large extent dominated by veneers, plywood and other wood manufactures. Imports of furniture are catching up. Paper products and feeding stuff for animals are being shipped in the other direction.

Sweden-Estonia. This trade is approximately twice as large as the Sweden-Latvia one and the major difference is on the Swedish import side which amounted to 134 thousand tons in 2001 (from Latvia it was 37). Veneers, plywood, wood manufactures and fertilizers are mainly found on Sweden's import side. Sweden's exports are not surprisingly topped by paper and paper products but there has been an interesting growth in the trade with a large number of products. Among these sugar, paints, fish, plastic articles and motor vehicles could be mentioned.

Sweden's trade with Russia reached about the same volume in 2001 as Sweden's trade with Estonia. Volumes have gone up and down but the level in 2001 is only 11% higher than in 1994. Fertilizers form the largest imported commodity to Sweden from Russia followed by veneers and plywood. Exports used to be dominated by margarine, but margarine has been surpassed by cereal preparations, paper and paperboard.

To a certain extent *Norway*'s trade relations with Finland, Latvia, Estonia and Russia make use of transport links from Sweden and Finland and is therefore of interest to this study. The trade volumes with Finland and Russia account for 90%, but the Estonia trade has built up strongly over recent years.

Two thirds of what is exported from Norway to Russia is fish and one fifth is chemicals. Imports from Russia consist up to two thirds of fertilizers and to one fifth of fish.

From Estonia Norway imports trailers (on the decline though), prefabricated buildings, furniture and wood manufactures and exports primarily fish. Fertilizers and prefabricated buildings have been the backbone on the import side but lately wood manufactures and floating structures have popped up.

Trade imbalances are substantial on most trades if measured in tons. The largest imbalance is in the trade between Finland and Russia where Finland exports 674 thousand tons more than it imports. It is important to remember though that a considerable part of this trade is transported on land. Sweden's trade with Russia is also largely imbalanced as is Norway's trade with Finland. It is also worth noting that some of the imbalances would diminish if the trade were to be measured in cubic metres instead of tons. Thus from a road hauler's perspective the imbalance might be less of a problem.

Trade growth in 2002 was slightly negative with a few exceptions, but in 2003 recovery was strong. The general outlook for 2004 to 2006 is positive following the expected continued upturn in the business cycle.

The EU enlargement came into effect in May 2004 and provided most likely some additional fuel for the intra-Baltic Palette trade growth.

In summary the outlook is bright, but the growth has to be put into a perspective. The growth in 2001 in the intra-BP trade excluding Norway amounted to 272 thousand tons. Assuming that all of this growth was to be carried by trucks on Ro-ro vessels with an average ton per trailer of 16 tons, the entire growth could be carried by 17 thousand trailers. This is less than the growth in the sea borne trailer traffic between Sweden and Germany.

Seventeen thousand trailers in a year is less than 47 per day – in the entire BP region.

4 The Baltic shipping market

This chapter excludes the ferry services that are presented in Chapter 7.

Some means of transport, as sea transports and airfreight, have always operated on commercial conditions and have covered the costs for its infrastructure such as terminals, fairways and service. The competition is mainly within the transport mode. The society has invested in facilities of social importance. It was natural to make way for sea transports, increase the capacity of fairways and extend the ports when heavy goods only could be transported on ships. The important thing was to strengthen industries and facilitate for their development. Today the accessibility is almost an eliminated issue because of the wide expansion of the road- and railroad network. A new phase is now starting and the issue is how to control the total flow to maintain the mobility in the future. In this picture it is important to use all available means of transport. The means of control will grow in importance and can be affected in many different ways. Most important is that it will result in a long-term sustainable development.

Bulk cargo varies substantially by character. Break bulk can normally be carried in containers or as break stowage on Ro-ro-ships. The ships are more or less designed for one or a few types of products. However, the ports are expected to give service to all types of ships using suitable handling equipment, relevant competence and terminal capacity to give the sea transport the service that is demanded in an efficient and productive way. If there are no commodities to ship from the port, the port will not exist. The claim of being too many ports in Scandinavia is by this rather based on protection of own interests than on logistic facts, as long as the port activities are based on commercial activities. In the same way ports are built where there is demand for sea transports. Sweden and Finland have relatively many ports, which forms a valuable infrastructure resource.

Sea transports are of specific importance to industries that import raw materials and/or exports products in bulk. To them, it is of essence to minimise handling and transport costs. For this type of industries, that turn over large quantities of bulk cargo, transport costs can be decisive for where the industry location.

The number of ports in the concerned countries is in Estonia 17, in Finland 56 (incl. Saimaa Canal area), in Latvia 9, in Russia 34 and in Sweden 90. Figure 3 shows the number of calls to each country in 2002. The number of calls obviously differs between the countries and also the number of calls to each port. For example is the number of port calls in Finland 16 662. Of these calls, 20 % goes to ports with less than 12 calls annually. 23 % are calling ports having a number of calls between 12 and 99. 37 % calls ports having a number of calls between 100 and 499. Finally the highest frequented ports with a number of calls between 500 and 999 and the ones with more than 1 000 calls annually have equally 10 % of the share of port calls, see Figure 4.

4.1 Port calls

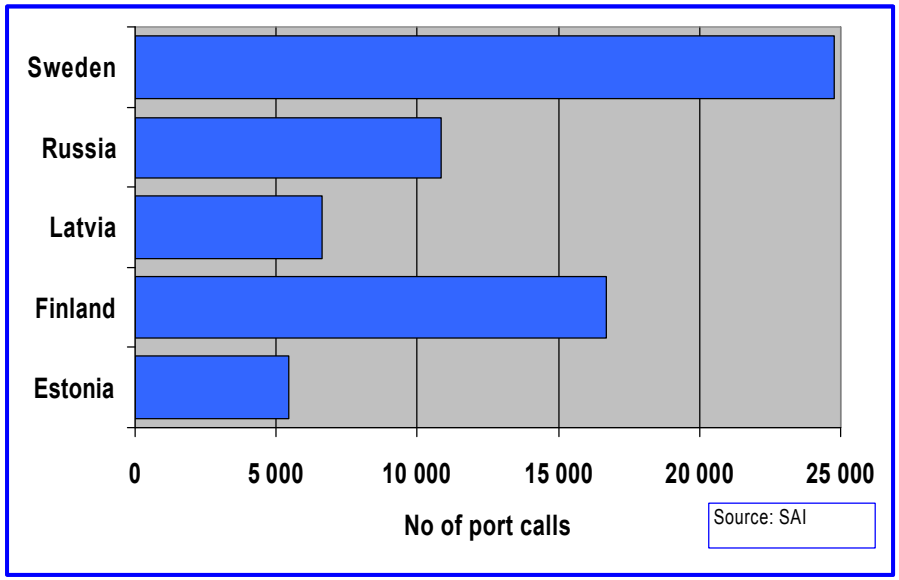


Figure 3: No of ship calls per country

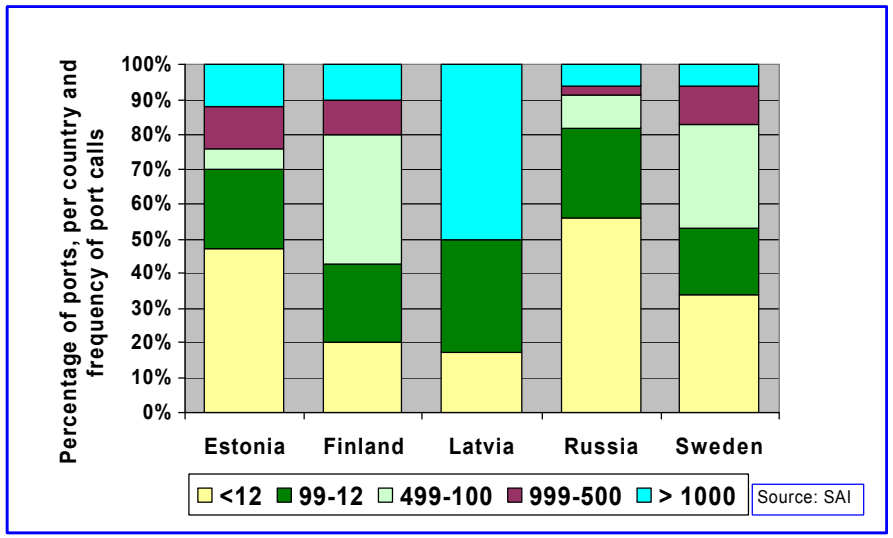


Figure 4: The percentage of port call frequency in the countries

The age and type of ships moving in the Baltic area are very varied. For instance, if studying the ports, Swedish ports receives many calls by ships of 26 years or older while the ships calling ports in Finland are much newer (0-5 years).

The majority of the old ships calling Sweden are dry cargo vessels and the majority of newer ships are tankers, see Figure 5. The same relations in the other countries are as follows:

- Russia; Older – Bulker/Dry cargo, Newer – Tanker
- Latvia; Older – Dry cargo/Bulker, Newer – Dry cargo
- Finland; Older – Dry cargo, Newer – Ro-ro
- Estonia; Older – Dry cargo, Newer – Tankers

A conclusion of the compilation is that the older ships trading on the Baltic Sea mostly are dry cargo ships and the newer mostly are tankers. One reason for this can be the phasing out of single hulled tankers according to IMO but also the fact that the ice class demands intact ships to keep up the ice class.

The group 16 – 20 years is the least represented with just over 7 000 calls. The group of ships with an age over 26 is only just dominating over the 0 – 5 years age group with 13 652 calls to 12 708.

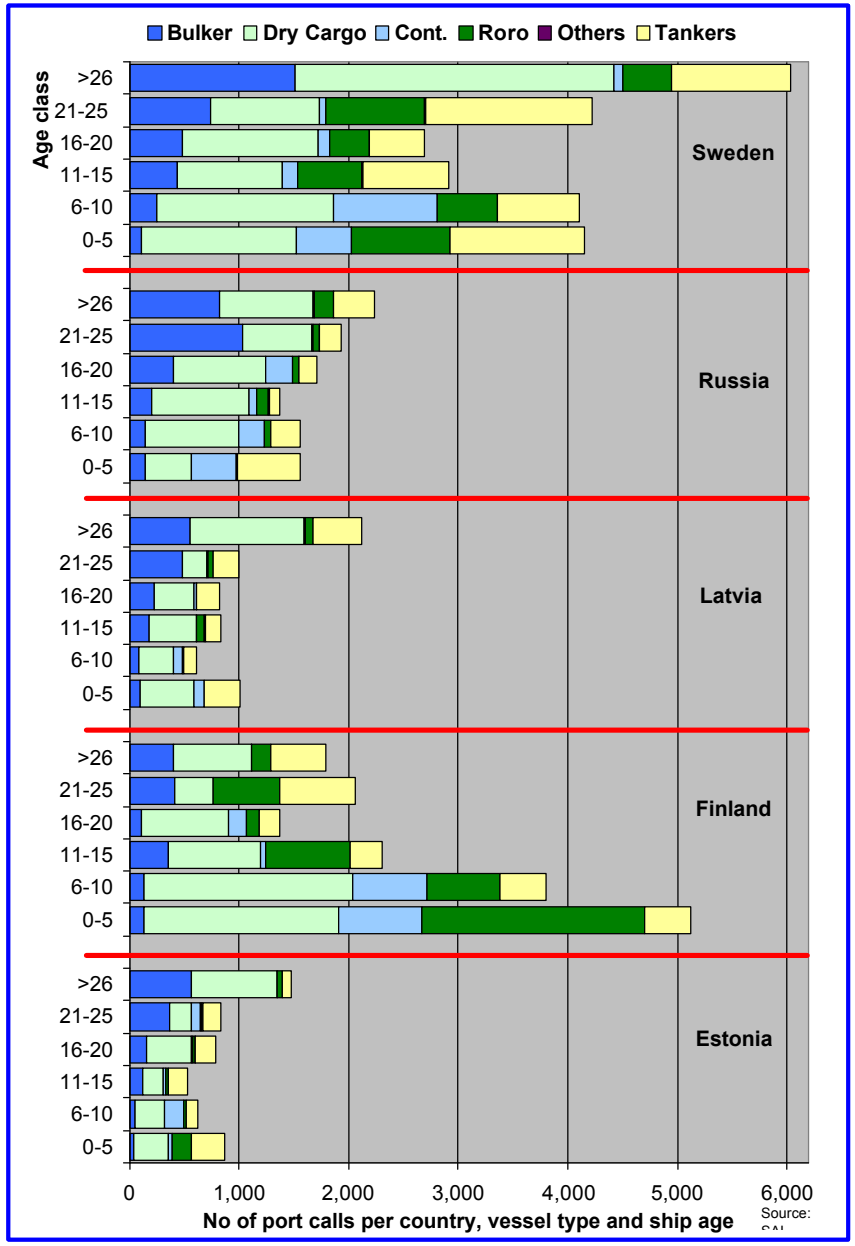


Figure 5: Age and No of ships' call per country

4.2 Fairway & dues

Today the EU address high hopes that developed sea transports can discharge roads and rail from congestion. An increased use of sea transports for a wider range of products from the industry (i.e. other than bulk cargoes) requires a cargo carrier, rational handling systems and low rates for intermodal transports.

At such conditions sea transports can be a more realistic transport alternative and increase its share of goods transport. This is in line with the policy EU outlines in the White Paper; European transport policy for 2010: time to decide. The infrastructure has become an area of concern for the regional spatial planning in Europe. To give priority to costly investments in infrastructure may prove difficult when they are to be evaluated in competition with other type of needs in the regions.

Transports and the related infrastructure must be looked upon in a wider international perspective. It implies a creation of a prioritised regional infrastructure of increased importance; TEN (Trans European Network, TEN-T Trans European Network-Transport) is today the most spacious approach in this perspective. TEN-T was created within the EU to identify the roads and railroads of importance for the development of sustainable move ability in the EU. It gives identified infrastructure a prioritised class that allows EU and/or state financing for upgrading and/or extension. The level of financing depends on the type of area concerned and if it classified as an Objective area. EU has so far allocated substantial financing in Objective 1 areas. Examples of this can be found in Ireland, Greece and Portugal.

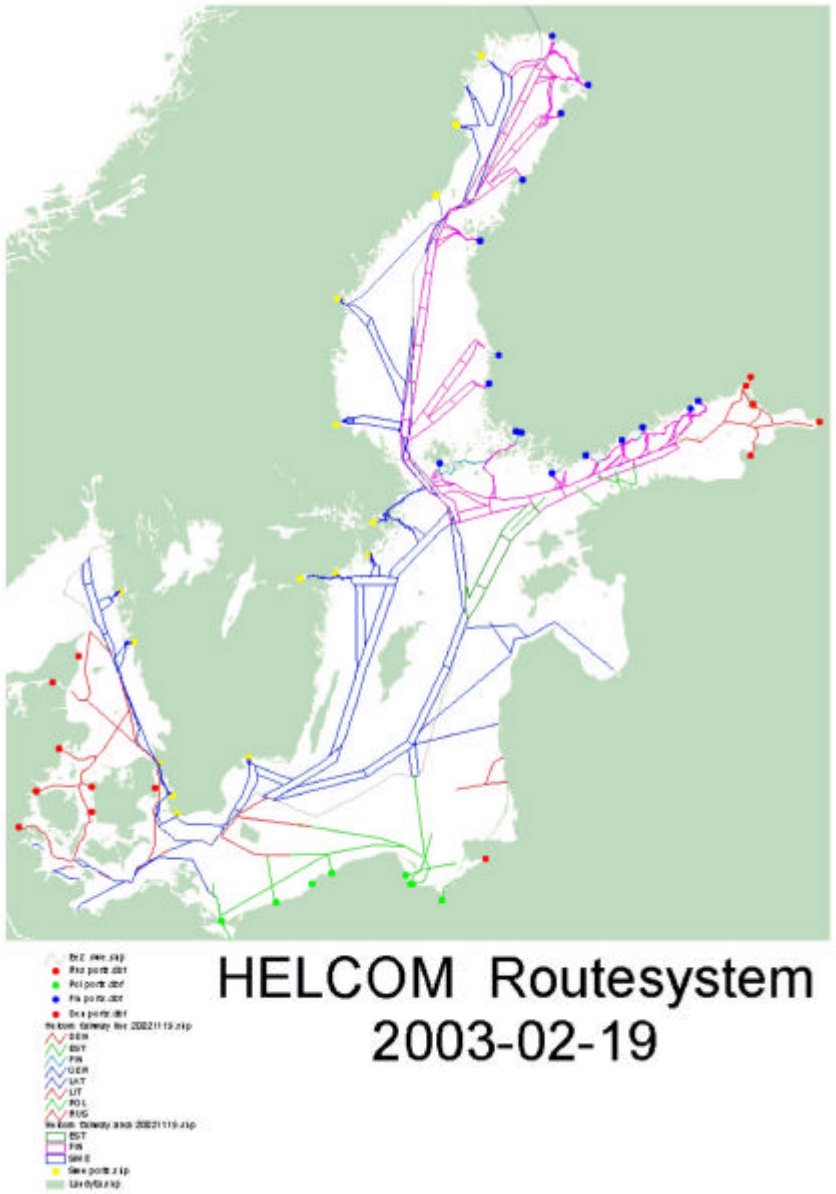


Figure 6: Main fairways and TEN-ports. Source SMA, HELCOM

Sea transports and the ports were not included in the TEN-T at first. However, as the major part of the land infrastructure ended in the ports they were added as nodes in the network. These ports are assigned as TEN-ports and have to fulfil special criteria to earn the assignment. Ports having and regular international sea transport activity with an annual turnover of 1.5 million tons or 200 000 passengers and is connected to the TEN-T network is classified as A-class ports. To be a TEN-port, the port must have the A-class standard. In the Baltic HELCOM has started the preparation for an enlarged TEN-T infrastructure that also includes sea transports. This work was initiated from a demand of securing the open sea routes by scanning the sea to ensure a safe passage of larger tonnage. See Figure 6.

Dues on sea transports are of a level that acts as a means of control to shift transports to another transport mode. The strength of the sea transports are the low ton per kilometre cost and the environmental friendliness in land use/land take, barrier effects, noise, congestion, use of energy, low maintenance etc. Service that is included in dues for a land transport mode, such as traffic control, is an additional cost for sea transports today (pilots).

The governmental dues per ton goods for domestic traffic in Sweden are for a 500 kilometres long transport 7 times higher per ton for a sea transport than for rail transport and almost twice as high as for road transport. In the same way the governmental dues in Finland are very high for ships without a higher ice class. The reason for high-level dues in both the countries is the same. In both countries the administration of sea transports infrastructure is

run by Administrations acting as commercial[3] entities, i.e. they should cover their own costs, while for the land transports the Administrations are financed from the state budget.

Even if the ship fairway dues are not as high in Sweden as in Finland the total fees for industrial shipments from the region is almost twice as high in Sweden as in Finland. The reason for this is that dues are charged for the shipped goods as well. The dues also apply to domestic traffic. The dues acts as means of control which in Finland act in favour for ships with high ice class and in Sweden the dues favour ships with good environmental performance.

Ship						
Cargo ton	**GT**	**NT**	**Ice class**	**Trips**		
10 000	21 000	10 600	1A	34		
Annual shipment		340 000	tons			
Shipment from Finland		Fairway dues		109 140	€	
		Total Finland		**109 140**	**€**	
Shipment from Sweden		Fairway dues		77 538	€	Max envir. discount
		Cargo fairway dues		134 505	€	
		Total Sweden		**212 044**	**€**	

Figure 7: Example of the annual cost in dues for an industrial shipment service on Sweden and Finland

The steel industry shipments are the only high-frequency industrial seaborne service with bulk cargoes that trade on both countries. The other shipping systems are strictly limited to one country. Sweden and Finland (Lithuania has also national dues in Klaipeda) are alone in the EU to have national dues on sea transports. For sea transports the borders between the countries in the EU still exist. The result being that the dues increase for shipping companies that call both countries.

When prompted, the industry claims that the fairway dues as such and specifically the differences between the Swedish and Finnish systems are the main reasons for the lack of cross-border cooperation.

4.3 Ice conditions

Winter shipping conditions can be considered equal for Finland and Sweden as regards the Gulf of Bothnia and equal for Finland, Russia and Estonia for the Gulf of Finland. The cooperation between the Finnish and Swedish icebreakers in the entire area is smooth. The industries cover the total costs caused by the ice conditions. These costs come in two forms, partly the added cost for higher standard of ships designed for the winter environment and partly the direct cost for the icebreaking service paid in ports. These costs are covered by the shipper as fairway dues and added cost for ships of high standard.

In the BSR the bulk cargo in different forms is the main commodity transported by sea. In frequency the ferries dominate. However, most of the ferries are very powerful and do not need assistance from icebreakers unless the conditions are severe. This arrangement is necessary as the ferries cannot depend on icebreaking service to uphold frequency. Ferries that need assistance from icebreakers are recommended not to leave the port until notice is given from the ice office.

In the 60-ies (1961) a Nordic agreement was closed between Finland, Sweden, Denmark and Norway of co-operation in planning for the icebreaking and how to share the responsibilities

[3] In Finland this covers only the daily services while in Sweden it should also cover the infrastructure

in order to uphold sea transports during the winter period. This became the base for a more formal co-operation and plans were made up for how to meet all types of ice conditions using the joint resources.

The management of the icebreaking resources have made use of Information Technology to manage the resources in an effective way. An IBNet has been set up, which is a communication system that makes use of AIS and displays on line all activities in the BSR to the Finnish and Swedish icebreaking offices. This is the first step of making use of the AIS system. It will be a powerful tool once it is in full force and installed on all ships.

The Finnish and Swedish Maritime administrations issue restrictions in demand of fulfilling a minimum ice class for vessels calling the ports in the ice regions in the ice season if the ship should count on icebreaker assistance. This is done with consideration to the actual situation and is announced weeks ahead of implementation. The grades of restrictions are continuously followed up over the season. Ships suitable for forcing the ice can expect assistance from icebreakers when entering the ice affected waters and assistance in guidance through to the port of destination and out of the ice area again. Ships not suitable for following the convoy in ice can be declared not suitable for ice conditions and cannot expect assistance from the icebreakers. Sweden and Finland has ratified an amendment to the ice class rules. The amendment is focusing on the ships hull and the parameters that have been found to affect the ships ability to navigate in ice.

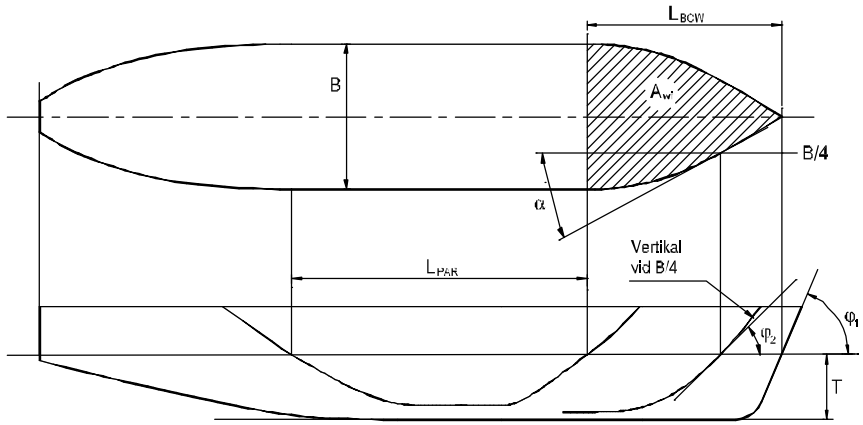


Figure 8: Ships parameters that affect the ability to force ice

The object is to as far as possible try to avoid ships not suitable for ice to operate in the ice affected areas. The new ice class rules the shape and hull form is given functions of angles that will affect the ship's resistance in ice. This gives the demand of power to be installed in the ship to get a certain ice class. Ships can never be left stuck in the ice. If the ice starts moving the ship may be forced aground without any way of saving it. The really dangerous situation is to have moving ice in hard winds. The ice masses represent a huge amount of force that can sink almost any type of ship that cannot head and force it.

The ice class has three major functions;

- the hull itself shall be able to take the ice pressure related to the ice class of the ship
- the propulsion and steering equipment are strong enough to work properly in ice
- the ship has enough power to force the ice and follow the icebreaker.

Most of the times it is not dangerous to navigate in firm thick ice. The dangerous situation is to come from the open sea in hard winds and pass the ice ridge. The waves and the grounding up when entering the fairway to the ports cause the ice to build up and fill up the full depth forming a barrier between the open sea and the sheltered waters. Only the most powerful ships can force their way through this barrier.

The dangerous part for the navigation is the moving ice and ships that are locked in moving ice unable to manoeuvre. This risk becomes higher in scale in the South of the Baltic Sea as the ship traffic will continue to increase rapidly especially with regards to tankers. The Primorsk terminal started operation in 2002 and the winter 2002-2003 was the first time when the production of 1 million tons per month started. This turnover will increase to 5 million tons per month. If this amount is shipped in crude oil tankers of 100 000 TDW, as an example, it will result in one to two tankers per day passing the distance from the Skaw to the most eastern part of the Gulf of Finland fully loaded and just as many empty in the other direction. Smaller tankers will give higher frequency.

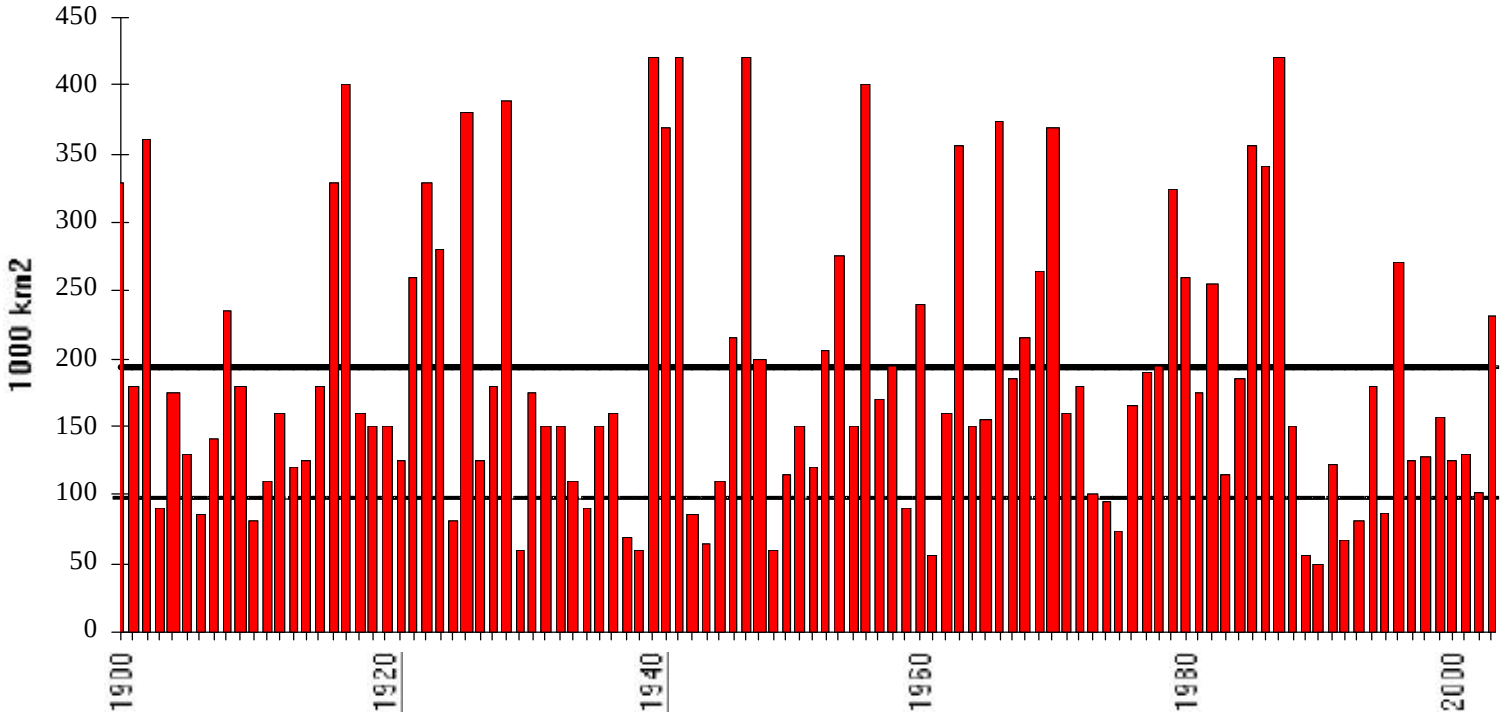


Figure 9: Ice area coverage in the Baltic over the years

In the winter season 2002-03 the ice coverage was a bit more than average but the ice situation in some parts of the Baltic was a bit worse than the coverage indicates. In the Bothnia Bay and in the Gulf of Finland the situation was harder as the wind and the

temperature had shifted around the ice that froze and became difficult to force.

Another issue is that the ships calling Russia is of a width that requires two large icebreakers to assist it. It is also well known that the mass of a moving tanker (the energy of 130 –140 000 tons of 1 – 2 m/s cannot be stopped easily) will be a hazard to itself and possibly the icebreakers if they hit a firm mass of ice.

The question is how to ensure safe transport in the Baltic in wintertime, as these potentially environmental bombs need assistance from the Skaw to Primorsk. The financial arrangement for such a set up is also to be considered.

Considering the ice situation of 1987 and the state of traffic today, the tankers need efficient assistance through the Belt and in the southern part and the Baltic. The Russian ice directorate has guaranteed service from Russia in case of a hard winter and problems in the Belt.

In hard winds and drifting ice the ships need a safe place to anchor or wait if the situation in the Gulf of Finland is causing delay of the traffic. This should preferably be in open water or somewhere sheltered from moving ice. See Figure 10.

The total picture explains the concern from the Finnish Authority when tanker ships of doubtful strength are navigating in the Gulf of Finland in communication by the IBNet system. From the maps the following conclusions can be drawn:

- With the increased traffic on the Baltic countries and Russia there must be resources made available to keep the waters open and safe
- Almost all ships need assistance of icebreakers in the Kategatt, the Sound and the Belt
- The Baltic countries do not have their own icebreakers. However, in the Bay of Riga large icebreakers are needed in normal to hard ice winters
- In hard winters most of the waters are unsafe for the ships to wait in strong winds
- The icebreaker's assistance to ports in the Gulf of Finland and ports north of Gotland is demanding icebreaker service

In short the situation is difficult for sea transports and the costly for the industry and the risk is increasing as the tanker traffic is growing.

During the past decade the trading activities between the EU countries and Russia and the Baltic countries has grown in a healthy way. The winter 2002-03 showed how vulnerable this trading is in wintertime.

The forest industry in Sweden and Finland are depending on supplies from Russia and the Baltic states. A pulp mill cannot close down in wintertime because of lacking supply of raw materials. The pulp industries depend today on raw fiber from the forest. Because of the Chloride free process the time between harvest and use in the mill cannot be more than 3 weeks. In a situation of delays in traffic and lack of assisting capacity a situation may occur where the mill runs out of raw material and have to close. At the same time the harvested material will lose value and can only be used as bio energy.

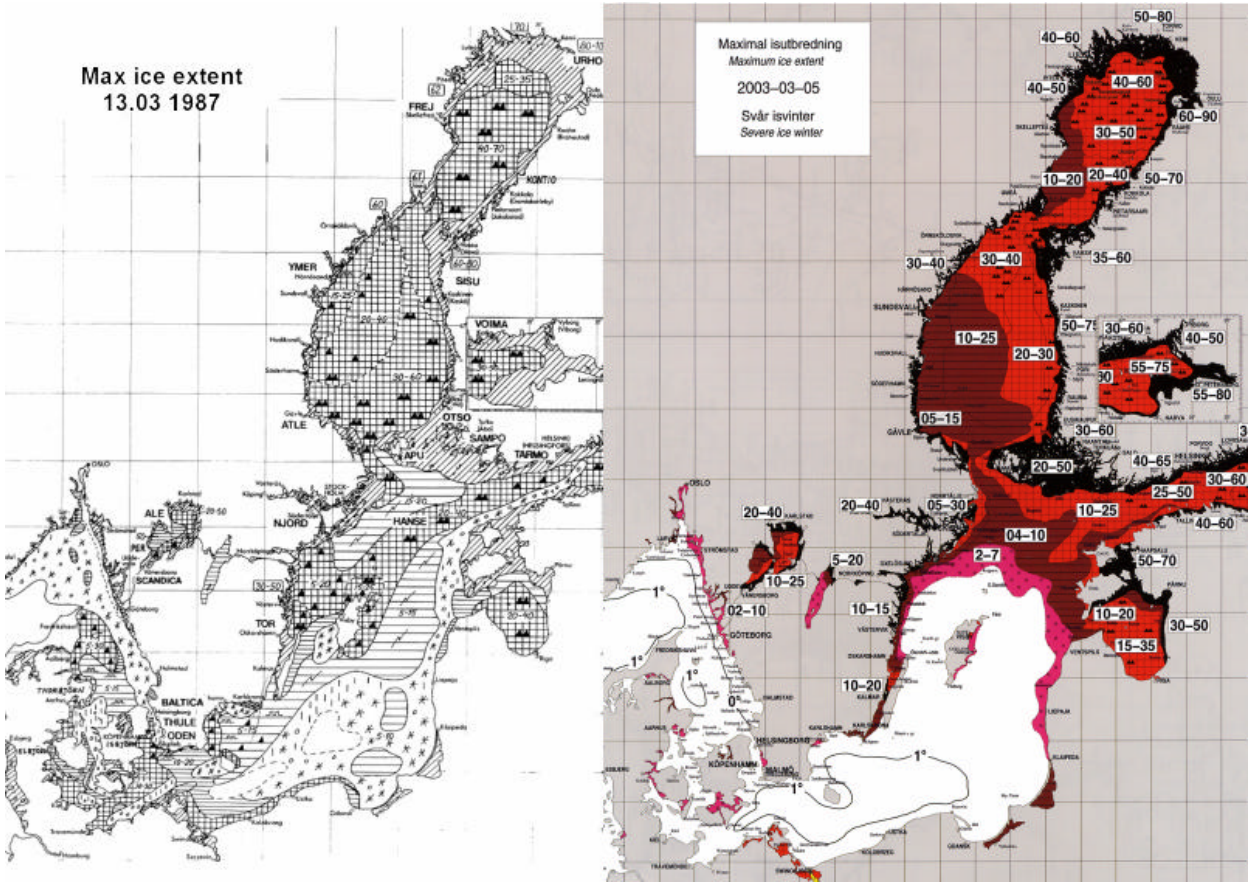


Figure 10: Ice maps from the years 1986-87 and 2002-03

In the Gulf of Finland the Russian capacity to assist the ships to the Russian ports was insufficient. Some ports in the Baltic countries closed and in Estonia an icebreaker was chartered at high expenses to keep up the traffic. This was considered to be an almost normal winter. The reason was not lacking of icebreaking capacity, all icebreakers were not in operation, but there was demand for icebreaking capacity in other countries than the one that had the resources.

Today the discussion goes high if it is possible to have a joint allocation of the icebreaking capacity under EU, this in order to manage the whole Baltic Sea Area instead of having each country optimizing its recourses from a domestic demand.[4]

[4] See also http://www.mariterm.se/download/ICEBREAKING IN THE BALTIC.pdf

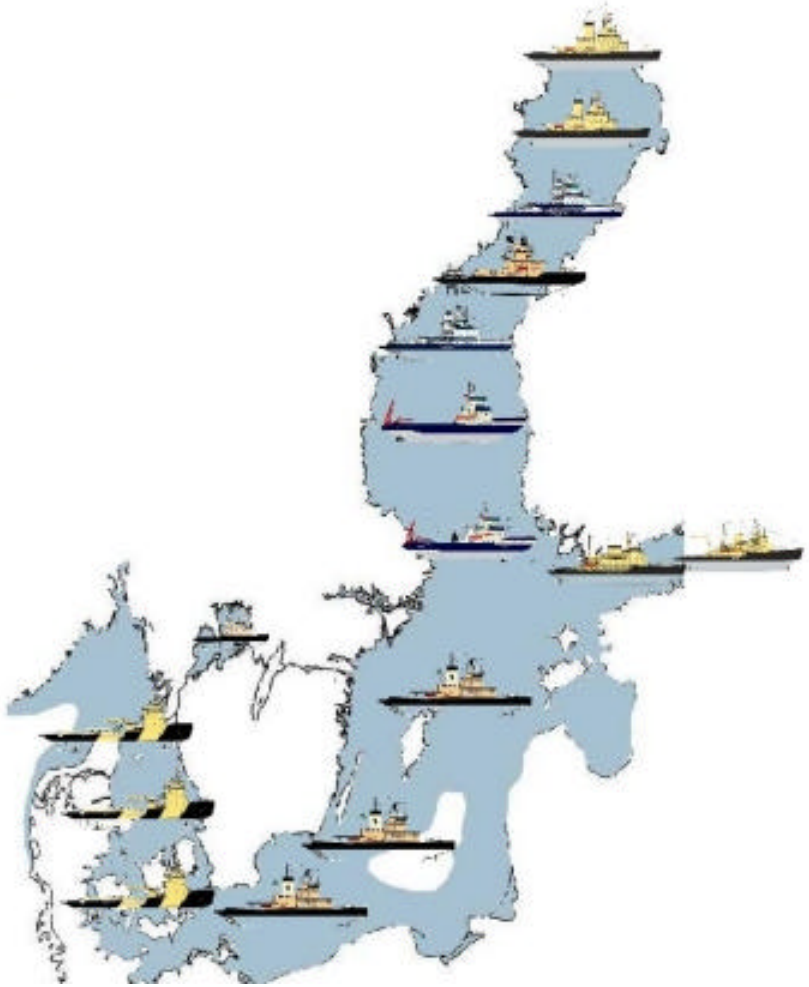


Figure 11: The distribution of icebreakers in the Baltic

There is no formal agreement and understanding between Finland and Russia how the icebreaking resources in the Gulf of Finland shall be managed in future. The only existing agreement is between Russia and Denmark regarding the service through the Belt.

5 Ports in the Baltic Palette area

Statistics in this section are from 2002 and are based on: Lloyd's Register Fairplay's "Ports and Terminal Guide 2003-2004", statistics from the ports, www.balticpalette.com, www.bpoports.com and www.scb.se.

Table 5: The total annual turnover in the Baltic Palette region

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Stockholm	5,200	523	8,000
Kapellskär	2,200	-	1,300
Nynäshamn	350	-	100
Port of Harg	500	-	-
Port of Södertälje	800	183	-
Port of Oxelösund	5,000	79	-
Köping	1,500	-	-
Västerås	2,100	278	-
Uusikaupunki	1,300	-	
Naantali	7,000	1,300	100
Turku	4,000	149	4,000
Hanko	2,700	-	170
Inkoo	2,000	109	-
Helsinki	11,000	483	9,000
Sköldvik	17,600	3,500	-
Kotka	8,500	18	25
Mariehamn	-	-	2,199
Ekerö	-	-	866
Hamina	5,000	440	-
St Petersburg	23,200	9,980	-
Lomonosov	450		-
Vyborg	1,300		100
Vysotsk	3,100		-
Muuga	30,000		6
Old Port of Tallinn	3,400		5,800
Paljassaare	2,000		1
Paldiski	1,800		130
Riga	18,000	4,300	250
Skulte	620	-	-
Salacgriva	30,000	-	6
Total	190,620		32,053

Some statistics are from 2000 and some only exists for January to June 2002. These deviations are marked in Table 5. The sum of oil in the region does not include the statistics from January to June 2002 or the data from 2000.

5.1 Seaports in the Stockholm-Mälar region

This region includes of the ports: Stockholm, Kapellskär, Nynäshamn, Hargshamn, Södertälje, Oxelösund, Köping and Västerås. The region covers a total area of about 30 000 km^2 and has a population of 2.6 million[5] people. Stockholm, the capital of Sweden, is the hub of the area. Almost 18 million tons of goods are handled annually in the region and about 9.4 million passengers pass through the terminals.

Table 6: The total annual turnover in the Stockholm – Mälar region

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Total	17,650	1,159*	9,400

The asterisk in Table 6 points to the fact that the quantity of oil is small, considering table 2. The figures from Södertälje, Oxelösund and Västerås are not included in the sum due to the statistics from those three ports are for six months only.

PORTS OF STOCKHOLM

The Ports of Stockholm group includes the ports in Stockholm city, Kapellskär and Nynäshamn. The owners are Stockholms Stadshus AB, with 91 % of the shares, and City of Stockholm, with 9 % of the shares. The port in Stockholm city is the central port for freight and passengers to and from Finland, Russia and the Baltic states. The ports at Kapellskär and Nynäshamn are the

[5] www.scb.se (Statistic Sweden)

satellite ports that form the supplement to the central port of Stockholm.

INNER PORT OF STOCKHOLM

The fact that road and rail communications to and from the port of Stockholm passes through the city centre can at times lead to congestion of the roads, which slows the traffic down. There are three different freeways in the area and one direct railway connection. As the port is located in the central part of Stockholm the public transport network with underground trains and busses provide a direct access for passengers.

Table 7: The total annual turnover in the inner port of Stockholm

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Stockholm	5,200	1,159*	8,000

Maximum draft in port varies from 5-11 m. The quays have a total length of 16 km where about 5.2 million tons (3.8 million tons import) cargo are handled and 8 million passengers pass through. A character of the port is the beautiful long and narrow passage through the archipelago.

PORT OF KAPELLSKÄR

The port of Kapellskär is situated 90 km north of Stockholm and is an important port for fast freight services to and from Finland and Estonia. Roslagshamnar AB (a subsidiary of Port of Stockholm) is the owner of the port. The port has a relatively short approach from the open sea. Freeway E18, road 76 and 77 connects the port to the main road net but there is no rail service available.

Table 8: The total annual turnover in the port of Kapellskär

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Kapellskär	2,200	-	1,300

Max size in port is 175 m length, 30 m width and 7.4 m draft at quayside.

PORT OF NYNÄSHAMN

The main road and railway infrastructure to and from the port of Nynäshamn requires improvement. The Port of Stockholm is in the phase of projecting an adjacent new port to Nynäshamn; the Port of Norvik. The ports are situated approximately 60 km south of Stockholm. The service provided from Nynäshamn is mostly cargo ferry traffic to Gotland, Gdansk and Ventspils. The owner is Nynäshamn Hamn AB, a subsidiary to the Port of Stockholm.

Table 9: The total annual turnover in the port of Nynäshamn

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Nynäshamn	350	-	100

About 350 thousand tons are handled annually in the port, where the quays have a total length of 570 m and max ship size is 210 m length, 30 m width and 8 m draft at quayside.

PORT OF HARG

The port of Harg is situated 130 km, approximately 1.5 hour by car, north of Stockholm, close to Öregrund. The municipality of Östhammar owns 78 % of the port, Hargs Egendom owns 11 % and Mellansvenska Logistiktransporter holds the rest 11%. Harg has both railroad and road connection.

Table 10: The total annual turnover in the port of Harg

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Port of Harg	500	-	-

The dominating handling is imports of forest products. Maximum ship size in port is 185 m length and 8.5 m draft at quayside. The

port approach from sea is a relatively short fairway through the archipelago.

PORT OF SÖDERTÄLJE

The port of Södertälje is situated at the intersection of the E4 and E20 highway only 30 km south of Stockholm and with direct railway access to the port. An administration company fully owned by the municipality of Södertälje is the sole owner of the port.

Table 11: The total annual turnover in the port of Södertälje

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Port of Södertälje	800	167 (Jan-June)	-

The goods handled are mostly imported cars, containers and general cargo. Max ship size in port is 200 m length, 32 m width and 9 m draft at quayside and the quays have a total length of just over 1 km.

PORT OF OXELÖSUND

Oxelösund is well served by roads with the E4 highway running in the north and south direction. E22 start close to Oxelösund/Nyköping and stretches along the coast southwards. The dominating types of product are ore, coal/coke, steel and oil. It is mainly an industrial port for SSAB where almost 2/3 of the total goods turnover is related to SSAB. The port has a ferry terminal but there is no operating service at present.

The municipality of Oxelösund owns 50 % of the port and SSAB Oxelösund AB owns the other 50 %.

Table 12: The total annual turnover in the port of Oxelösund

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Port of Oxelösund	5,000	23 (Jan-June)	-

The quays have a total length of just over 1 km and max size in port is 265 m length, 41 m width and 15.5 m draft at quayside. The approach from sea to the port is short.

PORTS IN MÄLAREN

The municipalities of Västerås and Köping own 55 % and 45 % respectively of Mälarhamnar AB. The lock in Södertälje limits ship dimensions in the ports in Mälaren to a length of 135 m, width to 19 m and draft to 7 m.

Port of Köping

The port of Köping is located close to the highway E18 that leads to Stockholm about 130 km east. The main railroad is passing close by the port area and the port is connected to the railway net. The quays have a total length of about 560 m.

Table 13: The total annual turnover in the port of Köping

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Köping	1,500	-	-

About 80 % of all handled goods are imported and the export is mainly goods from the local industry.

Port of Västerås

The port of Västerås is located at about 100 km west of Stockholm. The main road E18 passes by the port,which is also connected to the main railroad network. The quays have a total length of just over 1.4 km.

Table 14: The total annual turnover in the port of Västerås

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Västerås	2,100	270 (Jan-June)	-

There is no specific type of goods that dominates the handling in the port where imports are alloys, bio fuel and oil products and exports are forest products and mechanics.

5.2 Seaports on Åland

By active planning and progressive decisions the ports on Åland has been favoured by the new ferry traffic system when the tax-free system was abolished. The important issue in this is not only the commercial effect for the ports of having more port calls but also for the island to have a good communication with high frequency of ferry calls both to Finland in a domestic service and to Sweden for educational and social reasons.

PORT OF MARIEHAMN

The port of Mariehamn has become a ferry port of importance. In the past for being a resort for tax-free cruising and tourism and today for being the liberal free-port as Åland excluded themselves to be part of the tax-free abolish agreement in the EU. The ferries between Finland and Sweden are still counted as tax-free travels. However, as new countries with lower spot taxes on alcoholics but with more liberal allowances to be carried to Finland and Sweden plus the new tax cutting policy introduced in Finland, it is anticipated the ship owners will be more concerned about the trip cost. This will in the long run give less trips over Åland and more direct connection between the ports in Helsinki, Tallin and Stockholm.

Table 15: Port statistics from port of Mariehamn

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Mariehamn	-	-	2,199

PORT OF ECKERÖ

Port of Eckerö connects to Grisslehamn in a ferry service that has 6 trips per day. The crossing time is only 1.5 hrs.

Table 16: The passenger service to the Eckerö ferry terminal

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Ekerö	-	-	866

5.3 Seaports in the Southwest Finland and Uusimaa

The nine Finnish ports concerned by the Baltic Palette region are: Uusikaupunki, Naantali, Turku, Hanko, Inkoo, Helsinki, Sköldvik, Kotka and Hamina. The region covers a total coastal length of about 400 km and approximately 1,8 million people lives in the area. The capital Helsinki has about 560 000 citizens and the Helsinki Metropolitan area about 980 000 citizens. Almost 60 million tons goods are handled annually in the region and about 13.3 million passengers pass through the terminals.

Table 17: The total annual turnover in the Finnish part of the Gulf of Finland region

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Total	59,100	5,999	13,295

PORT OF UUSIKAUPUNKI

The port comprises the two ports Kemira and Hepokari. Kemira handles raw material for fertilizers and nitrogen products. It is

connected to railway and the Finnish road network. Hepokari is specialised in handling general cargo. It is not connected to the railroad but to the road network.

Table 18: The total annual turnover in the port of Uusikaupunki

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Uusikaupunki	1,300	-	-

Max ship size in port is 220 m length and 10 m draft.

PORT OF NAANTALI

The infrastructure round the port is quite good with both road and rail connections. Goods mostly handled in the port are oil and general cargo. Naantali is specialised in the handling of large units.

Table 19: The total annual turnover in the port of Naantali

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Naantali	7,000	1,300	100

The quays have a total length of just over 1.5 km and max ship size in port is 200 m length and 13 m draft.

PORT OF TURKU

The majority of handled goods in Turku are general cargo and mainly Ro-ro ships and passenger ferries call at the port. Turku is the only port in Finland that receives train ferries (from Stockholm and Travemünde) and it has good rail connections to the Finnish rail network. However, the capacity of the roads needs improvement.

Table 20: The total annual turnover in the port of Turku

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Turku	4,000	149	4,000

The quays have a total length of about 5 km for foreign traffic. Max ship size in port is 250 m length and 10 m draft.

PORT OF HANKO

The port is divided into the Outer Harbour and Western Harbour. The western is used by liner traffic and serves the paper export as well as truck, trailer and passenger traffic. The outer harbour provides facilities especially for the Finnish vehicle import and unloading of chemicals. Approximately 200 vessels visit the harbour each year. Hanko is connected both to the road and rail network.

Table 21: The total annual turnover in the port of Hanko

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Hanko	2,700	-	170

The quays have a total length of about 1.9 km and max size in port is 250 m length and 13 m draft.

PORT OF INKOO

The port of Inkoo has a direct connection to the road network. However, there is no railway network connecting the port. The major type of products handled in the port is bulk cargo. It is Finland's main port for handling different types of raw material.

Table 22: The total annual turnover in the port of Inkoo

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Inkoo	2,000	109	-

The quays have a total length of about 800 m and max draft in the port is 13 m, in Inkoo Shipping Harbour basin the max draft is 7.8 m.

PORT OF HELSINKI

The port specialises in unitised cargo traffic and it is the most important passenger harbour in Finland with service to Sweden, Åland Islands, Estonia and Germany. The port has good road and rail connections but road traffic is often jammed in central Helsinki. Because of area and traffic restrictions the port will be moved from the Helsinki city centre to a new location east of Helsinki. The new port at Vuosaari is a large project that will take over all the container handling and the present port will be closed down as a new port opens end of 2008.

Table 23: The total annual turnover in the port of Helsinki

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Helsinki	11,000	483	9,000

The capacity of the port is about 12 million tons of unitised general cargo annually. The quays have a total length of approximately 8 km and max draft in port is 11 m.

PORT OF SKÖLDVIK

The port of Sköldvik is Finland's biggest port in terms of cargo volume. Annually the volume of handled goods is about 17.6 million tons.

Table 24: The total annual turnover in the port of Sköldvik

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Sköldvik	17,600	3,500	-

5.4 Kotka and Hamina

The ports Kotka and Hamina are situated close together in the inner part of the Gulf of Finland. They are separate entities but share a number of functions. The infrastructure is shared as well. There is a heavy double track railway going north to the inner industrial area around Saimaa and with direct connection to Russia and St. Petersburg. Although not being part of the Baltic Palette area the two ports play a significant part in the supply of high value products to Russia that is shipped to the ports in containers for further delivery to Russia. Some of them are stripped before loaded onto trucks.

PORT OF KOTKA

The port of Kotka serves as Finland's biggest hub together with the port of Hamina (next section). There are good handling facilities for bulk cargoes, containers and oil products as well as general goods. It also has good rail and road connections especially to Eastern Finland and Russia.

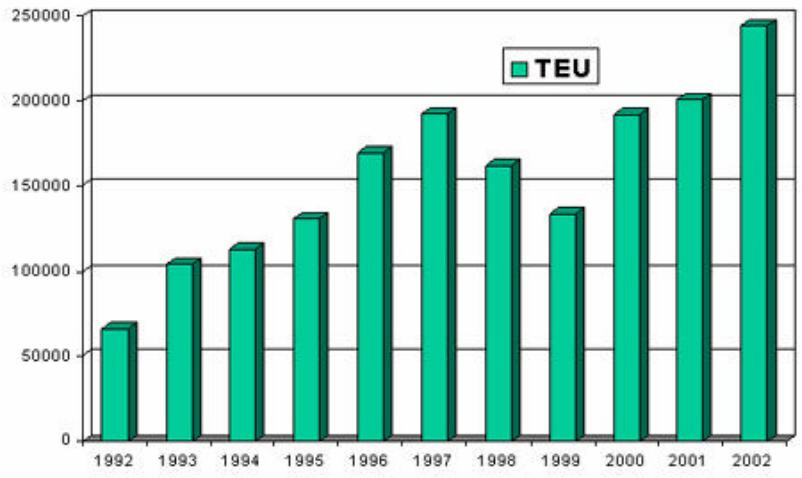


Figure 12: Development of the container traffic in the Port of Kotka

Table 25: The total annual turnover in the port of Kotka

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Kotka	8,500	18	25

Port of Kotka has three terminals Hietanan, the City Terminal and Mussalo which have three sections, the bulk terminal the oil terminal and the container terminal. Mussalo is the latest big port that has been built in Finland. It started the operation in the beginning of year 2001.

The quays are about 6 km in total length and the annual cargo turnover is approximately 8.5 million tons. Max ship length in port is 300 m.

PORT OF HAMINA

The port of Hamina group Ltd is organised in;

- a terminal for ro-ro STORO operation mainly of forest products;
- the Hamina port Terminals Lt that also is the head of a substantial area the oil terminal for petrochemical industries and;
- the Hamina Multimodal Terminal that is the container terminal that also serves the Trans Siberian Railroad in regular departures. The turnover in this service is of about 25 000 TEU per year.

Table 26: The total annual turnover in the port of Hamina

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Hamina	5,000	440	-

The infrastructure around Hamina is good with both rail and road connections. The length of quays is about 3.5 km and max ship size in port allows a draught of 10 m.

5.5 Russian seaports in the Gulf of Finland

The Russian seaports in the Gulf of Finland comprise The Big seaport of St. Petersburg and the ports in the Leningrad region, Vyborg, Vysotsk, Primorsk and Ust Luga. Totally in the region about 30 million tonnes goods are handled annually and about 100 000 passengers pass through the terminals. The turnover of products handled in the area is increasing strongly. The big port of St. Petersburg handled 44 M tons in 2003.

In addition to this there are some new terminals in the northern part of the Leningrad region that is built up for the export of huge quantities of oil. This is to be distributed to the terminals by pipelines. The major one is Primorsk that shipped out 12 million tons of crude oil in 2003 and estimates to reach 80 million tons in 2006[6]. TNK-BP plan to start up a terminal north of Primorsk provided that the environmental conditions can be met. The starting up will be in 2004 if permissions are acquired and it estimates to deliver 18 million tons 2006. A new terminal on the south west side of the island Vysotsk, Lukoil, shipped out 2 million tons 2003 estimates to export 11 million tons in 2006. This terminal is not having its oil supplied by pipeline like the others but by rail.

The development of terminal Primorsk is a result of an extensive investment in a Baltic oil pipeline system that connects the oil fields in Siberia to the terminals in the Gulf of Finland. The total investment in the pipe system is about € 2.7 billions and is estimated to have a final capacity of 100 million tons oil per year

[6] Source; Interview in DI (Swedish economic Newspaper) with MD Vladimir Kananuchin, Baltnefteprovod

in the Baltic Pipeline System of the 420 million tons that is produced in Russia.

The oil terminals in the Baltic Sea are purely oil piers and will not function as ports for other type of shipping activities. These terminals Primors and Lukoil are not included in the following presentation.

There is a Federal transport aim program "Transport-technological supply of goods transited over the infrastructure in the Finnish Gulf; Russian transportation system modernisation". The program concerns the development over the years 2002 – 2010 and includes also the inland waterways and inland waterway transports. The program aims at strengthening the infrastructure, mainly the railway and roads, to the port zone.

THE BIG SEAPORT OF ST. PETERSBURG

The Big seaport of St Petersburg group includes the ports in ***St Petersburg***, ***Lomonosov***, ***Bronka port (New Port of Lomonosov), Litke Base complex in the port of Kronshtadt*** and ***Gorskay Port***. The port of St Petersburg is affected by ice conditions from December to April.

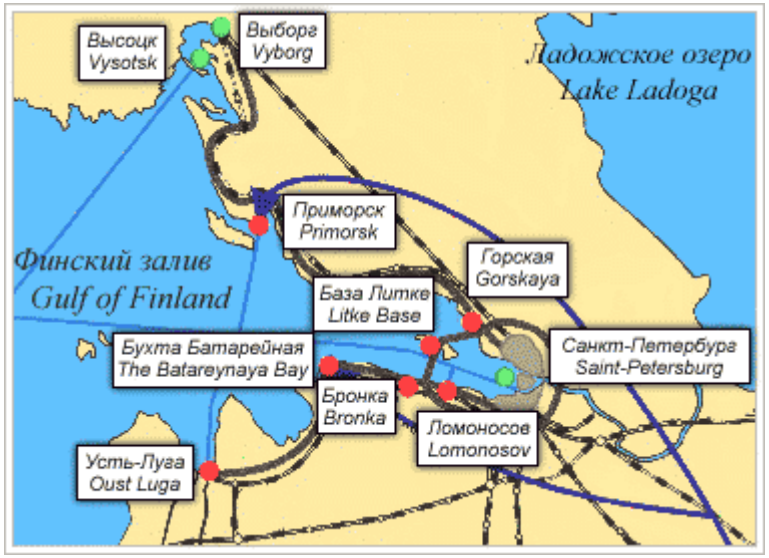


Figure 13: The ports in The St. Petersburg area and Leningrad Region

Table 27: The total annual turnover in the Big seaport of St. Petersburg

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Total	28,050	9,980	100

Port of St Petersburg

The city port of St. Petersburg contains the Container terminal, the food and general cargo and some bulk handling. The port will be divided into four individual districts until 2010.

The state of rail and road communication is acceptable but need improvements around the port of St Petersburg. The main problem is the low capacity of railway approaches to the port. The quays have a total length of approximately 8.4 km.

Table 28: The total annual turnover in the port of St Petersburg

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
St Petersburg	23,200	9,980	-

Max ship size in port is 260 m length, 40 m width and 11 m draft at quayside.

Port of Lomonosov

The port of Lomonosov is situated about 35 km west of St Petersburg. Road and rail connections are poor. Max ship size in port is 140 m length, 30 m width and 5 m draft at quayside.

Table 29: The total annual turnover in the port of Lomonosov

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Lomonosov	450	n.a	-

Bronka

The port Bronka is at close to new port of Lomonosov. It has a depth of 5.3 m and a 85 m wide approach channel. The port is built as an answer to the new demand of port capacity.

Litke Base

The port of Litke Base is located on the Kotlin island. The port is under construction and will be finished after the Storm Surge Barrier in the Gulf of Finland is ready.

Gorskaya port

North of St Petersburg the Port of Gorskaya is situated. The port is ready as concerns berths and approach channel. The port will have a draught of 4.5 m.

SEAPORTS IN THE LENINGRADSKAYA OBLAST

The demand for port capacity is huge in Russia and in the Baltic Sea. There are a number of larger port projects going on and some have started its production in the first years of 2000.

Port of Vyborg

The port of Vyborg is connected both to the Russian rail and road network. The export goods mainly handled in the port are coal, rolled iron and fertilisers. The import is only 4 % of the turnover in the port. Vyborg has ice conditions from December to April.

Table 30: The total annual turnover in the port of Vyborg

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Vyborg	1,300	n.a	100

Port of Vysotsk

The port is mainly in use for bulk cargoes, such as coal and iron ore pellets. Vysotsk has ice conditions from December to April and it is connected both to the Russian rail and road network.

Table 31: The total annual turnover in the port of Vysotsk

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Vysotsk	3,100	-	-

The quayside length is 680 meter and max ship size in port is 135 m length and 7 m draft at quayside.

Port of Ust Luga

There are presently two port zones in the Ust-Luga area. The existing port area is situated in the mouth of Luga River that enters

the sea in the south part of Luga Bay. The port handles yearly abt 200 000 tons of cargo, mainly fishing ships and timber for export.

UST-Luga, the newest Russian Baltic port, is today under development. It will be situated on the eastern side of the Luga Bay. The port has announced plans to expand annual coal export shipments from a level of 1 M tons target year 2004 to 4 M tons in about three years time.

Coal and timber are the main cargoes handled by the port. The key to cargo growth is the costly upgrading of the rail infrastructure between the port and the main rail network servicing St Petersburg. An electric train is planned to run between St Petersburg and Kingisepp. This train will then extended its service to Ust-Luga. Also the road network needs improvements in the area.

By 2005 it is planned that it the port should be able to ship up to 8 M tons of goods yearly. In 2007 it should reach a planned capacity of 35 M tons per year, 15 M tons of which should be moved by rail. Presently there are discussions to build an oil terminal in the north part of the new port area on the east side. Such a terminal would be as far out of the Gulf of Finland that is possible and still be on Russian territory.

5.6 Seaports in the Tallinn region

The area around the capital Tallinn is the dominating shipping area in Estonia. The port expansion is fast both in ferry operation and in all forms of commodities. In the Tallinn area there are also shipyards and larger industries.

Table 32: The total annual turnover in the Tallinn region (oil y. 2000)

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Total	37,200	19,000	5,937

PORT OF TALLINN

The port of Tallinn consist of four harbours; ***Muuga, Tallinn Old, Paljassaare*** and ***Paldiski South***. The Old Port and Paljassaare are located within the territory of Tallinn city. Muuga is located 15 km east of the capital and Paldiski 40 km to the west. All ports are connected to the rail and road network. The bay is frozen only on severe winters and is kept open all year by icebreakers. In the Port of Tallinn approximately 37 million tons of cargo are handled and 6 million passengers pass the port every year.

PORT OF MUUGA

About 75 % (30 million tons) of Port of Tallinn's cargo handling is in Muuga. The port mainly handles liquid and dry bulk, grain timber and general cargo. Max ship's size in port is 280 m length and 40 m width at quayside.

Table 33: The total annual turnover in the port of Muuga (oil y. 2000)

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Muuga	30,000	19,000	6

OLD PORT OF TALLINN

The port handles imports of containers, sugar, Ro-ro cargo and foodstuffs and exports of timber, metal, Ro-ro cargo, containers, chemicals and fertilisers. About 11 % of the cargo handling in the Port of Tallinn is done in the Old port. Max size of ship in port is 240 m length and 40 m width at quayside.

Table 34: The total annual turnover in the old port of Tallinn

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Old Port of Tallinn	3,400	n.a	5,800

PORT OF PALJASSAARE

About 6 % of Port of Tallinn's cargo handing is in Paljassaare, i.e. 2 million tons. The port handles timber, oil products, coal and general cargo.

Table 35: The total annual turnover in the port of Paljassaare

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Paljassaare	2,000	n.a	0.6

Max ship size in port is 190 m length and 30 m width at quayside.

PORT OF PALDISKI

1.8 million tons represents about 5 % of the cargo handing in the Port of Tallinn.

Table 36: The total annual turnover in the port of Paldiski

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Paldiski	1,800	-	130

The port handle exports of scrap metal, timber, dry bulk peat and Ro-ro cargo and imports of general and Ro-ro cargo. Max size in port is 140 m length and 20 m width at quayside.

5.7 Seaports in the Riga region

The Ports in the Riga region is located in the Bay of Riga. Because of the shallow shores around the bay it is a closed shallow sea with a relatively narrow fairway. In wintertime the ice will cover the bay and in severe winters strong ice breakers are needed to support the ships calling the ports.

Table 37: The total annual turnover in the Riga region

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Total	18,450	5,100	250

PORT OF RIGA

Port of Riga has both rail and road communication. The port of Riga is influenced of the ice situation in the region approximately 1- 4 months per year but the port is open all year round. The quays have a total length of approximately 14 km.

Table 38: The total annual turnover in the port of Riga

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Riga	18,000	5,100	250

Max ship size in port is 225 m length, 35 m width a depth of 11.5 m at quayside.

PORT OF SKULTE

The port of Skulte is mainly a fishing port but is one of the most successful small ports in Latvia. There is a limited access to rail and road connection to and from the port. Max size in port is 110 m length and 5.5 m draft at quayside.

Table 39: The total annual turnover in the port of Skulte

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Skulte	100	-	-

PORT OF SALACGRIVA

The port mainly handles pulp logs, sawn timber and fish. The Port of Salacgriva handled in 1999 approximately 50 % of cargo turnover in the small Latvian ports. The quays have a total length of about 500 m and max size in port is 115 m length, 20 m width and 5.5 m draft at quayside.

Table 40: The total annual turnover in the port of Salacgriva

	Goods handled [1,000 ton/year]	Whereof oil [1,000 ton/year]	Passengers [1,000 pass/year]
Salacgriva	350	-	-

6 The Cruise market

The **cruise** market is a holiday market rather than a transport market. The market grew by 13 to 14 per cent per year during 1998-2000, but in 2001 a close to zero growth was recorded followed by 5 per cent growth in 2002. Last year 63 per cent of the cruise passengers were American and 27 per cent were European. Early figures indicate that the cruise growth in year 2003 was about 12 per cent.

Cruising in the American waters dominate (Caribbean, Alaska, Mexico, Hawaii and South America), but cruises in Europe (Mediterranean, Baltic Sea and North Cape) have shown a positive development. In 2002, European cruises accounted for 23 % of the total market.

The cruise sector enjoyed strong growth for a number of years when it was seriously hurt first by the effects of September 11 and thereafter by the outbreak of SARS. SARS has ceased to hamper the demand for cruises. The 9/11 paralysis was starting to ease off when the situation in Iraq seemed to be resolved. However, recent development in Iraq, Turkey and Israel/Palestine will hit the cruise market in the short term, especially in East Mediterranean.

A widened circle of customers in combination with a strong population growth within the 40-54 age range forms a solid starting point for further growth in demand for cruising capacity.

The consolidation process in the cruise industry has been strong. After a recent merger Carnival is to operate 13 brands this year, including Princess, Holland America, P&O, Cunard, with substantial shares in the German, Italian and Australian markets. The fleet will encompass 66 ships of 100,000 berths with a further 17 ships of 42,300 berths on order. Other big operators are Celebrity/RCCL and NCL/Star.

There is no immediate threat to the leading position of the dominating large operators, but word has it that a “no frills” concept à la Easy Jet is on the march. One of the obstacles that a new actor would face is that the big three are reluctant to sell their second hand ships to other players and thus the entry barrier is quite high. However, the recent more difficult market has made some of the smaller actors vulnerable, which might put some second hand tonnage on market.

The accumulated tonnage in the world in 2002 had a capacity of 271 418 lower berths, which is 6.3 % more than the year before. By the turn of the year 2002-2003 are ships with a total capacity of 60 741 lower berths in the order book which is a dramatically reduction from previous years. Once again are the September 11 and the stock market crash the reason, but also the fact that the access to shipyard subventions has reduced and with that the possibilities to get low capital costs for the investments. However, the market agrees fairly about that new orders will be placed again within the coming year. Providing the number of passengers continues to grow – which most indications show – new tonnage will soon have to be ordered for delivery 2006 and thereafter. The industry is capacity driven and will therefore need more berths.

The largest second hand markets outside the Caribbean are the Mediterranean, northern Europe and Alaska in mentioned order. Subordinate second hand markets are Africa, Far East, St Lawrence with Bermuda, Australia, South America and Mexico. To that adds, during December to March, round the world cruises which however only are carried out by just over ten ships. Alaska is smaller than the Baltic area (incl the North Cape) and it shows

another pattern. The capacity that is sent to Alaska during springtime (May) usually stays in the area until September. During this period there are no big changes. But outside the period the climate is of the character that cruises are not attractive. Some cruise ships go however directly from the Caribbean or the subordinate second hand markets but a large part is transferred via the Mediterranean. Thus the Mediterranean cruises are the most frequent ones during spring and fall with a small decrease during summer. This means that the Baltic area are at the maximum during June, July and August while the area in May and September has less berth capacity than Alaska. The Baltic area is very sensitive for season variations and competes internally with the Mediterranean. The Baltic got the benefit of being rather close to the Mediterranean when it attracts large capacity to Europe.

6.1 The Baltic

The Baltic Sea shows good geographical structure for cruises. During a given period, usually 7 or 14 days, it is important to be able to combine interesting destinations, preferably every day. This is not a problem on the Baltic market. Larger cities can easily be combined with smaller, why the mix is miscellaneous and interesting for the passengers. For example, the combination Stockholm and Visby is an especially successful one. Obviously is the entire development within the Baltic States during the 90s is a contribution the increasing cruises. Previously calls where made to St Petersburg, but these days also Tallinn, Riga and Rostock contribute to make the cruising products more attractive. The fact that the ports have been cooperating have been very successful and the supply of information is a competition promoting argument. Considering number of calls, Stockholm is one of the larger ports in the region but it is smaller than both Copenhagen and St Petersburg. Copenhagen is a "water divider" and ships on the way to both the Baltic Sea and the North Cape call on the port.

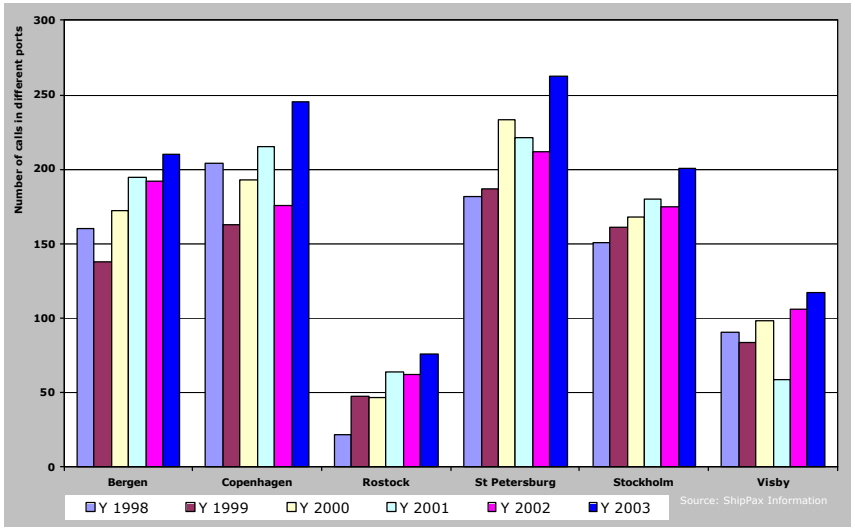


Figure 14: Number of calls in some Baltic Sea ports

The Caribbean has during winter a capacity of just over 160 000 lower berths, while the Baltic Sea region at the most reaches a capacity of 48 198 lower berths (July 2003). Inversely the Caribbean is drained of capacity during the summer and reaches a capacity level of just over 65 000 lower berths. This means that the combined European markets, the Mediterranean and the Baltic Sea, these days are bigger than the Caribbean during the summer.

Figure 15 clearly shows that the accumulated capacity of cruise berths in the Baltic area has accelerated. Compared to 1988 the capacity in the Baltic Sea is more than double today. The graph also shows that the largest increase occurs after 1996. The growth during the winter months, among other things the estimated figures for 2003, is mainly from the increasing number of new and modern ships for the Norwegian Hurtigruten (Bergen-Kirkenes).

These are cruise ships per definition and are therefore included in the statistics. Another capacity raising factor is that Silja Line has started with cruises in the Baltic with SILJA OPERA. Since the cruise ship's bookings usually are up to 95 and 100 % of the capacity, this is reflected in the number of cruise guests who actually travelled in the Baltic Sea area.

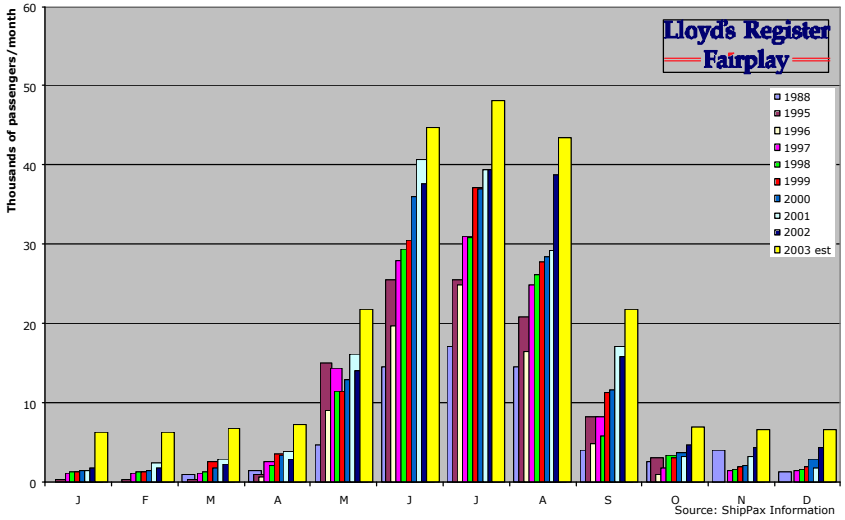


Figure 15: Passenger capacity in the Baltic Sea

According to Shippax Information the number of American tourists on the cruise ships in 2003 were as many as the Europeans, which is an interesting observation.

The ships that travel in the Baltic Sea area show a tendency to grow in size. That does not only reflect the general trend among cruise ships but also the fact that the big cruise operators these days choose to let the more modern ships cruise these waters. European shipyards deliver some of the ships and then the cost advantage by not sending them to the Caribbean is used and the ships cruises the European waters until fall. Just a few years ago Europe was a test market and only the older and smaller ships cruised here. Hence the conclusion can be drawn that Figure 15 mainly reflects the increased capacity per ship and not so much the extended number of calls. For the ports this means that the possibility to offer a ship berth is the smaller problem. It is the possibility to offer a ship birth with enough length that is the main problem.

Out of the about 70 cruise ships that move in the Baltic Sea region during July, the smallest are about 70 meters long and can take 80 passengers. The largest has 2 496 lower berths and the longest is 294 meters. 16 of the ships are longer than 200 meters.

Unlike other big markets such as the Caribbean and Alaska, there is no clear dominance among the shipping companies. The fact that there are several smaller European shipping companies that operates with mostly European guests is the reason for the big spread. The time directly after September 11 - 2001 the American cruise companies withdraw the cruising services to safe areas in so called "Homeland Cruising". These cruise services started at close range from American ports that could be reached by land transports. A normalisation process by moving tonnage back to Europe has started. With this the Baltic Sea region is noticeable favoured as a stable and safe area in relation to the Mediterranean due to the Iraq crisis, and the tension in the Middle East. A good airport with international connections in the vicinity is important to be able to develop a so-called cruise hub, i.e. where passengers start or end a cruise trip. A hub shows thus much better turnover per passenger since the passengers often stay in a hotel before and/or after they board the cruise ship. Therefore they also have more time to purchase and spend money in the city. Stockholm has shown a positive growth and has today developed into a small hub. This is partly because Copenhagen is starting to be over-booked during the attractive period.

7 The Ferry market

There are several different ship concepts that are referred to as ferries. The definition of a ferry is that the ship has the capacity of carrying passengers. Over the last years new ferry concepts has been developed to meet the new market after the tax-free abolition in Europe. This type of ferry is called RoPax that is short for a Ro-ro ship having passenger capacity. The previous North European/Scandinavian ferry concept was more focused to passengers as the main source of income. A consequence was that the most common tonnage was a combined ferry or a cruise ferry. Figure 16 illustrates the different type of ferries.

	Ro-ro		**Ferry; cargo**			**Ferry; non cargo**	
			RoPax		**High speed**		**High speed**
							
	Dedicated	**Open Liner**		**Cruise**		**Ferry**	
							
Cargo	Yes	Yes	Yes	Yes	Rarely	No	No
Trailers	Rarely	Yes	Yes	Yes	Rarely	No	No
Passenger	No	12 drivers	200 - 600	500 - 2000	200 - 600	500 -	100-1000
Train	No	Occasionally	Occasionally	No	No	No	No
Cars	No	Limited	Yes	Yes	Yes	No	No
Day cruise	No	No	Occasionally	Yes	Rarely	Yes	Occasionally
Conference	No	No	Yes	Yes	No	Yes	Rarely
Entertainment	No	No	Occasionally	Yes	Occasionally	Yes	Occasionally

Figure 16: The different kinds of ferries including Ro-ro ship with capacity to carry drivers

The **ferry; non cargo** market (i.e. passenger only vessels) is to a large extent characterised by a transport need between islands, across rivers or bays. The basic demand is generally from residents, topped off with seasonal tourist traffic.

A lot of the traffic is in domestic trade, but there are exceptions, the Victoria-Seattle trade being one.

In the ferry; non cargo segment 669 out of 2,784 ships are high-speed (30+ knots), which could be regarded as a market within a market. Out of these 50 % are multi-hulled.

Standard ferries (combined ferries) or ro-pax mainly do the passenger service in international traffic.

The **ferry; cargo** market is a combined cargo and passenger service and predominantly short sea shipments of Ro-ro cargo. These cargo services normally come in two port liner services where you also find a large share of runners (trailers with trucks and drivers). The drivers prefer the passenger ferries from a social point of view and for the higher level of passenger service. This can be a problem for the ferry operators in the summertime when the ferries are full of passengers and the operator would prefer to have the trucks on the ro-ro service departures.

The time for rest is also a crucial part of the how much runners the service can attract. The driver needs the rest to be able to do a full day driving behind the wheel. If the service is too fast the driver does not get his rest and have to stop and rest before continuing. If the rules and regulations were followed in this respect the ideal time of passage would be 11 hours to have a full rest. However all ferry services of four hours and more are of interest to make the time as productive a possible. Today the control is not as strict as it will become when the use of new EU trip recorders will come in force. Never the less the possibility to rest on the ferry will be of importance also in the future.

In Scandinavia the actors in this market segment have gone through a consolidation process over the last five years as a result of the number of fixed links (bridges & tunnels) being constructed and the abolition of tax-free. In response, operators have also changed from a passenger to a trailer/cargo focus.

However, we find a number of exceptions where the passenger compartment of the ferries to a large extent is designed for cruise service. These ferries are normally trading in a “city-to-city” concept offering short cruise travels.

The high-speed segment within the cargo ferry market is relatively small. Merely 123 of the 3,015 ships in the fleet have a speed of 30 knots or more. 70 % of these are multi-hull vessels.

The short sea shipping **Ro-ro** ferry operation typically transports trailers or semi-trailers. The service can be regarded as an extension of the road network. The service is operating in semi- to long-distance relations and in some cases as added capacity to a combined ferry operation.

The short sea Ro-ro operation is losing volumes to the container services. The fast containerisation of the market gives new opportunities and higher productivity for smaller volumes that the market finds more interesting than using the Ro-ro ferries. Ro-ro cargo that was transferred and containerised in the central European container terminal are now containerised closer to the shipper or stripped by the consignee. The container depots are increasing in the BSR as the container services are growing. The use of containers gives in some relations and for some products

better cost efficiency and less handling of the cargo than some other shipping solutions.

The market share for the **Ro-ro ships** in transoceanic trades has thus decreased following the rapid development of containerisation. However, when using the Ro-ro technique in short sea shipping the flexibility in carrying goods and the fast load and unloading makes up for the disadvantages of the rather expensive trailer units (high capital, maintenance and registration costs). This is especially recognised in ferry relations where the drivers are travelling along with the trailer during the ferry trip (runners). The shorter sea routes have a high percentage of drivers that accompanies the trailer as presented in Figure 17.

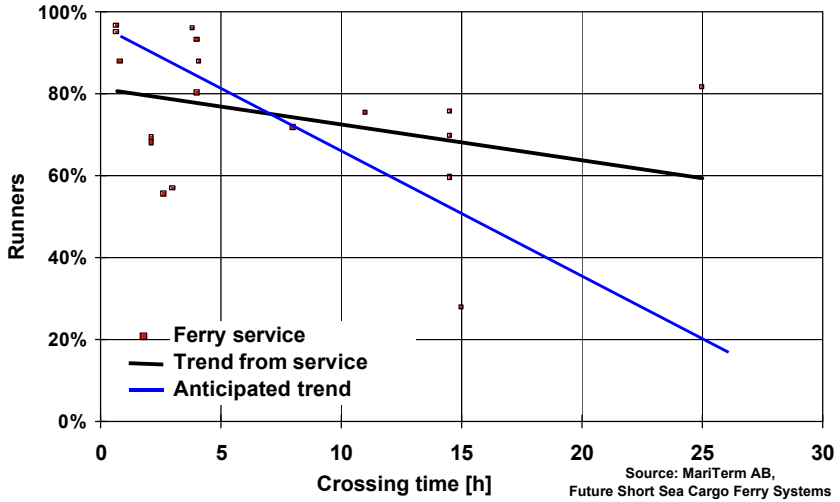


Figure 17: Percentage of runners as function of crossing time.

These drivers are very important as they have a certain option to choose which service they will use and which route to take. In some services the result has been that the driver preferred the service from the larger ferry where there is a better passenger service onboard, entertainment and a more options of food and company.

The Ro-ro fleet is thus fighting for cargo with container vessels on one hand and cargo ferries on the other. While the combined ferry traffic has the advantage (and the cost) of carrying passengers as a feature the Ro-ro fleet cover its costs by transporting dangerous cargo and other types of cargoes that is not suitable to combine with passengers. For this reason we see more and more lines that adds or increase the Ro-ro capacity by adding a Ro-ro ship to the ferry two-port service for flexibility and for the economy.

Another part of the Ro-ro fleet is engaged on long term contracts with large industries on defined trades. These are typically industrial shipping services where the Ro-ro operation forms a link in a supply chain management that use the flexibility of the system for late bookings, to carry any type of products and to offer return cargo capacity for own and third parties to keep the operation as cost efficient as possible.

The Ro-ro fleet is relatively fragmented with a lot of smaller operators all over the world. As many other industries the shipping industry is in transition. This change looks like the structural change within other industries, with a concentration by merging with or purchase of competitors. However, the ferry business is characterised by a slow development or a direct reluctance for such a process. One cannot disregard that the ferry industry and its transport pattern is a multifaceted business that demands experience. That means that potential buyers of a ferry service often are established and growing ferry companies, while it is extremely rare that other established shipping companies, within for example bulk, tank or container shipping, involve themselves in the ferry industry. It is

therefore very likely to find the big owners of ferries today as the big actors on the ferry market in the future.

One strong reason for the concentration process is the cessation of the tax-free sales on board ferries within the European Union. The loss of income from the tax-free sales has forced ferry companies to consolidate the operation and to secure the economy in the ferry industry by expanding into new regions.

The politicians in Europe have helped the industry through tax reduction schemes. The shipping companies can, depending on flag state, be compensated to various extents. It also gives the ship owner the freedom to engage the ships in various services so that the use of the fleet can be more optimised.

7.1 The Baltic

Historically the ferry traffic in Northern Europe has grown by transporting passengers and to offer entertainment. Since the abolition of the tax-free system the economical focus has shifted from passengers to cargo. A great deal of the ferry industry has adapted the tonnage to the new situation. In addition the ferry traffic between Sweden and Denmark are since July 2000 competing with the Sound Bridge, a fixed-link between the two countries.

The ferry service is to a large extent a link in the land transport infrastructure where the rail and/or road are connected to waterways that cannot be bridged by a permanent road connection. This type of ferry operation is in way of business a shipping service but as infrastructure it is a part of the road /rail land infrastructure.

The ferry tonnage in Europe can be divided into three markets; long, medium and short distance services.

Long distance covers ferries that operate on lines where at least half of the trips are over night service. It means that the passenger capacity is limited to the number of cabins. The medium distance means ferries operating on services where at least one trip per 24 hrs occurs at night and because of that the cabin capacity is of importance. Short distance ferries operate on a service that is so short that no sleeping or resting capacity needed. The ferry has no cabin or bed capacity. The crossing time for a long distance ferry is at least 9 hours, a medium distance between 5 and 9 hours and for the short distance ferry the crossing time is 5 hours or shorter.

The second hand market for the moment is limited and every shipping company that seeks unique characteristics for a certain line will realise that the possibility to find competitive suitable tonnage is small.

The different market segments can roughly be divided in distance and if they are related to goods- and passengers markets. Each market is built on different motives that give the demand for capacity, service type, service level and the willingness to pay for services. The demand depends also on the development of the market and the hinterland of the service.

As previously explained the market strategy was heavily focused on passengers and their shopping onboard the ferries until the abolition of tax-free. The onboard sales were the major income of the service. The ferry industry in the Baltic Palette area has not been as much affected of this since a service that calls Åland still has the tax-free sales. The same applies to all services calling Finland or Sweden that calls the Baltic States.

FERRY TRAFFIC IN BALTIC PALETTE RELATIONS

Figure 18: The existing ferry operation 2003 show a significant concentration to Stockholm, Kapellskär, Mariehamn and Turku, indicating million passengers per year

In the long run it is anticipated that the effect following the change of taxation system eventually will give very little effects on the ferry systems. The result will be a reduction of cruising for pleasure and purchase onboard but will be substituted by tourism for the purchase of products in the other end of the travel.

The loser is the ferry operator who will profit only on the sales for consumption onboard and from the tickets. To compensate for the loss the ferry operator must increase the cost of the tickets and the profit from the onboard sales. The cargo transport will also be of higher interest than shipping passengers. However, it should be clearly stated that all sales of any kind onboard the ship that is sold for the consumption onboard, in restaurants, bars etc. are always tax-free and gives added income to the operator regardless of the service the ferry goes on as this is not controlled by the tax regulations.

It is essential to understand the situation for the ferry operators to produce the service and how they plan for the future.

In a tax-free service the operator buy the duty free products and adds his cost and profit to a level that gives a competitive price in comparison to the price in the connecting countries. As an example a bottle of whiskey cost around EUR 5 and the tax is about EUR 20 in Sweden and Finland. On board the ferry the price is about EUR 17, which will give about EUR 12 per bottle to the operator. As a tax-free trip the passenger can buy 1 bottle. While travelling from a EU country he may buy 10 litres of spirits. The tax differs between EUR 12 – 15 (the profit of the operator) between the Denmark/Germany and Sweden[7]and on one bottle.

This is one reason for a substantial increase in the passenger traffic on Germany and Denmark from Sweden.

The major difference with the new regulations is that the ship operator does not make the money onboard the ferry. The passengers will always buy the products where they are cheapest. Today there is no reason to chose a ferry that operates as tax-free service and only bring home one bottle when the option can be to chose a service on a EU country that is not-tax free and buy the products in a less expensive EU country and bring home 10 times more bottles in one trip.

In conclusion the result of the enlargement of EU has not lead to better incomes from tax-free sales that give benefits to the ship owner in direct terms. However, the alcohol tourism has and will increase but the ship operators will mainly be credited by an increased number of passengers. The increase cannot be compared to the income from tax-free sales onboard the ferries in the past. The only way the ship operator can be compensated is to increase the price on ticket and the freight on the ferries. This development has already started.

7.2 Ferry passenger traffic

Passengers demand better service the longer the trip is, but the minimum demand is the possibility to eat and shop onboard. Travellers are divided into a number of categories:

Business	›	Tax-free
Tourism	›	Conference
Pleasure	›	Cruises
Shopping	›	Visits

[7] Finland has lowered its duties on alcohols 40% in comparison to Sweden

The business category demands time tables that fits their purpose of travel.

The visiting travellers are a price sensitive category that adapts the number of travels to the cost, but also other adjustments like travelling route and crossing time are made.

Tourists choose and prioritise ferry traffic if the same is so unique that it is a tourist attraction in itself.

Pleasure trips are of the category one-day-on-the-sea as a vacation and/or travelling experience.

Tax-free trips or alcohol purchase tourism are when the main motive for the trip is to purchase alcoholic at a lower price than in the native country. Otherwise the passenger falls into the same category as the pleasure traveller.

Conference trips aims to attract the business conference parties that are very service demanding but also willing to pay for good service.

Cruise is of the same category as *Pleasure trips* but they expect a planned tour and to be hosted and entertained.

Shopping tourism. The activity is split in two characters,

a) The modern pleasure is to shop. There are however a number of conditions attached to the shopping in addition to find special prices on the products. One is that some kind of entertainment is offered to create added value of the trip.

b) The newly developed market for shopping taxed alcoholic products from a country that has lower taxes on alcohols.

Before the abolition of tax-free in the EU, a number of polls and "stated preference" studies where made. The studies show that the passengers have strong prise awareness that was clearly demonstrated by the responses. Crossing time and trip frequency are not as important for the shopping category of travellers. The travelling is however season related and concentrated to the summer season. The new tourism for shopping alcohols is more related to private occasions and seasons such as Easter, Christmas etc.

The passengers put great value to the service onboard. It is important to them to have access to both shops and restaurants. The business and visiting travellers appreciate the transport function rather than the service onboard but give priority the ticket price. This means that they would travel more frequently if the price of the ticket were reduced. They also give priority to a faster service in way of shorter crossing time.

7.3 Passenger travelling between the Baltic Palette ports

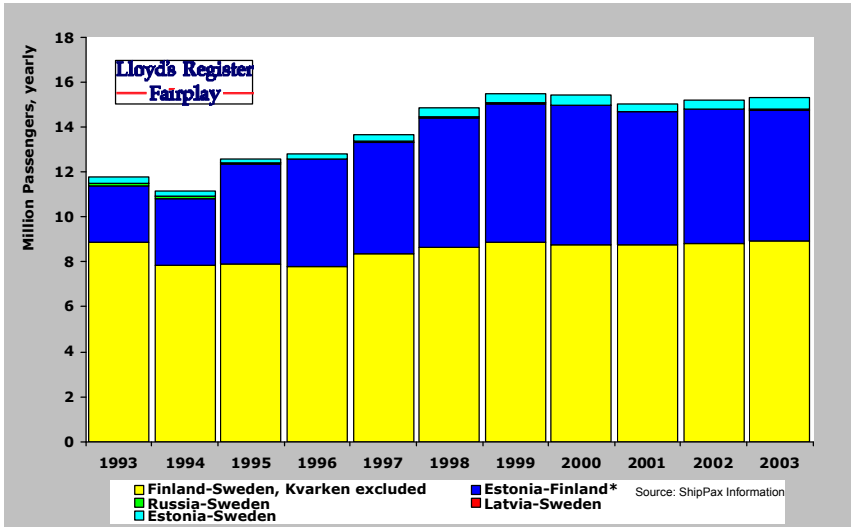


Figure 19: Passenger traffic between the Baltic Palette regions

* include cruise traffic and temporary service Helsinki-Tallinn-Riga

As Figure 19 indicates the passenger flows at an aggregated level within the region had been stable over the last six years. A large part of the passengers are heading to or from Helsinki, Finland.

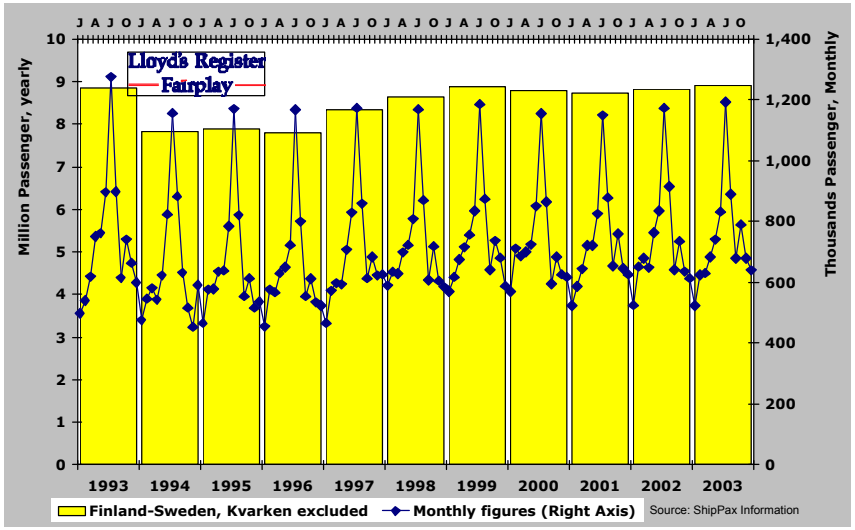


Figure 20: The annual and monthly trends of passengers between Finland and Sweden, excluding the Kvarken traffic

The last years have shown a remarkable stability of the numbers of passengers. The tax-free abolishment is hardly noticeable in the Figure 20. This due to the exception from the tax rules in EU that Åland has negotiated. The ferry operator are still benefiting from the system as the purchase of products onboard the ship is profitable for the operator. The service between Stockholm has a character of conference, cruising and visiting passenger service.

The service between Helsinki and Tallinn, illustrated in Figure 21, started to increase as soon as the liberation of the Baltic States started. The number of passenger travelling between the two countries is about ten times as high as the level between Estonia and Sweden. It will be interesting to follow the Estonian accession to the EU and its effect on the ferry activity. If we compare to the present situation between Sweden and Germany/Denmark the all year tourism will increase in form of shopping tourism. However, this is very much depending on the alcohol politics from the Finnish governmental side.

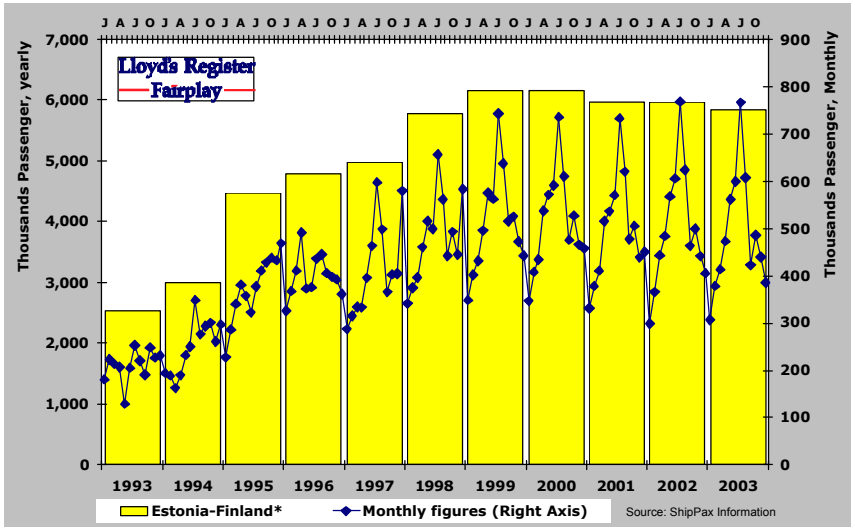


Figure 21: The passenger development on ferry services between Helsinki and Tallinn

The domestic traffic between Åland and the Finnish mainland is clearly influenced by the conditions of tax-free sales.

It should be mentioned that Tallin has become a major ferry port over the last few years. This is very much because of the low tax on alcohols in Estonia.

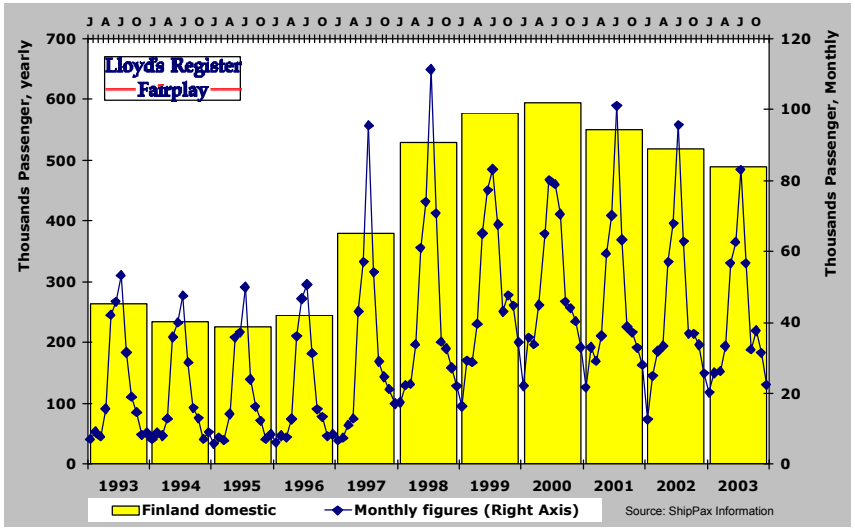


Figure 22: Ferry passengers between Finland and Åland

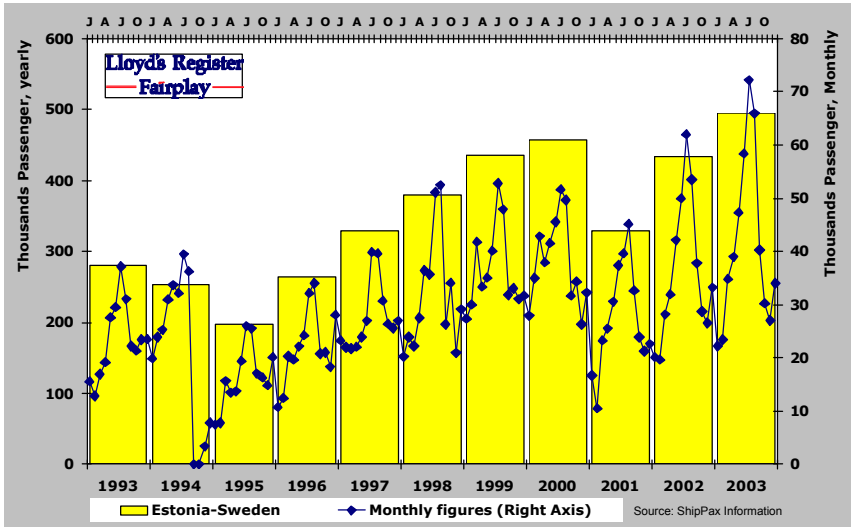


Figure 23: The Ferry service between Estonia and Sweden.

When it stood clear that Åland should be exempted from the abolishment, the traffic build up to twice of the old volumes. The ferry service between Sweden and Estonia (Figure 23) has a history of turbulence and shift of operator. Since the mid of 1995 the service is operated by an Estonian company. Today the trend is an increasing numbers of passengers with high peaks in summertime that indicates a growing tourism. We have a regular visiting category as there are several Swedish residents that now freely can visit the Baltic countries and their relatives. The volume has continued to increase in 2003.

The ferry operation between Sweden and Latvia (Figure 24) is still in the establishing face. In 2003 the service was re-established between Riga and Stockholm, Frihamnen. The present service is three trips per week in each direction. The ferry can offer both passenger and trailer freights.

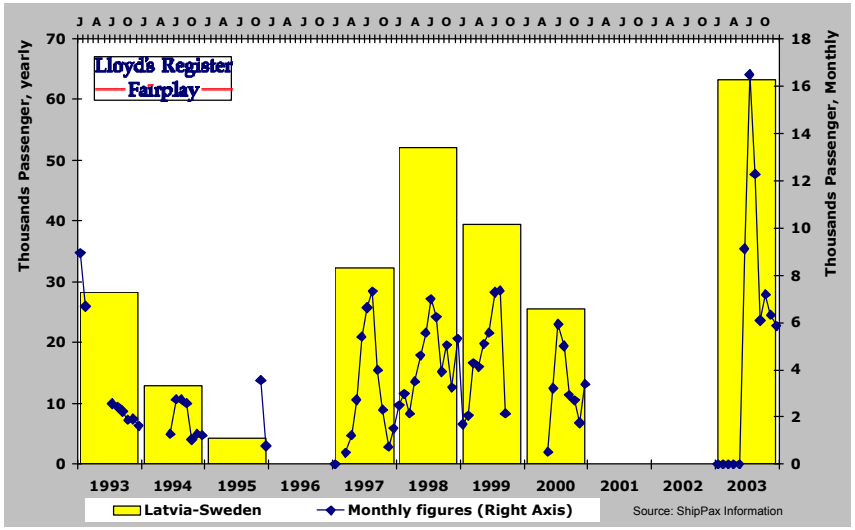


Figure 24: The annual and monthly trends of passengers between Sweden and Latvia within the Baltic Palette area

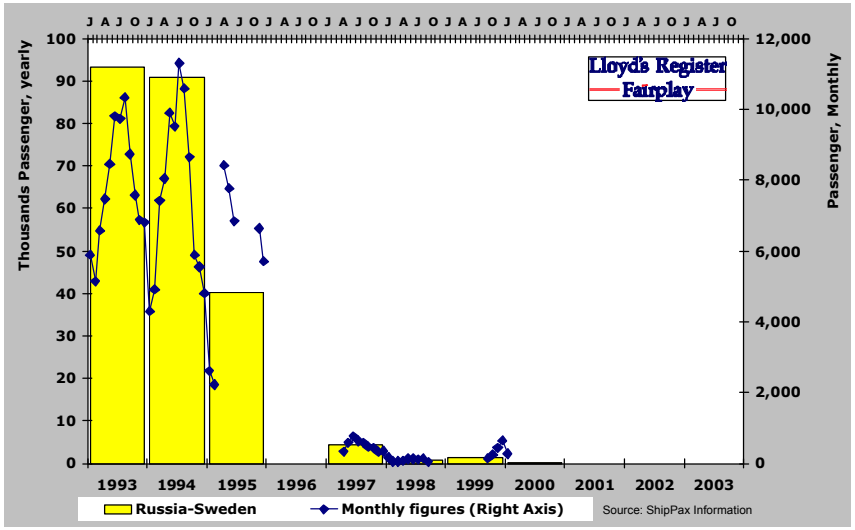


Figure 25: The ferry traffic between Russia and Sweden ceased in the beginning of the 2000

After a few trials the traffic between St Petersburg and Stockholm has ceased to exist as indicated in Figure 25.

The major reason is probably the high standard service on Helsinki that allows tourists to go to St Petersburg via the road (an approx. 3 hrs drive from Helsinki) as well as the demand of visa that is a hindrance for a swift trip to Russia. The plans of a better railroad connection between Helsinki and St Petersburg will do nothing to help this traffic.

7.4 Cargo transports on ferries

The factors that determine the choice of transport system are:

Destination	Character of consignee (end user or agent)
Transit time	Schedule and frequency of the service
Batch size	Type of cargo carrier
Costs	Cargo handling equipment

The cost of the transport can be a dominating part of the cargo value for some shippers. Hence, the design of the transport systems is as important for the shipper as for the consignee. The integration of storage and logistic functions between manufacturer and the consignee increases. It is quite common that when the manufacturing industry assumes the responsibility for the supply of the products to the clients, it also includes guarantees to manage the clients stock and the frequent supplies/deliveries from stock. The higher the goods value the stronger the integration. The logistics is more and more considered to be an active means of competition and is presented as a sales argument for the customers.

Ferry services are designed from a demand of short lead-time, customer controlled production and safety regulations. The result

is a door-to-door service that reduces handling and storage which justifies the higher frequency of shipping and more expensive way of distribution. In this context truck, trailer and Ro-ro based traffic has the advantages of short lead times, high time precision (due to door to door transportation) and lower risk of damage (the driver can supervise the loading and unloading and is personally responsible for the cargo all the way on road between the ends).

Most of the shippers use shipping agents to arrange their shipments, but it is also common for shippers to outsource the transport to one or a few and larger shipping companies with the capacity to cover a wider market and give supplementary types of transport services. Another way is to use a third or fourth party logistic service, which becomes more and more common. Shippers contract a logistic centre with high capacity to take responsibility for the entire transport chain. The advantage is to cut down on administration costs for bookings, damage control etc. by outsourcing the logistic function.

A number of factors, which varies between actors, influence the selection of port or ferry line. Some factors are common to most actors. These can be split in to categories (most of them are pretty obvious):

The geographical allocation: The position of the port in relation to the location of the cargo is of course important, but so is the infrastructure around the port. This may influence the total transit time as much as the distance.

The service of the operator: High frequency and/or good service is a prerequisite for the customer to choose the ferry. A quick and comfortable crossing is demanded as well as to arrive on the scheduled time. Truck drivers demand good food and comfort at a reasonable price. Ferry operators focusing on a high service level on board will naturally be the first choice when the drivers have an opportunity to influence the choice of port/crossing.

Time: Time and day of departure as well as day and time of arrival are very important factors especially at long distance transports. The timetable must be suitable to the demand of the main target group's and it can differ widely between cargo- and passenger categories.

Price: is always an important factor, a good contract can overcome many other factors. The price of the ferry service is primarily calculated to get a cost coverage and reasonable profit from the service. In many relations the competition decides the price of the ticket. In a virgin ferry operation the price of the ticket is mainly decided by the cost to introduce the traffic.

An evaluation of all-inclusive costs is what rules the choice of route. "Stated preference" studies show a direct priority to the transport route that gives the lowest cost for freight transports. When there is a choice between alternatives the one with the lowest total cost is almost always awarded. Small changes in service that act favourable on the cost will directly give changes favouring the connection. Long waiting times implies a cost increase that reduces the attraction. Over night departures are therefore of interest. The crossing time has no significant meaning if no faster alternative exists.

From a cargo point of view the service should have a timetable that satisfies the demand of the industry. The service should at the same time give the passengers a transport service.

The combination of the location of the terminals, the speed of the ship and the timetable will give the prerequisites for the chance that one specific industry favours the specific ferry service.

7.5 Trailer shipped on ferries between the ports in the Baltic Palette countries

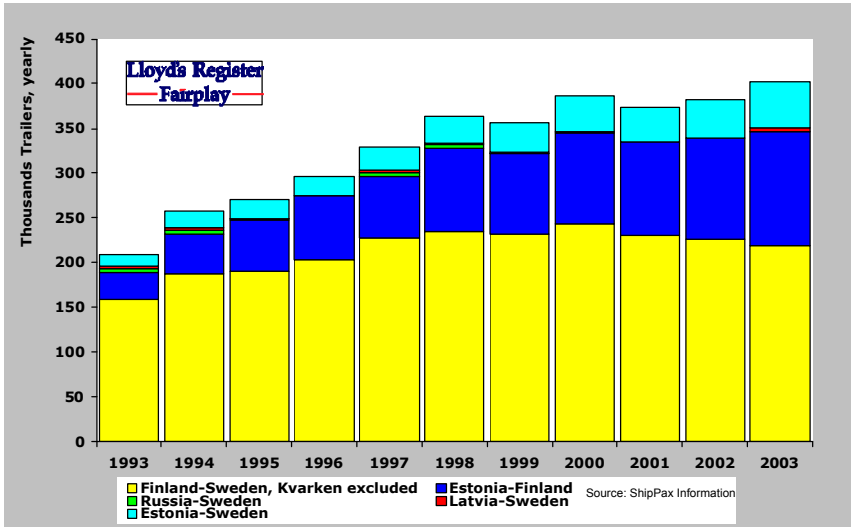


Figure 26: Trailer traffic between the Baltic Palette regions

The trailer traffic within the region has increased the last decade. It is the traffic to and from Estonia that has shown the strongest development. As opposed to the passenger numbers, in Figure 26 the traffic between Estonia and Sweden is clearly visible.

Most of the ferry activities are combined trailer – passenger transports. In this respect the ferry service function as a bridge connecting two road systems. The breaking up of the Soviet Union resulted in an integration of the east and west markets. This opened up for ferry services between the Baltic countries and Scandinavia/The Continent. The trailer is the most flexible transport unit that transport the cargo door to door. The trailer can be shipped as an individual unit or with truck and driver that will make sure the products are delivered to the proper address in good shape.

The development of trade between different countries is clearly shown in the turnover of cargo on the ferry routes, since small volumes almost always are build up here before going to other shipping modes. The build up of clients for the trailer traffic is a slower process than with the passengers, but it is usually a more stable one.

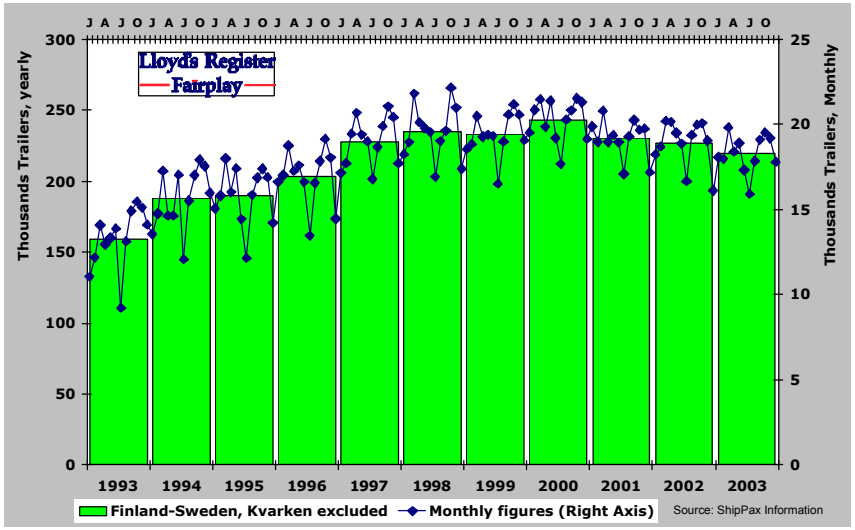


Figure 27: The trailer traffic between Finland and Sweden

As Figure 27 the trailer traffic at sea increased continuously in the 90'ies. However, between year 2000 and 2003 it decreased with 23 thousand trailers. This was not because of a decreasing trade between the countries, rather decreased transit traffic in Sweden thanks to better communication directly from Finland to the Continent. Some of the goods are also believed to be stuffed in

containers today. The trailer units transported between Sweden and Estonia is an example on a continuous development that relates to increased trading a growth that will demand new capacity in the future. The small drop in 2001 was most likely a consequence of the burst in the telecom bubble, since Estonian companies where a large supplier to Swedish telecom companies.

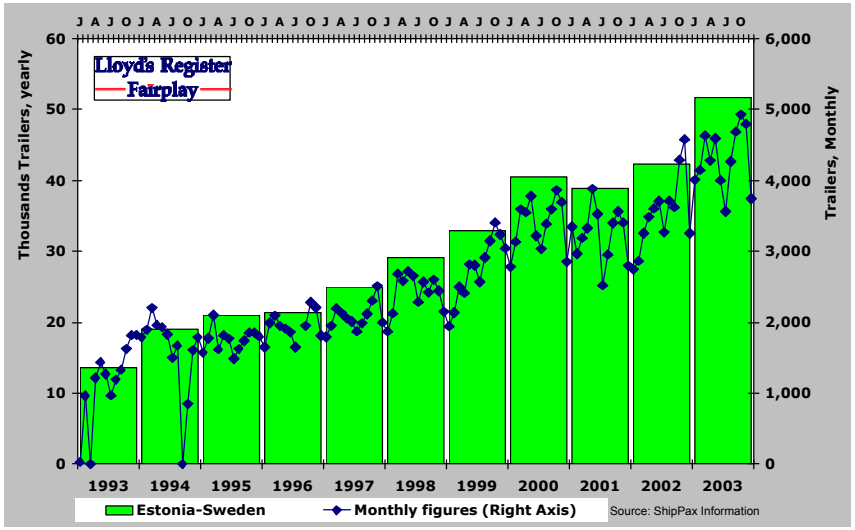


Figure 28: The development of trailer traffic between Sweden and Estonia shows a firm trend of development

In the relation Finland – Estonia we find the same growth as for Sweden-Estonia although the growth rate seems to drop over the last few years.

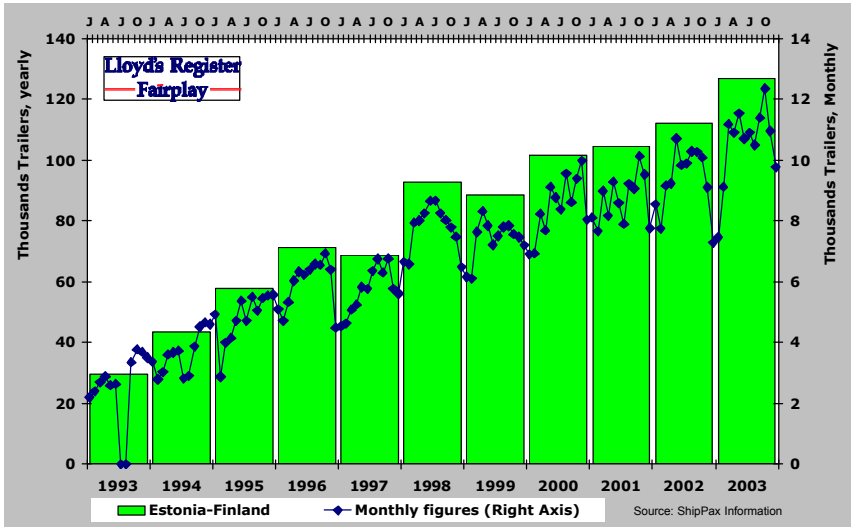


Figure 29: The trailer shipments between Finland and Estonia

The trade is still under a developing phase and may change in growth over the years. The level in the Finland service is today more than the double between Sweden and Estonia. This should indicate a potential of a larger growth on the east-west relation in view of the markets that are serviced.

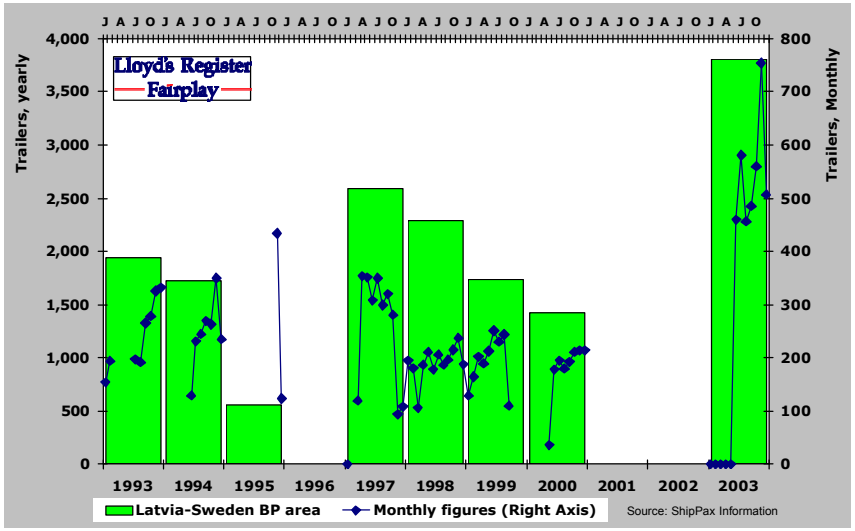


Figure 30: The trailers shipped on ferries between Latvia and Sweden

The Ferry service between Latvia and Sweden is still under development.

The reason for a slow growth can be the option to drive to Poland or Germany and use the ferry service or the bridge to Sweden. It depends on the marginal cost for the service to use the ferry or to drive the whole way.

7.6 Ro-ro (ferry) versus container and general cargo

In parallel to the ferry service there are container feeder services in the Baltic Sea that connects the ports. The main function of these services is to transport containers between the continental hubs and the Baltic ports. As yet a very limited number of containers are employed in an intra European service.

The European infrastructure is not built up for container handling. The consequence of this is that the container in Europe is a port-to-port unit that is stuffed and stripped in the port and moved to the container depot. The depot is the base or home of the container from where it is employed by its operator.

Most countries have a forwarding routing systems where the trailers are employed and handled by the local hauler between the terminals. The trailer is also better suited for the handling structure in Europe where all pallets normally is handled over the side of the trailer by forklifts. To enable this the normal type of trailer are the so-called tilt trailers, a trailer that is covered by a tarpaulin that allows access from the side by lifting or folding away the tarpaulin. A deficit with these types of trailers is that it lacks the protection of safety, as the tarpaulin is the only cover. The cover is good enough for a TIR classification but it does not require too much violence to open up the trailer.

Figure 31: A typical tilt trailer with tarpaulin cover

This part of protecting the cargo is functioning much better with a container. The disadvantage of the container is that its tare weight on road will not allow for the same transport capacity as the trailer can offer.

Table 41: Container services in the Baltic Sea provided by the Mediterranean Shipping Company, S.A.

1.1 1.19a - Baltic Feeder Service - Loop1 - Russia-Poland

	Antwerp	St. Petersburg	Gdynia	Aarhus	Antwerp
MSC HINA 14A	-	20/21.01	23/24.01	25/26.01	27.01
MSC LIESELOTTE 13A	21/23.01	27/28.01	30/31.01	01/02.02	03.02
MSC HINA 15A	28/30.01	03/04.02	06/07.02	08/09.02	10.02
MSC LIESELOTTE 14A	04/06.02	10/11.02	13/14.02	15/16.02	17.02
MSC HINA 16A	11/13.02	17/18.02	20/21.02	22/23.02	24.02
MSC LIESELOTTE 15A	18/20.02	24/25.02	27/28.02	29.02/01.03	02.03
MSC HINA 18A	25/27.02	02/03.03	05/06.03	07/08.03	09.03
MSC LIESELOTTE 16A	03/05.03	09/10.03	12/13.03	14/15.03	16.03

1.2 1.19b - Baltic Feeder Service - Loop 2 - Denmark / Lithuania / Finland

	Antwerp	Aarhus	Klaipeda	Helsinki	Rauma	Antwerp
MSC PATRICIA 34A	-	-	20/21.01	22/23.01	24/25.01	29.01
MSC GRACE 49A	22/23.01	25.01	27/28.01	29/30.01	31.01/01.02	05.02
MSC PATRICIA 35A	29/30.01	01.02	03/04.02	05/06.02	07/08.02	12.02
MSC GRACE 50A	05/06.02	08.02	10/11.02	12/13.02	14/15.02	19.02
MSC PATRICIA 36A	12/13.02	15.02	17/18.02	19/20.02	21/22.02	26.02
MSC GRACE 51A	19/20.02	22.02	24/25.02	26/27.02	28/29.02	04.03
MSC PATRICIA 37A	26/27.02	29.02	02/03.03	04/05.03	06/07.03	11.03
MSC GRACE 52A	04/05.03	07.03	09/10.03	11/12.03	13/14.03	18.03

1.3 1.20a - Baltic Feeder Service - Loop3 - Latvia / Estonia / Finland / Denmark

	Antwerp	Riga	Kotka	Tallinn	Antwerp
MSC BALTIC 87A	-	19/20.01	21.01	22/23.01	27.01
MSC POLAND 82A	22/23.01	26/27.01	28.01	29/30.01	03.02
MSC BALTIC 88A	29/30.01	02/03.02	04.02	05/06.02	10.02
MSC POLAND 83A	05/06.02	09/10.02	11.02	12/13.02	17.02
MSC BALTIC 89A	12/13.02	16/17.02	18.02	19/20.02	24.02
MSC POLAND 84A	19/20.02	23/24.02	25.02	26/27.02	02.03
MSC BALTIC 90A	26/27.02	01/02.03	03.03	04/05.03	09.03
MSC POLAND 85A	04/05.03	08/09.03	10.03	11/12.03	16.03

The container operation is more related to feeder services. The ports in the feeder system function as depot for the container of the deep-water container operator that contracts the service for the feeder line or operate the feeder line himself.

In Table 41 and Figure 32 two feeder operators schedules respective port of call systems can be seen. In normal cases the operator tries to make a regular schedule having fixed days when they call on the ports so that the shippers may plan when to deliver the container to the port. The most frequented port is St Petersburg that is included in most of the services.

Figure 32: The feeder system of ports operated on by Uni-Feeder.

www.unifeeder.dk

The hub for trans-ocean ship calls that is closest to the Baltic Sea is Port of Gothenburg and the closest multi-deep-sea operator port is the second largest container port in Europe, Port of Hamburg.

8 Future sea borne transport within the Baltic Palette area

The increased trade with the liberated Eastern Europe has created a new demand for transports of passenger and goods in the last decade. This has created a demand for new terminals as the liner shipping services and the ferries demand their own terminals. The anticipation of a growing market has put the market under stress and some to quick decisions has been taken. Since the shipping market is a fully commercial market the companies behind these decisions is no more.

The first and the major volumes in this new cross the Baltic trades came from raw material which is easy to trade - as long as it meets the quality demand of the buyers and the price requested by the seller. Once the business is settled the question comes up how to deliver the products and the focus are turned into a new sector, the shipping side.

In a stage where a long-term establishment of a terminal is at hand the ports and their communities that can be of interest in the region often are eager to participate in building up a terminal to meet the service. The competition is in this respect strong and the communities are all interested in being selected as it can give added value in:

- employment
- stronger infrastructure
- additional services around the port activities
- increased turnover in the port

The statistics in this document has focused on the ferry side with its passengers and goods, where the trailers represent the cargo volumes.

The statistics and experience from other routes give that it takes longer time to build up the cargo traffic, as this is a part of a long-term process. On the other hand does this traffic tend to be more stable. The character of the first decade of the new Baltic shipping scene has been the export of low value bulk products from the liberated states in large volumes and the import of high value products like electronics and other consumables.

The demand on the shipping system differs a lot when it comes to the different kind of trade or passenger transport. Table 42 gives indications of differences, all very important when it comes to spatial planning.

Table 42: Demand on the shipping system

Type of Product	**Value**	**Demand on shipping system**					
		Cost	Terminal	Quality	Location	Infrastructure	
						Land	Sea
Bulk	Low	Lowest	Functional	Low	None	Heavy rail/road to port	Deep
Ferry Ro/Ro	High	Lowest	Functional	Medium	Close to land infra.	Close to main road/rail	Short access
Ferry Passenger	High	Lowest	High quality	High	Urban centre	Close to main road/rail	Short access
Container	High	Lowest	Demanding	High	None	Main road/rail to port	Deep, short access

8.1 Bulk

Shipping bulk commodities is in a way very simple but since the products has a very low value the transport cost has to be low. This gives that no one is prepared to put up a lot of money for the shipment and especially not for the infrastructure around the shipment.

When developing a bulk trade initially the business will try to fine the closest facility that can meet the basic demands to ship the products. When the trade is settled both the seller and the buyer will try to work out the best way to reduce shipping costs in order to establish a long term trading relation. If a very long term trading settlement can be agreed upon both parties can be willing to invest in a suitable terminal for the future shipment or contract a port to provide the facility on a long term basis.

8.2 Ferry

The ferry operation is a combined service of passenger and cargo (rolling vehicles) that is a unique concept for sea transports. In this way two markets can be served and share the cost for the service.

At least three important components; the ship and the two terminals build up the operation. It is common that the port invests in the terminal and adapts it to fit the ship on the condition that the operator signs a long term contract for using this particular port.

Since the abolition of tax-free and other changes in the ferry market has made the cargo transport more important for the operator at the cost of the passenger service the ferry must have better trailer capacity, then before.

The main character of the route determines the demand for passenger capacity. See Table 43.

Table 43: Link character determines the demand of service

Terminal 1	Terminal 2	Link	Pass.capacity	Trailer capacity
Capital city	Capital City	TEN road-TEN road	High	High
Capital city	Terminal	TEN road-TEN road	Drivers ++	High
Smaller city	Smaller city/ terminal	TEN road-Main road	Medium	Medium, must carry the cost of the service
Smaller city	Terminal	TEN road-Main road	Drivers +	Medium, must carry the cost of the service
Smaller city	Terminal	TEN road-Access road	Drivers	Medium, must carry the cost of the service
Smaller city	Terminal	Main road-Access road	Drivers	Medium, must carry the cost of the service

New ferry services are mostly built up around a basic transport demand for either cargo or passengers. Almost every ferry system has an expectation of additional future volumes stemming from the fact that the service is there.

As the ferry service is an open “transport infrastructure” the operator normally is willing to take some risk in starting up the service. Therefore there are and will continue to be services that starts up an operation over the Baltic Sea but terminates it after a while. This is a costly operation for the operator. The testing of the market can in some cases lead to bankruptcies but if the operator on the other hand is successful he will have the advantage of being first and could sign good long term contracts with the clients.

One of the problems with a combined service is that especially the passenger bookings vary substantially over the year. The cargo traffic has its highest booking in the late spring and in the late autumn. The passengers travels predominantly in summer time in such number that extra capacity has to be added during this period to increase the service level. Ferry operation was traditionally always designed and dimensioned to meet the highest passenger demand. That is not always the case nowadays.

RO-RO

The Ro-ro service can be based on;

- a road situation that needs a Ro-ro service to connects major roads as a bridge
- an existing industrial shipping capacity that is offered to external clients
- a shortcut of the road

The most common base for a service is the supply of a pure bridge by water. The ferry system does function as a part of the land infrastructure and they even in some odd cases also carry rail cars. As the commercial traffic values the time the shorter passage the more cost effective crossing. The trailer operators choose normally the shortest sea passage (best service level) in comparison to other alternatives.

As the cost for drivers and cost for vehicles differ highly between the countries around the Baltic Sea, the choice of route will most likely differ depending from which country they come. This is very important when the operator evaluates the potential market for a specific service.

PASSENGERS

As indicated by Table 43, the large demand for passenger transports come in relations where the service can offer a high degree of entertainment in both ends of the service in addition to function as a ferry link between the cities. Even so the cruise concept is extremely sensitive to the length of the route. The trip Helsinki – Stockholm has been a successful concept as it offers two nights of entertainment and a full day for interesting excursions on the other side/or a full day of conference opportunity plus some shopping at a fair price. From Sweden the competing destinations, such as Tallinn has been too small and have not offered the same level of luxury on the ferry during the voyage. Between Helsinki and Tallinn the distance obviously are completely different and the traffic on Estonia has attracted a lot of passengers.

The reluctance to travel to Tallinn or some other city in the Baltic countries may change after the accession of the Baltic States in EU, as the alcohol purchase tourism may prefer the possible lower cost of products from the Baltic States.

The ferry operation needs a firm all year market to cover for the cost of having passenger capacity onboard. The size of crew, for safety reasons, and the service onboard is costly. On some lines the operators have started to class the ships capacity for different seasons. By closing down some part of the ship and reduce the passenger capacity it is possible to cut cost in the periods of lower demand.

As could be seen in the historic graphs the typical ferry operation has a rather high peak in the summer. Travelling between countries will increase by the standard of living. In comparison to overseas flight and flights to warm tourist places the ferry service offers a short relaxing weekend trip with entertainment of a high-class restaurant/hotel but at a low cost.

In west to east direction the motive would be the cost aboard, the entertainment and the curiosity of the other side. After accession of the Baltic States to the EU the differences in taxes on alcohol and the possibility to quite liberally bring in alcohol purchased in another EU country for personal use, gives an incitement to travel

to an adjacent EU country. This can be combined with a pleasure trip and the purchase of alcohol as an added value of the trip.

Much of this is in the hands of the governments in the different countries. In Finland the spot taxes on alcohol are reduced while there is no such intention from the Swedish government. If the differences in taxes and the price of spirits will continue to differ significantly between Finland and Estonia it may well be so that the demand of passenger cruise to Estonia for purchase of spirits is so high that it affects the ferry service between Sweden and Finland, since some of the passenger categories prefer to take the trip to Estonia instead of the present service.

The shorter the trip the higher the number of passengers that choose to travel in combination with a short vacation.

In the east-west direction, the tourism has increased. As the tourism practically was zero historically it is not surprising. Today it is mainly the wealthy people that afford to travel and to them there are no alternatives to fly and to go to the large cities for shopping and entertainment.

The cruising people are assumingly:

- from a large city
- of middle class west European level
- enjoys dancing, eating and a good show
- valuate the opportunity to shop in another large city
- can assimilate and function in an international environment

St Petersburg is a city that could fit into the profile of a category that it can be the base for a regular ferry service.

8.3 Container

The high value cargo is unitised. At shorter routes it is preferably and historically (in Europe) transported in trailers. At longer distances though, the container is the unit of preference.

In the area we have seen a build up of the container handling at the Finnish side since the port in Russia was not able to handle them, but that is changing. The benefit of the container is that the products are delivered to the consignee through a number of ways depending on how the customs regulations are built up. Some products are shipped to Finland and;

- the containers are transferred to rail and customs cleared at the border
- the containers stripped and the products stored in the forwarders warehouse awaiting delivery order to be delivered by truck
- the containers are trucked to the destination and cleared at the local costumes clearance office

There may be additional options but the result of the shipping system and the unbalanced transport flows are a surplus of containers in the region. The surplus is mainly absorbed by the domestic Finnish demand for containers in distribution service of forest products to the deep-sea market.

The Finnish –Russian example show how the shipping systems are interacting to cover the demand created by the market.

The container operation is almost totally controlled by the deep-sea operators who decide the way the containers are going and were they are handled. The operator can choose between using a feeder operator for moving the containers in the area or to employ

a fully dedicated feeder service under own flag. The difference is the number of container in turnover to the port concerned.

The deep-sea container operator is also in a though competition that is reflected in the price given for moving a container in certain relations. If the market is interesting enough and it is a good position for the future the operator can choose to "buy" the market by setting a price that is interesting for the shippers. In this way it can be that the price for a shipment from a Baltic Sea port to a port in another continent can be just as high as from a European hub to the same destination.

In container operation the most significant increase of containers are found in St Petersburg and in the ports in the vicinity of St Petersburg.

8.4 General strategies for the ports

The future strategies, as regards the spatial planning in relation to sea transports, must be to focus on the sustainable movability between regions and around nodes.

It is not possible to go into details in this respect in this project as it calls for both macro- and microanalysis. The trade flow has to be further analysed and information regarding the fast development of trading across the Baltic Sea and between countries must be recorded in detail for identification of trends and future demands.

From a spatial point of view there are a couple of basic strategies that must be followed:

- Bulk ports, General cargo ports, Ferry cargo ports (trailer operation) and Container terminals should never be located in or close to habitat areas but close to major rail and road systems
- Oil terminal should preferably be located at a distance from habitat areas
- Passenger ferry terminals should be located a close to a city centre as possible for operational point of view. From an environmental point of view the terminals should always be able to:
  - Provide receptions facilities for grey and black water
  - Provide reception facilities for sludge and oil contained water
  - Provide reception facilities for garbage, sorted in fractions
  - Provide high voltage current (10 kV) from the quay for power service during ships stay in port
  - Terminal area for parking car on it way in and out
- All port should fulfil the IMO ISPS code of port safety. In this respect it means that the port area is enclosed and controlled by gates

A few of the ports concerned are today built from these criteria. Other and mainly the oldest ports has problems mainly because of lack of area for modern operation and because of the fact that the habited areas demands space and are more has strong economy that gives added value to the owner in comparison to the port operation that always is in competition to other ports and terminals.

9 Further studies needed in the Baltic Palette area

The growth of GDP and trade has been rapid the last decade in the three Baltic countries Estonia, Latvia and Lithuania. The EU enlargement will most probably boost the trade within the Union but it can also put a lid on trade to and from it.

The trailer and passenger traffic shows a positive growth for the Baltic Palette area. Passengers do most of their travelling in the summer time. The ferry operations today are concentrated to Stockholm, Kapellskär, Mariehamn, Turku, Helsinki and Tallinn. Changes of the political agenda could affect demand for passenger ferry service quite dramatically and the future for travels within the Baltic Palette area is thus not easy to predict.

The development in the southern part of the Baltic has shown this. The market tends to accept and react rather quickly to some decisions, such as if the passengers spot an opportunity to buy products at a lower price in other easily accessible countries.

Decisions that seriously will affect the market in the area in the future are;

- Taxation on alcoholic beverages
- Investment in railroads between Helsinki and St Petersburg
- The speed of levelling the playing field between the EU-member states in terms of income and so forth

The ship owners will continue to cut costs and guard their positions. The availability of tonnage is limited for the market and today there are few if any indications that the competition will increase for passenger transports in this part of the Baltic. This is based on the fact that the existing operators in the area are well established, have invested in modern tonnage and are guarding their positions. However, as regards the trailer traffic from Finland to the continent that pass Sweden in transit we anticipate harder competition in the near future. A recent example of this is the opening up of the "Power-line" service between Finland and Germany.

The EU does not only have to merge the new member countries into the system, but also continue the process of harmonising the trading regulations, the dues, fees and the means of control in order to achieve a more sustainable transport system. At the same time the new Europe must choose where to invest in infrastructure to maximise the cost effectiveness of the investments. This will played on the highest political level where the first move is made recently by setting the level of support to the objective areas at € 300 billions.

The negotiations with Russia are slowly showing results. The point in time where the parties understand each other's views is getting closer and the valuations of actions will merge slowly. This concerns not only the struggle for a sustainable society but also the understanding of the necessity of a fast increase in the standards of living for the people in the eastern part of Europe. The number of paths that the development may take and in which order measures will be taken is hard to predict. On the other hand some actions must be taken swiftly to avoid delays in setting the playground for the businesses in the near future.

Good examples are the agreement for a joint view of the icebreaking situation in the Gulf of Finland and a common European view on how to tax the different transport modes. The road transporters need to know what can be expected for the future. The ship owners are still curious to know what will come

out of the clear declaration of strengthening the support to sea transportation. Today sea transport is the only mode of transport that is close to carry its own costs. This despite of the, in some respects, close competition with the other transport modes. They are heavily subsidised both by free infrastructure and the coverage of external costs.

In the end, all of this will affect spatial planning for the future. A better understanding and knowledge of which political measures that should be expected would be of huge advantage in the long term planning process.

For this reason it is recommended that further studies of the development of the sea transport routes and the development of the sea transport corridors should be carried out in close cooperation with another EU area. This should be done in order to broaden the minds of the participants and to form a joint view of how to plan for the future.

Sea transport has been acknowledged in France to be one of the targets for the strengthening the transport sector. For this reason France has introduced a road motorway tax to be used as a support for opening new sea transport services and to support the EU Motorway of the Seas project for the further development and elaboration of the planning of sea transport corridors for the future. One suggestion is to find a network of organisations in the Mediterranean Sea that is covering the same area of interest as the Baltic Palette. This work should be done in combination with further monitoring of the development of the trade flows in the Baltic Palette region.

It is also important to monitor the cargo flows that are transported to the continent from Finland, which were not within the scope of this study. The way the Baltic area is communicating with the Southern Baltic area, the European port hubs and the sea freight communication with other continents is another area worth further investigation.

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