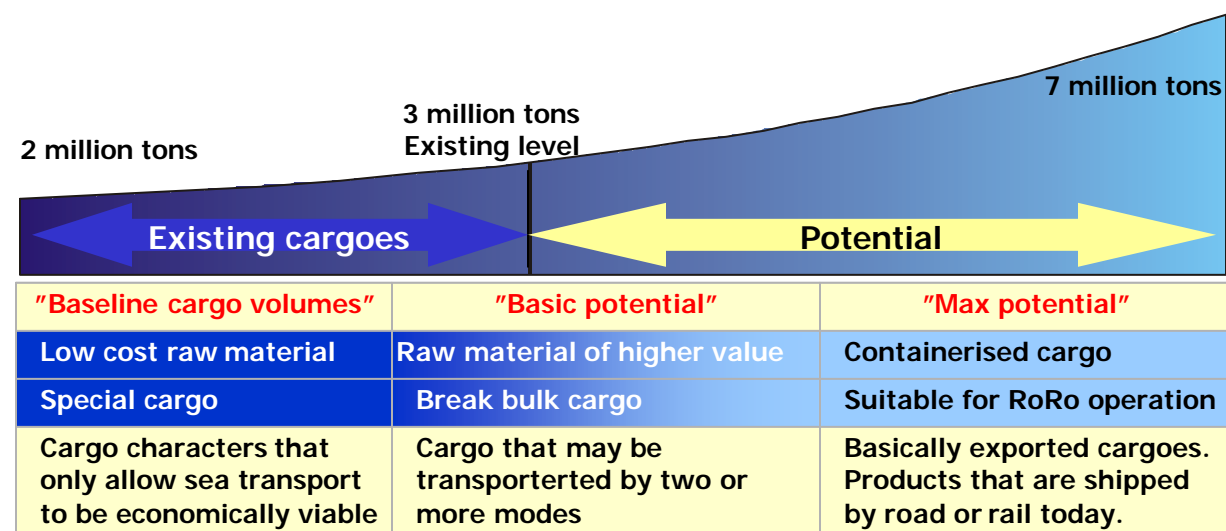


Sea-borne Goods to/from Lake Vänern

Facts and conclusions

The study shows that:	Reason and comments
Shipping is vital for a large portion of the industry in the Lake Vänern region	Measures should be taken so that the industry feels secure and can trust in a future shipping service in Lake Vänern
2/3 of all goods which move by ship to/from Lake Vänern are incoming bulk goods	The major part of the goods transported by ship today is very price sensitive. There is no alternative mode of transport for these goods
Outgoing goods from Lake Vänern are mainly "middle value goods"	These goods belong in the category which is being containerised most often today
High value goods are carried by other means of transport exclusively	The dimensions of the canal make it impossible to use new types of ships and thereby stop sea transport from being competitive
Increasing volumes of goods are transferred to rail transport instead of sea transport. The oil companies for one have closed down oil depots in Lake Vänern	Road and rail transportation of dangerous goods has increased following lower public dues for rail traffic and the systems have therefore been adapted to this situation
There is a potential for about 3.2 million tonnes of goods that go by road today	The assumption is that dues paid by shipping (national as well as municipal) are lowered and that new sea-transport systems can be utilised
There is a potential for about 500 000 tonnes of goods that go by rail today	
The dimensions of some fairways in Lake Vänern impede the use of shipping	Fairways to ports have not kept pace with other developments. All ports in Lake Vänern do not have the same capacity as the canal
The current development of Vänern shipping is a serious threat to the big industry in the region which imports low-value bulk goods	The government dues for sea-transport without infrastructure development threaten thousands of jobs in the Vänern Region in the long run
The potential of shipping as a mode of transportation is not fully used today	The interested parties should create a pilot project showing a high degree of rationalisation, technology and a new structure of dues



Sea-borne transport to/from Lake Vänern today

Shipping through the Trollhätte Canal and on Lake Vänern is of strategic importance to the interior of Western Sweden, primarily the counties of Värmland and the northern part of Västra Götaland. The geographical distribution of cargoes to/from Lake Vänern is extensive, which

is shown in the two figures below. The right-hand picture shows traffic expressed in 1000 tonnes to/from the countries of the Nordic/Baltic area and the left-hand picture traffic to/from other countries.



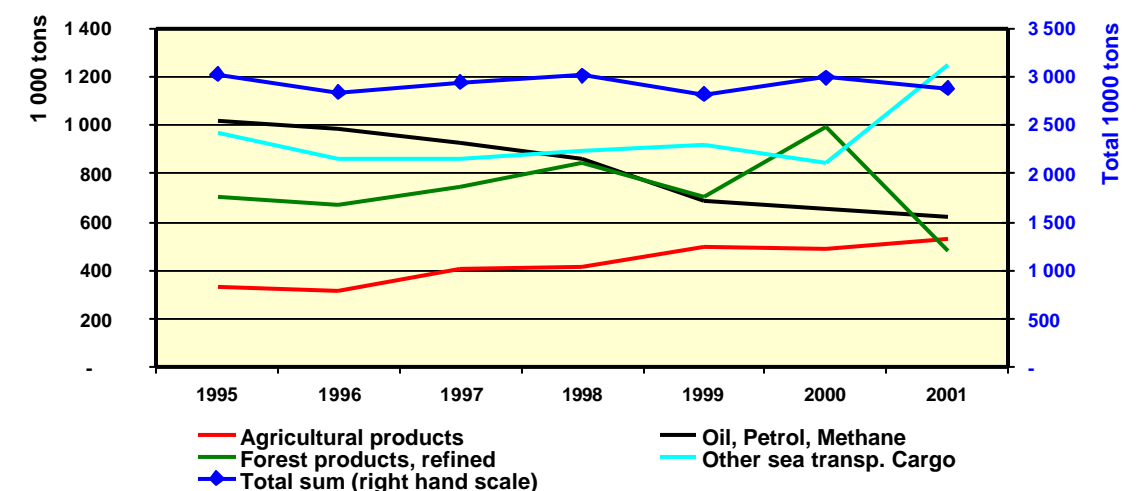
The branches of industry that mainly utilise shipping are the forest industry, agriculture and oil distribution. Geographically this means the forest industry in the northern Lake Vänern area and agriculture in the eastern and southeastern areas. Oil is mainly transported to the southern part of Lake Vänern. Engineering products and

other high-value goods are marginal sea-borne goods. The majority of all containers are carried by rail while road traffic carries virtually all high-value goods. The western part of Lake Vänern has no port capacity today. Goods to/from this region is most likely routed directly via the West Coast.

Development over time

During the beginning of the 2000s, Lake Vänern shipping lost volumes to land transport modes mainly because it could not fulfil the demands of modern transportation on development and rationalisation. The cargoes mostly affected were inward transportation of oil and outward transportation of paper products. During the past few years this loss has been partially

compensated for by an increase of pulp wood and agricultural products. The volumes of Lake Vänern sea-borne cargoes have therefore been about 3 million tonnes during a great number of years. The share of the different commodities in total traffic and its development since 1995 is shown in the figure below.



Potential goods for shipping to/from Lake Vänern

The potential additional sea-borne goods must come from goods, which are transported by lorry or train today. It is large and heavy industries, which would deliver the potential goods. In some cases there are also smaller companies with a similar structure, which should be able to utilise sea-borne transport.

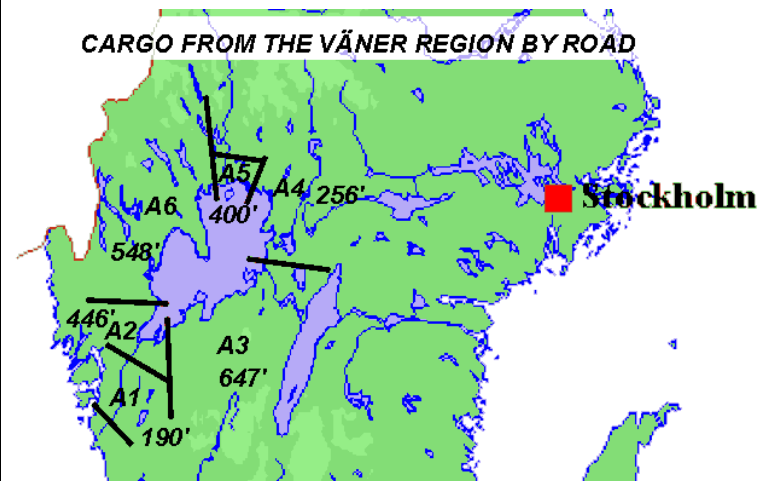
Lorry transport

The Chamber of Commerce of Värmland and the Chamber of Industry and Commerce of Western Sweden (covering a geographical area corresponding to the county of Västra Götaland) have had an enquiry made covering all lorry transports to and from all places of work in the

region. The region covers Värmland and the counties of Örebro, Västra Götaland and Halland. To investigate how much of these goods can potentially be transferred to vessels in Lake Vänern or the canal leading up to it, the material has been filtered. This process left 400 relations and a total goods volume of about 3 million tonnes. Of the 3 million tonnes a little over half a million is in-bound cargo while 2.5 million tonnes are out-bound. The sources of in-bound cargoes are shown in the left-hand table below.

The sources of out-bound cargoes are shown on the map below. These cargoes are more specified in the table further down.

Potential cargoes from road transports	
Delivered cargoes	
From	1 000 ton
Denmark	11
Finland	12
France	9
Norway	58
Germany	32
UK	4
North of Stockholm	38
Stockholm area	110
South Sweden	6
Swedish West Coast Malmö-Got	250
Gothenburg	160
West Coast North of Gbg	55
Rest of Europe	2
The World outside of Europe	5
SUM	752



TO \ FROM	A1	A2	A3	A4	A5	A6	Totally
A1 Göta Älv S			4 969	546		2 011	7 526
A2 Trollh./Vänersb.				1 200	2 395	85 022	88 617
A3 Lidköping/Mariest.					4 765	2 839	7 604
A4 Kristinehamn area	1 662						1 662
A5 Karlstad area	14 757	13 197	14 665				42 619
A6 West of Vänern	999	11 215	27 758				39 972
North West Coast	17 600		19 253	3 525			40 378
North of Gothenburg		2 359	6 134				8 493
Gothenburg	108 525	250 819	322 808	116 547	108 975	244 763	1 152 436
South of Gothenburg		40 818	32 607	9 014	2 153	13 865	98 457
South Coast Sweden	5 333	31 693	106 219	54 005	87 060	104 758	389 068
South East Coast Swe	12 825		3 352		3 436	1 855	21 468
South of Stockholm	1 800	6 899			6 170	16 792	31 661
Stockholm	26 383	11 509	64 331	38 335	27 010	19 511	187 080
North of Sthlm		76 204	35 562	12 838	12 068	4 860	141 532
NORWAY			2 828	2 929	38 454		44 211
DENMARK				717	3 659		4 376
FINLAND				3 652	3 335		6 987
ENGLAND			1 341	1 232	6 285	5 797	14 655
HOLLAND		1 497	2 781	2 928	6 912	4 239	18 357
GERMANY			733	4 152	5 880	42 400	53 165
FRANCE			750	1 147	5 850		7 747
CZECHIEN				764	3 901		4 665
ITALY					2 454		2 454
USA			931	1 333	6 801		9 065
JAPAN				719	3 671		4 390
TOTALLY	189 884	446 210	647 023	255 583	341 234	548 712	2 428 645

This material shows rather clearly that the replies from the industry are very heterogeneous.

Transport by railway

Transportation of oil and petrol by train has been much discussed, primarily because of the competitive situation brought about by the disparity in dues paid by shipping and rail traffic. Considering the structure of dues and costs an increasing portion of fuel transport will move to lorry and railway in the region.

Virtually all handling of forest products, pulp and paper rolls from Skoghall and Gruvön are loaded into StoraEnsoContainerUnits (SECU) for transportation by rail. In this segment there are only very limited volumes by sea.

Final comments on sea-borne goods transportation to/from Lake Vänern

Since it is primarily raw materials, which are being carried by ship, the costs for sea-borne transport to/from Lake Vänern is important. Transportation of raw materials to Lake Vänern is a matter of survival for a large portion of industry. Even if the industry has grown up around locally available raw materials, developments and economies of scale have necessitated the availability of more cheap raw materials than are locally available

Additional costs in the form of dues for traffic to Lake Vänern compared to the coast is about SEK 10/ton and they consist mainly of pilot-dues and other services charges for the canal. For oil in domestic traffic dues are higher. The difference in official dues between transport by rail and by ship Göteborg-Karlstad is SEK 20-30/ton.

Like all other Swedish coastal ports (Lakes Vänern and Mälaren are regarded as coastal inlets by the authorities) fairways and ports are open to all ships. 250 vessels made the slightly less than 1800 ship calls in Lake Vänern in 2000. Of these 110 made only one call in Lake Vänern and only 31 ships made more than 10 calls in one year.

Very few ships make enough calls to be able to utilise the agreements, which minimise dues. This way, Lake Vänern becomes a closed market with only marginal competition. It is reasonable to try to ensure that competitive conditions are fair and neutral. This would increase the supply of tonnage. Thereby costs for the industries in the Lake Vänern area would decrease and the

Potential goods distributed by vessel types

A distribution of the main categories of goods on vessel types yields the following table.

	Total tons	No of ship calls
Dry bulk, Bulk carriers	1 748 707	874
Liquid bulk, Tankers	469 287	235
Containerised	1 612 651	806
Sum	3 830 645	1 915

In the Lake Vänern region and its hinterland alone there is a large amount of very low-value goods transported by lorry. It should be cost-sensitive enough to warrant a sea-borne alternative for internal Lake Vänern transportation.

handicap vis à vis competing industries would diminish.

Today's extra costs are a handicap, which can become devastating for the industry in the Lake Vänern region in the long run and the socio-economic consequences brought about by having to move this industry out of the region are difficult to assess. Already today the region is hard hit by business closures. Industry today ranks this level playing field as the most important priority for future traffic to/from Lake Vänern. Bulk products have a low monetary value, which makes them very cost-sensitive. The cost of these products reflects the competitiveness of the industry. Transport costs must therefore be kept low while transport frequency is less important. For bulk raw materials there is no transport alternative. Transshipment to another mode of transport would become too expensive.

Developments in bulk shipping, which handles raw materials, have been towards ever larger ships to keep costs down. This possibility does not present itself for Lake Vänern traffic since the dimensions of the canal limit the size of vessels.

Lake Vänern shipping is not able to stand its ground competing with road and rail for more manufactured goods – viz. containerised goods as long as canal dimensions do not allow for an economically sound traffic with modern tonnage viz. ro-ro or container tonnage. For the industry this is not a limitation since the railway feeder to Göteborg works very well.