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Finnish inland waterways: Infrastructure, users and development projects



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EMMA Project

<http://www.project-emma.eu/>

INLAND WATERWAYS IN FINLAND



Port of Hamburg Marketing

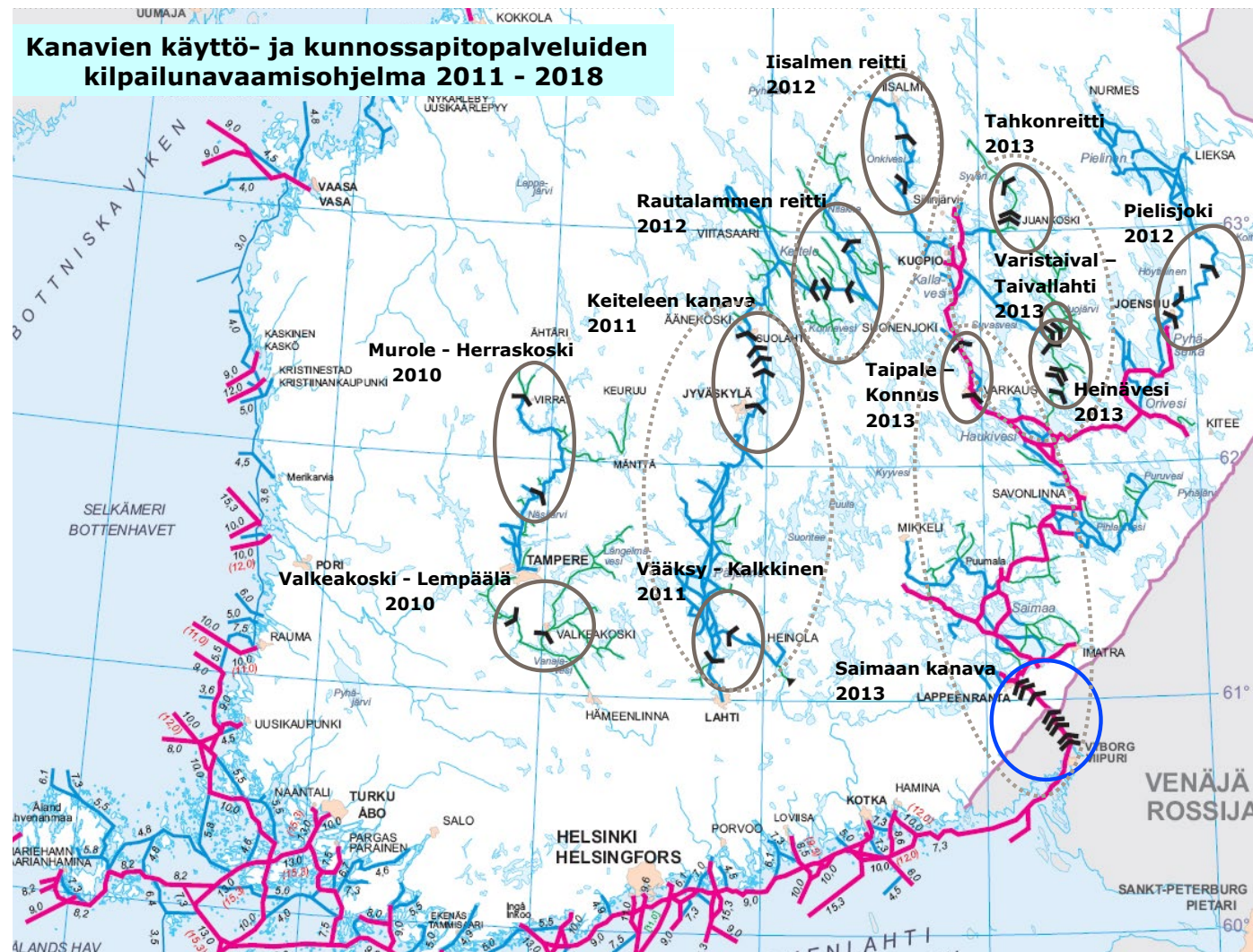
Fairways

Vuoksi water system:	3800 km
Kymijoki water system:	2700 km
Kokemäenjoki water system	1000 km
Lapland:	2000 km

The amount of the AtoN:

Vuoksi water system:	8800 pcs
Kymijoki water system:	2700 pcs
Kokemäenjoki water system:	1500 pcs
Lapland:	1300 pcs

41 Locks



The Saimaa Canal: in Finland and in Russia

3 locks in Finland, 5 in Russia.

Finland operates the whole canal

Russia takes care of the fairway from the Bay of Vyborg to the 1st lock

In 1963, Finland rented the Russian part of the canal for 50 years

Negotiations of the new rental agreement started 2005

New agreement since 15.8.2012, next 50 years



Passanger ship Carelia on her way to Vyborg

The Lease Agreement

One state renting a piece of land from an other: Hongkong, Macao, Panama...the Saimaa Canal.

Finland is responsible for the whole canal: the maintenance of the canal and the road, piloting and ice-breaking.

Russia is responsible for the fairway from the Gulf of Finland to the 1st lock: the maintenance of the fairway, piloting and ice-breaking.

The annual rental fee is depending on the amount of traffic (min 1,22 M€).

Russia collects fees from the traffic: pilot service, ice-breaking and lowered "sea channel fee"

Finland collects fee from the traffic: Saimaa canal fee (app. 0,21 €/tn), pilot service (supported by the state)



Approximately 700 recreational boats goes through the canal in every year

The Saimaa Canal: Remote control

All the locks and bridges are operated on remote control.

The main remote control centre at the Mälkiä lock (1st from the Lake Saimaa).

At the Bruschnitchnoe lock (1st lock from the sea) the lockmaster can operate three first locks from the sea.

The Saimaa canal is open 24 hours during the navigation period.

There are 22 lockmasters at the Saimaa canal, 3-5 lockmasters in one work shift.



Winter traffic in Saimaa Canal Christmas 2012

Extending the traffic season:

- New lower locks in Saimaa Canal are now in place. Modern lock gates are working better in winter conditions. (2017-2019)
- Removable icebreaking bow "pop up icebreaker" (2019-2020 winter)

Development of infrastructure for better safety and smooth operations:

- Construction of Jännevirta bridge with 24,5 meter bridge clearance (2018)
- Construction of Vekarasalmi bridge with 24,5 meter bridge clearance (2019)
- Re-routing the deep fairway from Kyrönsalmi (very narrow and heavy current) to Laitaatsalmi for safety reasons (2019)

INLAND WATERWAYS IN FINLAND



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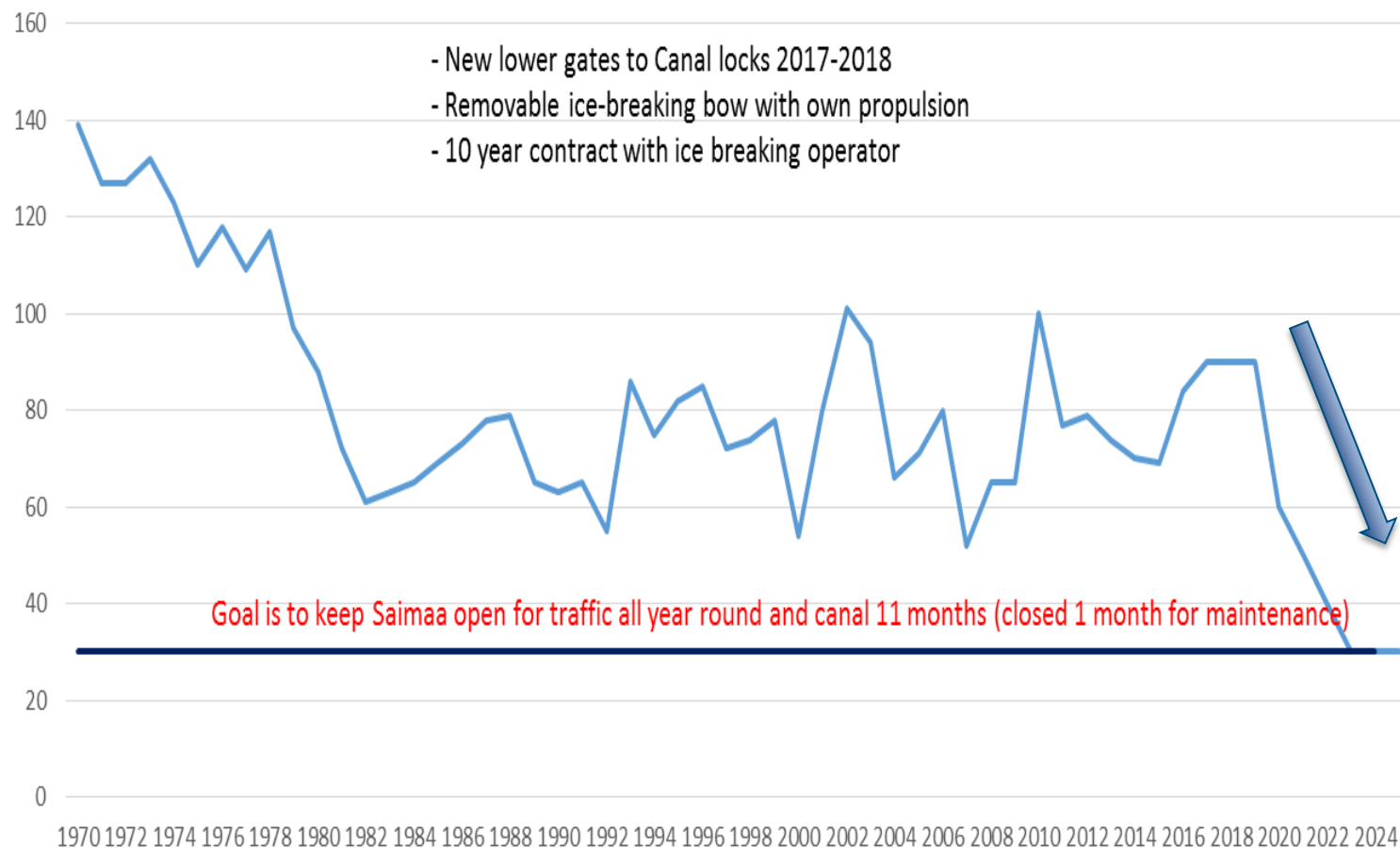
 ILS Ship Design
& Engineering

WINTER

Saimaa closed for traffic

— Closed for traffic — acceptable closing period for shippers

- New lower gates to Canal locks 2017-2018
- Removable ice-breaking bow with own propulsion
- 10 year contract with ice breaking operator



Saimaa inland waterways as a part in industries supply chains



Saimaa inland waterways as a part in industries supply chains

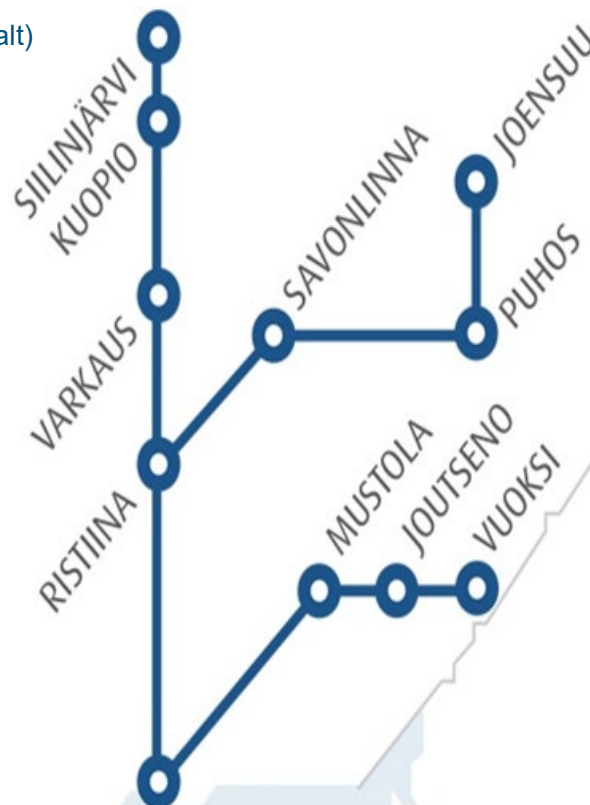
Freight Ports, most commonly processed goods and vessel types in the Saimaa

Municipality owned ports:

- **Lappeenranta/Mustola** (poles, salt, stone)
- **Joensuu** (raw wood, talc, pulp, cement, poles, rape seed, salt)
- **Varkaus** (sawn timber, rapeseed)
- **Kuopio** (coal, rapeseed)
- **Savonlinna** (raw wood, poles, coal)

Industry owned ports:

- **Siilinjärvi (Yara)** (fertilizers)
- **Siilinjärvi (Sibelco)** (stone, quartz sand)
- **Imatra/Vuoksi (StoraEnso)** (raw wood, paper, pulp, steel)
- **Puhos/Kitee (StoraEnso)** (sawn timber, pellets, poles)
- **Lappeenranta/Joutseno (StoraEnso)** (salt, raw minerals)
- **St. Michel/Ristiina** (UPM) (raw wood)
- **Lappeenranta/Kaukas** (UPM) (raw wood)
- **Lappeenranta/Pulp (Metsä Group)** (raw wood)



Vessels traffic in Saimaa 2016 (Finnish port agency port traffic web page)

Foreign cargo vessels		Russian riversea vessels (importing raw wood)	Domestic vessels inside Coasters Saimaa	
Adamas	Panta Rhei	Akbuzat	Emilie	Helga
Andrea	Passaat	Inzer	Ida	Tyrsky
Annika				
Benita	Pernille	Shikhan	Nathalie	Vekara
Ante	Phantom	ST-1352	Riona	
Carolina	Prima Fortuna	STK-1004		
Cristina	RMS Goole	STK-1005		
Egon W	RMS Laar	STK-1007		
Elise	RMS Neudorf	STK-1008		
Elke W.	RMS Rahm	STK-1016		
Kelt	Rms Ruhrort	STK-1023		
Lianne	RMS Saimaa	STK-1029		
Merel V	RMS Wanheim	Ufimets		
Merit	RMS Wedau	Salavat		
Nina	Susanne	Sandal		
Noorderlicht	Sylvia			
Paivi	Widor			

Saimaa inland waterways as a part in industries supply chains

Success factors

- Short first mile by trucks and regular deliveries by train from mill site to inland port.
- Vessels can transport cargo near mill site, close to customers or own warehouse in Europe. (first/last mile benefit)
- Able to reduce the handling times in supply chains lowers the costs and saves the transported goods from damages.
- Saimaa deep water fairway, Saimaa Canal, Baltic Sea, Kiel Canal and ports in Europe can offer environmental friendly, safe and secure route for transporting
- 4,35 meter draft and 24,5 meter height clearance with bridges along the Saimaa deep water fairway
- Well educated, trained and efficient workforce, standard export units, development of machines and lifting equipment enables highly efficient and safe material handling in Saimaa area inland ports
- Loading time for pulp cargo to Saimax vessel (2450-2500 tons) 5-8 hours
- Saimaa deep water fairway, Saimaa Canal and inland ports in Saimaa are free of gongestion resulting no risks of extra demurrage costs for shippers. Traffic is 3,3 vessels/day
- Safety and environmental issues are well managed and functioning. (Working pilotage operations and working VTS systems)
- Ongoing development for safety and service

Saimaa inland waterways as a part in industries supply chains

Things that affect to IWW cargo traffic in Saimaa

- Existing shippers are very satisfied with the service offering.
- IWT in Finland is used only by large companies with large bulk and break bulk volumes.
- The fall in demand in Europe for products made in the Saimaa region and in the same time strengthening demand in other market areas have reduced the transported tons from Saimaa IWW. Especially in pulp and sawn timber products where main market areas are shifting to Asia.
- The decline of imported wood from the Baltic Countries and Russia is affecting highly for the needed export/import balance
- Improved competitiveness of other modes of transport as well as new service concepts (including larger HCT trucks and full block train deliveries to seaports)
- Cargo freight in Saimaa is a cheap and secure way of transporting large volumes of bulk and break bulk when exported and imported volumes are in balance.
- Uncertainties about the timing and the duration of the winter break in Saimaa is leading to maximized security in supply chains. This causes supply chains transfers in winter for several months to seaports.(before and after the actual winter break).
- Consumers' growing environmental awareness brings green image benefits to companies that invest and uses efficient low-emission transport chains
- Constantly tightening emission limits can be seen more likely to benefit IWT than a threat to its existence
- The European agreement to shift long road transportation to waterways and railways
- The shorter traffic period due to the development of Saimaa canal continues and transfers freight flows elsewhere in coming years. How the IWT stakeholders will survive next years?
- Small inland ports and operators has no knowhow or budget for marketing.

Saimaa inland waterways as a part in industries supply chains

Saimaa freight traffic overview

- Saimaa lake area/Vuoksi water system and Saimaa canal is the only area where IWT is used for transporting goods in Finland
- **Most of the transported tons comes from the forest, mining and chemical industries**
- **Highest volumes (1,1-2,4 million tons) and number of vessel calls (1000-1200) is based on foreign trade to Central Europe** (Germany, Netherlands, Belgium, Poland and France) North Europe (Sweden, Denmark), **Russia, Baltic Countries and England**
- Vessels carries either direct customer shipments or "internal" transfers between industries business locations

Different IWT modes:

- 1. Foreign shipping companies have been dominant in **lake to sea** operations in the area for years with Saimax and smaller tonnage (Wagenborg, Rhenus)
- 2. Domestic vessel traffic is wood transportation to forest industry production plants from north to south with few vessels and pusher barge combinations
- 3. Round wood shipments from Russian river system with river/sea vessels eg. (STK vessels with 1300-1600 cubic meters raw wood/vessel)
- 4. Timber floating (at the moment only one company uses this mode, but volumes is predicted to increase in the future)
- From the Saimaa there are only few shipments to the coast of Finland
- Currently there are no feeder traffic, container or scheduled liner service to seaports
- Project cargo transportation is using mainly roads to seaports
- Maximum size of the vessels is limited due to dimensions of Saimaa Canal and by the clearance of the bridges along the Saimaa deep-waterway.
- The maximum size of the vessels is at the moment: Length 82.5m, Width 12.6m, Draft 4.35m and Height 24.5m called the Saimax fleet

Saimaa inland waterways as a part in industries supply chains

Examples of how industrial shippers take advantage of Saimaa's deep-waterway in their transport chains

- **Forest industry:** exporting pulp, paper and sawn timber from Saimaa area to Sweden and Central Europe
- **Mining industry:** exporting talc from Joensuu to Netherlands
- **Mining industry:** exporting fertilizer from Siilinjärvi to Sweden, Denmark, Holland and Belgium
- **Mining industry:** Importing cement from Latvia to Joensuu
- **Chemical industry:** importing raw minerals from Netherlands to Lappeenranta
- **Forest industry:** importing raw wood to several ports in Saimaa area from Russia and from the Baltic countries
- **Steel industry:** exporting special steel from Imatra to Germany and Sweden
- **Forest industry:** exporting timber poles from Joensuu to England
- **Forest industry:** importing pulp from Portugal to Joensuu
- **Mining industry:** transporting stone and quartz sand from Siilinjärvi to own factory in Finnish coast

IWT DEVELOPMENT IN FINLAND

Improving efficiency and competitiveness:

Raising the water level in Saimaa Canal by 10 cm: (Needs permission from water court) : **Ongoing planning, cost approximately 5 million €**

- 80-150 tons more cargo for single vessel.

Lengthening all lock chambers in Saimaa Canal by 11 meter

- Is now written in the agreement reached on the Government Programme 2019-2023 but waiting for the final decision
- Technical planning will be ready 2019 **cost approximately 60 million €**
- + Larger number of available tonnage operating in Baltic Sea (More shipping companies, more vessels, increased competition)
- + Better ice classes and ability to go on ice.
- + Increased cargo capacity by +25%. Competitiveness of transport mode

Ongoing and starting IWT related development projects

- Government will make development plan for IWT in Finland (Written in the agreement reached on the new Government Programme 2019-2023)
 - New government program also recognizes IWT as a transport mode when listing all transport modes, which has not been the case before.
- **Saimaa development office** (ERDF+regions+industry)
- *Future potential of Inland Waterways, INFUTURE* (South-East Finland-Russia CBC)
- **EMMA & EMMA Extension** (Interreg BSR)

THANK YOU!

