Canals and Inland Waterways in Finland
Tero Sikiö
Finnish Transport Infrastructure Agency
Inland Waterways

1.2.2022
What does the Finnish Transport Infrastructure Agency (FTIA) do?

• **We focus** on designing, developing, and maintaining road, rail, and maritime transport routes, arranging winter navigation, as well as on coordinating transport and land use.

• **We strive** to ensure that transport networks meet the needs of our citizens and businesses alike – promoting Finland’s competitive edge.

• **FTIA**, in cooperation with the ELY Centres, operates as the primary partner of regional councils, municipalities, urban regions, and other operators in the planning of transport systems.

• **FTIA** is also responsible for organising traffic management according to a service agreement with Fintraffic.

• **FTIA** operates responsibly by limiting environmental damage.

• **FTIA** is an expert procurement organisation.
Reorganisation of the agencies - Interaction map

Finnish Transport Infrastructure Agency

Planning, development and maintenance of state infrastructure network

Brings its expertise in transport infrastructure management and view of the development needs in transport networks into the national transport system work

Adopts transport infrastructure plans and grants authorisations and safety permits

Coordinates and ensures operative implementation of national transport system goals

Issuance of regulations and supervision

Official regulatory, licensing, registration and supervision duties

Official duties
- Competent VTS authority
- Responsible for VTS decisions
- Provides other authorities with up-to-date sea surveillance data

Traffic control and management services in road, rail and maritime transport

Strategic partnership/service agreement

Transport Infrastructure Agency acts as the contractor for traffic control and management services in road, maritime and rail transport in the state infrastructure network, including services for other authorities

Fintraffic

Traffic control and management services in road, rail and maritime transport

Liikenne- ja Viestintäministeriö

Liikenne- ja Viestintäministeriö

Traficom

Finnish Transport and Communications Agency
Maritime Statistics

- About 8,300 km of coastal fairways and 8,000 km of inland fairways.
- Finland has 30 ports kept open all year. About 80% of the freight traffic is handled by 10 ports.
- 25,600 aids to navigation (lighthouses, buoys and spar buoys) in the fairways.
- Total length of merchant shipping lanes in Finland 4,000 km.
Export from the Lake Saimaa: starting point and destinations
Specialities of Inland Waterways in Finland

• Long distances, relatively small traffic density
  • Saimaa Canal 1,3 mtons (mostly forest industry)
  • Timber floating 0,5 mtons
  • Other (mostly timber) 0,5 mtons
• Ice-breaking assistance 3-4 months/year
• Several lake areas, only Lake Saimaa connected to the Baltic Sea
• Of the Saimaa canal, 3 locks in Finland, 5 locks in Russia. Finland operates and maintains the whole canal.
• Saimaa Canal must be closed when there is too much ice in the canal. Limit is about 500 d °C. This year the traffic had to be stopped on 30.1.2022 and will be started again in the end of March.
Saimaa Canal
13.1.2022
400 d °C
Winternavigation In the Lake Saimaa
Self-propelled detachable icebreaking bow Saimaa

- Commissioned 12/2020 Turku Repair Yard Ltd
- Length 25,3m, combination 40,8m
- Beam 12,6m
- Saimaa is equipped with two shaftlines with propulsion power of 600 kW per shaft.
- The maximum propulsion power of combination is 2,6MW.

- The full-scale ice trials were carried out late March 2021
- ~2.9kn 70cm level ice
- ~8.2kn 40cm level ice
- Able to proceed astern in ~46 cm level ice
Long assistance distances

- The Saimaa Canal 23 NM
- Lappeenranta - Siilinjärvi 185 NM
- Lappeenranta - Joensuu 170 NM
- Joensuu - Siilinjärvi 150 NM
The Icebreaking season
Of Lake Saimaa

- Two icebreaking tugs with “Saimax” beam detachable bow: Calypso/Saimaa and Protector
- Tug Meteor 9,2m breadth
- Season 10.12.2020 - 5.2.2021 & 22.3.2021 - 1.5.2021
- 170 Assisted voyages
- 6 Towed voyages
- 15206 Operational mileage
- 9306 Assist mileage
The Saimaa Canal project 2024-2025
The Saimaa Canal Project 2024-2025

- Lengthening of 8 locks by 11.5 metres by re-building the upper gates
- New upper gates with new machinery and new electrification
- Raising the water level by 10 cm
- Raising dams and siphons

- Cost estimate 95 M€
- Planned traffic break 1/2024-5/2025

- Technically and administratively a very challenging project
  - Finnish legislation, Russian legislation, The Lease Agreement of the Saimaa Canal area in Russia
Benefits

• Maximum vessel size 82,5*12,6*4,35 => 93,0*12,6*4,45
• Max cargo 2500 tn -> 3000 tn
• More vessels with ice-class 1B or 1A available for Saimaa traffic already operating in the Baltic Sea region
• Newer, more environmentally friendly vessels
• Improves the competitiveness of water-borne traffic in the Lake Saimaa area
Improving the Saimaa fairways

• Also the Saimaa fairways need to be designed for bigger ships
• In the Lake Saimaa 780 km of fairways suitable for 4,45 m draught
• More aids to navigations needed, also dredgings
• Remote monitoring and remote control of aids to navigation
• Planning 2022, environmental permits 2023, dredgings 2024, charts 2025
• InCom WG 141: Design Guidelines for Inland Waterway Dimensions
• Also experiences of the pilots in navigation simulator are utilized
Saimaa Canal: Lower gates

- New lower gates were installed during winter times in 2017 – 2019 to all 8 locks in Saimaa canal
- Miter gate, hydraulic
- Waterproof is implemented with four seal surfaces. Seals are made rubber / steel and the final sealing achieved by water pressure when lock is full
- Equipped with collision beams
- Emptying of the lock is implemented with two hydraulic operated emptying hatch
- Height: 10.3 – 17.5 m, Width: 6.5 m, Weight: 50 – 70 tons