



National Report of Finland

Executive Summary

This Report highlights the main activities and achievements of the Finnish Hydrographic Office since ARHC Meeting in September 2022.

- The hydrographic surveys continues on shallow, nearshore HELCOM category III areas with LiDAR and multibeam technologies.
- The bathymetric data migration of the sea area to the Bathymetric Data Management System (MERTA) has progressed well. Also the migration of inland waters is ongoing.
- The implementation of the "New vertical chart reference BSCD2000" (~FIN N2000) has been completed in the Bay of Bothania, the Quark and the Bothanian Sea.
- A lot of activities in National Coordination of S-100 implementation.

1 Finnish Hydrographic Office

The Finnish Transport and Communications Agency Traficom organisation has been fine-tuned in June 2022.

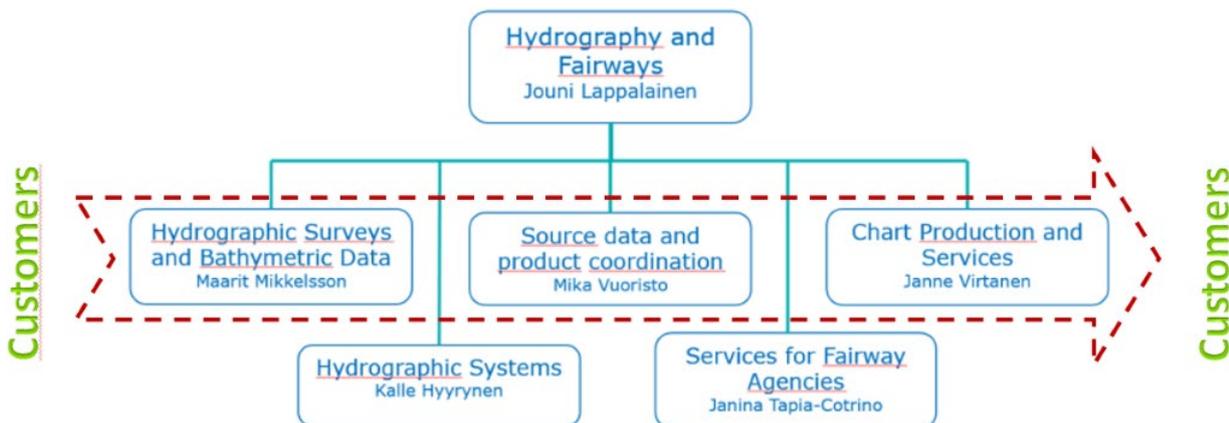


Fig.1. Hydrographic and Fairways unit with underlying teams.

The staff working for hydrography consist 60 specialists and the annual budget for hydrographic activities is about 10 million euros.



2 Hydrographic Surveys

Hydrographic surveys have focused on shallow nearshore sea areas on the Gulf of Finland and in the Archipelago Sea as well as on fairway resurveys in the Bay of Bothnia.

Hydrographic LiDAR surveys have been utilized to replace SBES surveys on a very shallow nearshore waters targeting 100 % coverage on all Finnish waters. This also enables safer operation and navigation when performing multibeam surveys afterwards. This has also proven efficient in relation to vessel survey runlines providing some 20% savings in time. Seasonal environmental conditions have been proven crucial in obtaining LiDAR data.

Fairway resurveys in full are conducted after dredging operations takes place in order to obtain coherent and consistent bathymetric data. Further LiDAR nearshore surveys are planned based on the resources.

Crowd sourced bathymetry is not necessary in Finnish sea areas, however boaters' nearshore findings on shallows are investigated.

3 Nautical Charts

Finland do not publish navigational charts in the Arctic Waters.

High density contours and depth areas from navigator perspective, case Port of Pietarsaari (Jakobstad)

Traficom/FHO have published ENC's with high resolution contours and depth areas. The additional contours have been deployed on fairways for most important ports. Traditionally, the ENC covering Pietarsaari fairway and port contains depth information presented with 3m, 6m, 10m, 20m and 50m contour intervals.



Fig.2. FI4EIJAJ cell on ECDIS before 30 March 2022 with 12,0 m Safety Depth setting.



Notices to Mariners are distributed via website including a download service (PDF) and NtM Online web-service. Clients can filter the Notices by time of publication, area of interests or charts in hand. [Link to NtM service](#)

The Lists of Lights are published for coastal areas and inland waterways. The Lake Saimaa area is now included as a part of the publication for inland waterways. The List of Lights are available as downloadable PDFs and in addition, information of lights can be search based on ID, area of interest or related chart product. [Link to List of Lights](#)

Finnish nautical publications are also available in Primar's Nautical Publication Service.

5 MSI

Finnish Transport and Communications Agency is responsible for safety radio communications in Finnish territorial waters and for distress radio communications in the deep channels of the Saimaa waterways system. Fintraffic (government owned company) is operating the national navigational warnings service.

Implementation of the IHO S-124 (Navigational Warnings) for Finnish waters

As part of the National S-100 Coordination, Traficom/FHO is cooperating with [Traffic Management Company Fintraffic Ltd.](#) in order to establish Navigational Warnings Service based on S-124 standard.

6 C-55

Not Applicable.

7 Capacity building

Nothing to report.

8 Oceanographic activities

A common vertical chart reference of the Baltic Sea

The implementation project for "New vertical chart reference N2000" (Baltic Sea Chart datum 2000) is ongoing. First new charts with new vertical reference were published on the Bay of Bothnia in the end of 2021 and the reform has now progressed down to the Quark region (see figure 4).

The reform will renew all Finnish nautical charts in stages over the course of approximately 5–6 years. The vertical reference reform is affecting commercial seafarers and recreational boaters as well. The second chart folio for boaters (F, The Quark) was published in June 2023.

More information of the progress of N2000 fairway and nautical chart reform [Chartlink](#)

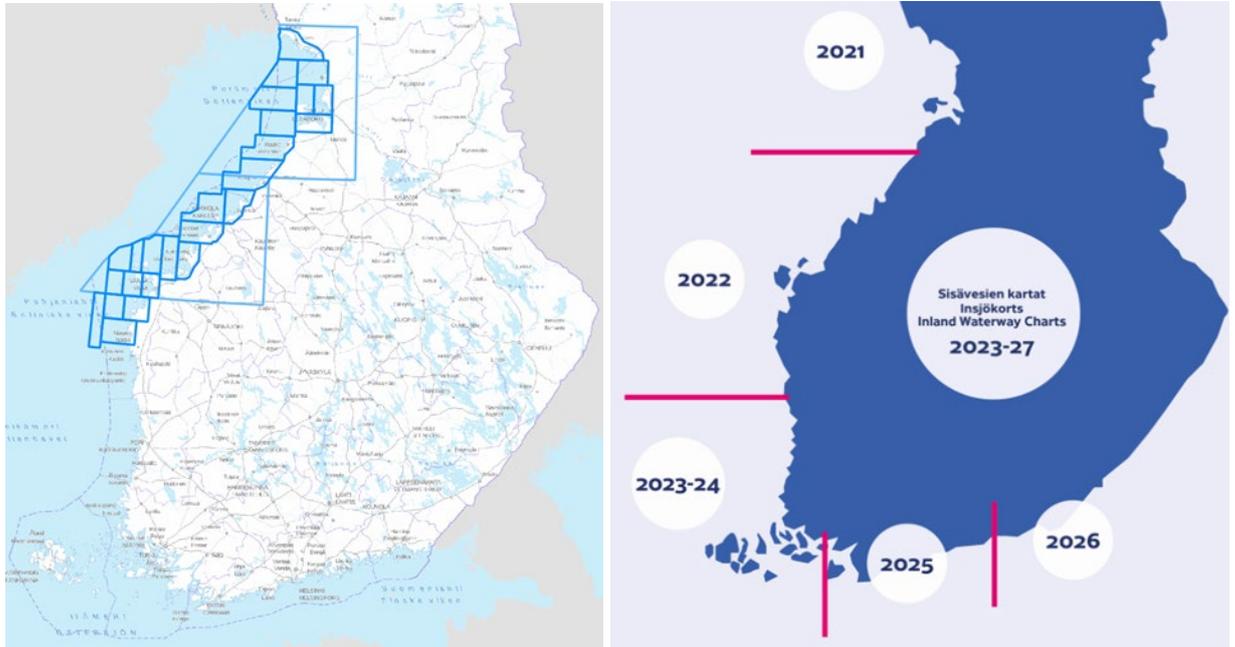


Fig.4. The Finnish N2000 charts coverage (Baltic Sea Chart Datum 2000) as of June 2023 and the schedule for N2000 charts.

Arctic Ice observation service by The Finnish Meteorological Institute

Finnish Meteorological Institute maintains ice observation service in the Baltic Sea. They also provide an Arctic daily observation ice-service web-page "Arctic now": [Arctic now - Finnish Meteorological Institute \(ilmatieteenlaitos.fi\)](https://www.ilmatieteenlaitos.fi/en/ice-observations).

Arctic now - Snow and Sea-Ice in the northern hemisphere

Over land the northern hemisphere Globsnow snow-water-equivalent SWE product and over sea the OSI-SAF sea-ice concentration product.



Observations

- Sun 16/7 2023
- Mon 17/7 2023
- Tue 18/7 2023
- Wed 19/7 2023
- Thu 20/7 2023
- Fri 21/7 2023
- Sat 22/7 2023
- Sun 23/7 2023
- Mon 24/7 2023
- Tue 25/7 2023
- Wed 26/7 2023
- Thu 27/7 2023
- Fri 28/7 2023
- Sat 29/7 2023
- Sun 30/7 2023
- Mon 31/7 2023
- Tue 1/8 2023
- Wed 2/8 2023
- Thu 3/8 2023
- Fri 4/8 2023



Implementation of the IHO S-104, S-111 and S-411 in Finland

Traficom/FHO is cooperating with the Finnish Meteorological Institute for the establishment of S-104 Water Level Information, S-111 Surface Currents and S-411 Ice Information production and delivery.

9 Spatial Data Infrastructures

National Geodata Portal

The non-navigational use of hydrographic data has increased exceedingly. A viewing service is in use via the interface of National Geodata Portal providing Inspire specific national spatial data sets, for example. The FHO is actively supporting hydrographic data to the National Geodata Portal. The metadata of FHO is also available at the National Geodata Portal.

Open data view and download services:

- Web Map Service
- Web Feature Service
- Tiled map service (WMTS) for viewing FHO nautical chart data in raster format

The data available from these services are not suitable for navigation and does not meet the requirements for an official nautical chart.

Finnish Transport and Communications Agency (The new data viewing and download service) <https://julkinen.traficom.fi/oskari/?lang=en>

National Geodata Portal Paikkatietoikkuna: <http://www.paikkatietoikkuna.fi/?lang=en>

10. Innovation

Hydrographic data processing and management

Survey data migration to the Bathymetric Data Management System (MERTA) have continued. As of July 2023, the database holds 75 % of all FHO MBES datasets and 47 % of all other datasets (i.a. Single Beam and LiDAR) respectively.

Traficom has started investigating and building capabilities for the production of the future S-100 products. The main focus is on the S-101 (ENC) and S-102 (Bathymetric Surface) products, however the other S-100 products are investigated as well, such as S-128 (Catalogue of Nautical Products).

The initial plan for the S-101 and S-102 production was finalized in 6/2022. In nutshell the plan is to migrate the current S-57 based source database into a new source database that is based on the S-101 data model, where the products (S-57 / S-101 ENCs + paper charts) are then compiled.



The work so far has mainly focused on the internal investigation of the source database conversion and required changes to the source database model. Next steps include among other things the S-101 and S-102 product configurations, developing the interfaces to the external systems and configuring the validation checks. The investigation and development is done in cooperation with the software vendor (Teledyne Caris).

Timewise the objective is to have the systems ready, capable of producing S-101, S-57 and paper chart products and deployed in good time before the end of the year 2024.

11. Other activities

FHO has Bilateral Arrangements with UKHO (adoptions of printed Charts), Norway (ENC RENC services), Sweden, Estonia and Germany.

Finland is taking part of the IHO Council, HSSC and IRCC meetings.

Finnish experts are actively working in;

- HSSC/NCWG (as Chair)
- HSSC/ENCWG
- HSSC/S-100WG and HSSC/S-101PT
- HSSC/DQWG
- HSSC/NIPWG (as Vice Chair)
- HSSC/TWCWG
- IRCC/WEND-WG (representing BSHC)
- IRCC/MSDIWG
- Baltic Sea Hydrographic Commission including BSHC/BSICCWG (Chair), BSHC-HELCOM/MWG (Chair), BSHC/BSDIWG, BSHC/BS-NSMSDIWG, BSHC/CDWG
- Nordic Hydrographic Commission including NHC/NCPEG, NHC/NSEG
- Arctic Region Hydrographic Commission (as Associate Member) including ARHC/OTWG and ARHC/ARMSDIWG.

Finland is member of the PRIMAR and contribute actively the work of PRIMAR PAC and WGs.

12. Conclusions

This report highlights the general information and main activities (related to Arctic Region) of the Finnish Hydrographic Office since ARHC 12 Conference in September 2022.