



National Report of Finland

Executive Summary

This Report highlights the main activities and achievements of the Finnish Hydrographic Office since ARHC13 Meeting in September 2023.

- The hydrographic surveys continued 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 been completed. The data migration of inland waters is still under progress.
- The implementation of the "New vertical chart reference BSCD2000" (~FIN N2000) has been completed in the Bay of Bothnia, the Quark, the Bothnian Sea and in the Northern part of the Archipelago Sea.
- A lot of activities have taken place for the S-100 implementation in Traficom as well as in the scope of national coordination.

1 Finnish Hydrographic Office

Mr. Jarkko Saarimäki has been appointed to a new Director General for the Finnish Transport and Communications Agency Traficom. His five years post started at 20.12.2023. Another change took place in February when the Fairways Unit was established and which is now responsible for waterways related tasks. The FHO's team structure was reviewed respectively.

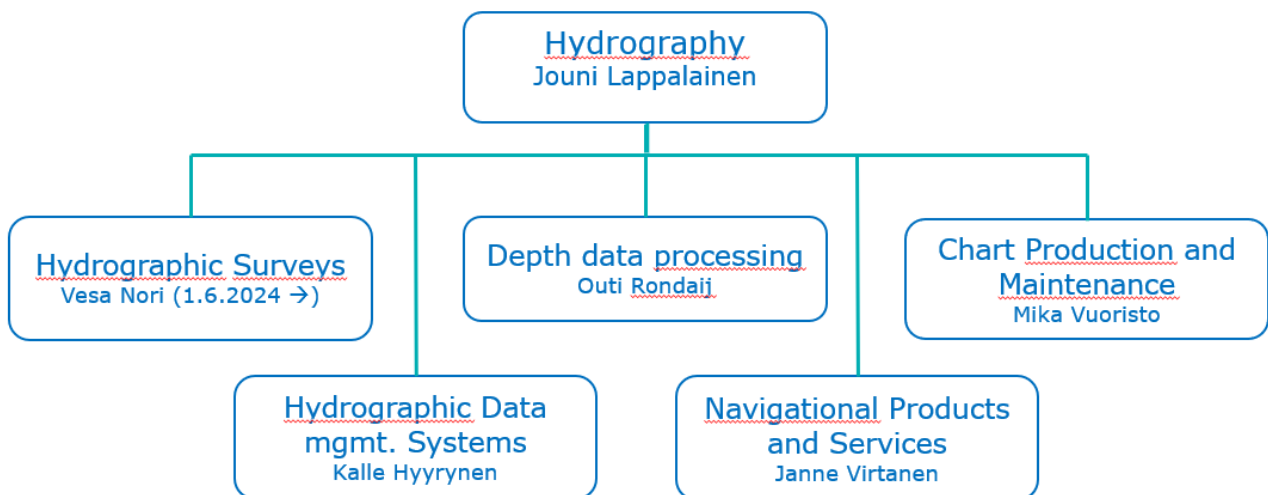


Fig.1. Hydrography unit with underlying teams.



The staff working for hydrography consist about 50 employees and the annual budget for hydrographic activities is about 12,5 million euros.

2 Hydrographic Surveys

Hydrographic surveys have focused on a dredged fairway in the Bay of Bothnia and shallow nearshore sea areas in the Archipelago Sea.

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 / shoal findings on shallows are investigated.

3 Nautical Charts

Finland does not publish navigational charts in the Arctic Waters.

4 New nautical publications

Sailing directions for Finnish waters

The volume 'Sailing directions for Finnish waters - Part 1 - General information', contains general information and instructions. Further information and updated versions for download are found online https://fiho.fi/npub/sd/SD_1_EN.pdf

The volume 'Sailing directions for Finnish waters - Part 2 - Main approach channels', contains channel design data of the main approaches. These volumes are published by area, following the introduction of nautical charts in Baltic Sea Chart Datum 2000 (N2000).

The table shows published and planned volumes of the Sailing directions for Finnish waters - Part 2. Gray color indicates planned volumes. For an updated list of currently published publications see; <https://fiho.fi/lnk/sd/en>

- Part 2.1.1 - Main approach channels - Gulf of Finland, East
- Part 2.1.2 - Main approach channels - Gulf of Finland, West
- Part 2.2.1 - Main approach channels - Archipelago Sea
- Part 2.2.2 - Main approach channels - Åland Sea
- Part 2.3.1 - Main approach channels - Sea of Bothnia (2023)



- Part 2.3.2 - Main approach channels - The Quark (2022)
- Part 2.3.3 - Main approach channels - Bay of Bothnia (2021)
- Part 2.4.1 - Main approach channels - Inland waterways

Notices to Mariners

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. The Traffic Management Company Fintraffic Ltd. (government owned company) is operating the national navigational warnings service.

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

As a 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

Several training courses has been arranged for the staff of the Finnish HO. A Python programming course and a follow up course of Geoinformatics was held during 2023.

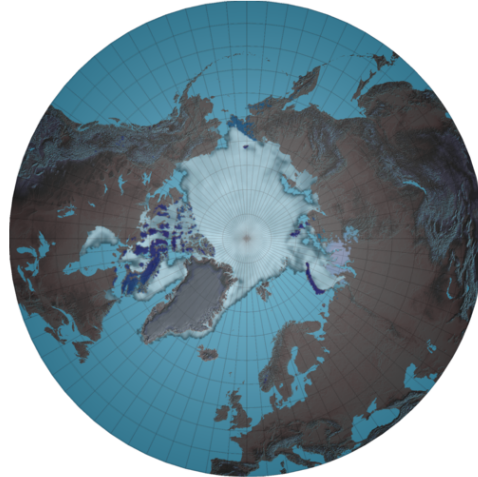


8 Oceanographic activities

Arctic Ice observation service by The Finnish Meteorological Institute

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

Thu 20/6 2024
Fri 21/6 2024
Sat 22/6 2024
Sun 23/6 2024
Mon 24/6 2024
Tue 25/6 2024
Wed 26/6 2024
Thu 27/6 2024
Fri 28/6 2024
Sat 29/6 2024
Sun 30/6 2024
Mon 1/7 2024
Tue 2/7 2024
Wed 3/7 2024
Thu 4/7 2024
Fri 5/7 2024
Sat 6/7 2024
Sun 7/7 2024
Mon 8/7 2024
Tue 9/7 2024
Wed 10/7 2024
Thu 11/7 2024
Fri 12/7 2024
Sat 13/7 2024
Sun 14/7 2024
Mon 15/7 2024
Tue 16/7 2024
Wed 17/7 2024
Thu 18/7 2024

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://ilmatieteenlaitos.fi/arctic-now).

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. BSCD2000 vertical reference are introduced on the nautical charts with a new hydrographic chart data management and production system, AHTI. The first new charts with new vertical reference were published at the end of 2021 and the reform has now progressed as far as the Åland and Archipelago Sea region (see figure 4).

Alongside vertical level corrections, a significant amount of new bathymetric data are processed to chart database and further on to the Finnish ENCs and other navigational products.

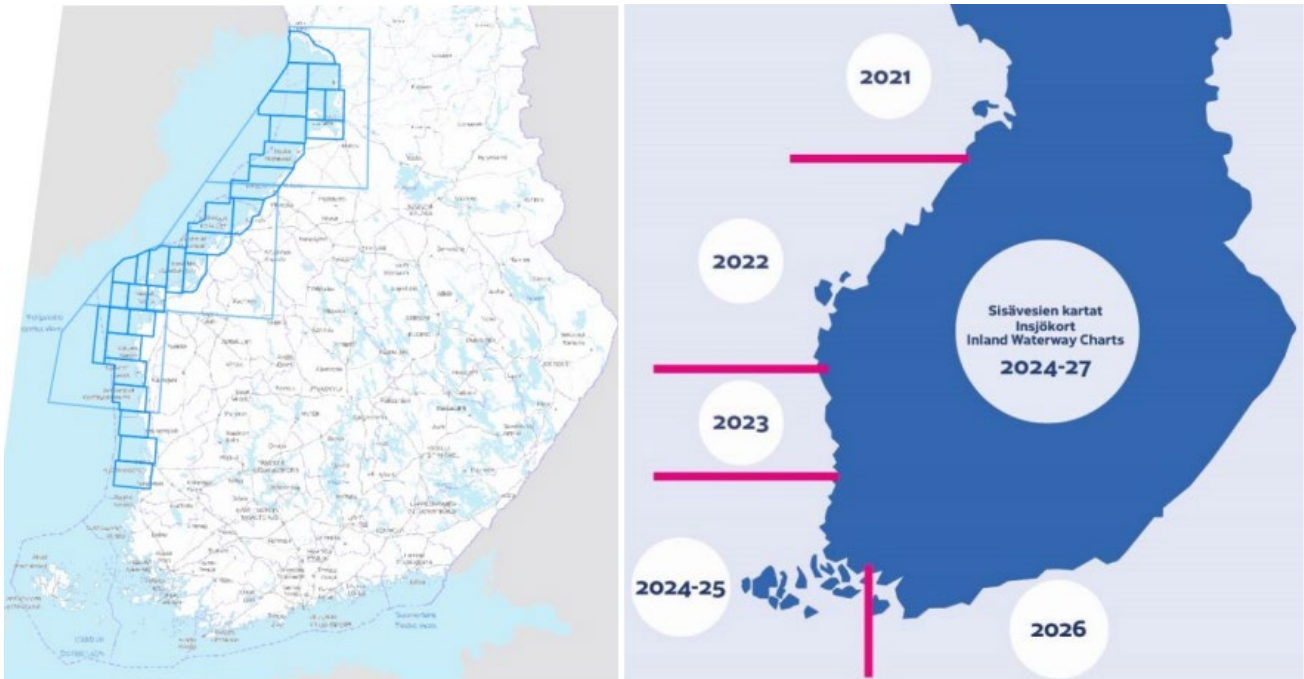


Fig.2. The Finnish N2000 charts coverage (Baltic Sea Chart Datum 2000) as of June 2024 and the schedule for N2000 charts.

[Chartlink](#) showing the progress of N2000 fairway and nautical chart reform.

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. Especially, there has been a lot of requests for wind farm projects.

Traficom's open data view and download services

Finnish Transport and Communications Agency's services for data viewing and downloading include

- Web Map Service (WMC) - nautical charts in raster format
- Tiled map service (WMTS) - nautical charts in raster format
- Web Feature Service (WFS) - nautical chart data

Link to services: <https://julkinen.traficom.fi/oskari/?lang=en>



Link to Traficom Open Marine data interfaces: [Calls to interfaces | Traficom](#)

A National Marine data viewing service is available via the interface of the National Geodata Portal providing e.g. EU Inspire specific national spatial data sets. The Finnish HO is actively supporting hydrographic data to the National Geodata Portal.

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

10. Innovation

Hydrographic data processing and management

The bathymetric data migration of the sea area to the Bathymetric Data Management System (MERTA) has been completed. The data migration of inland waters is still under work.

S-100 implementation in Traficom

Traficom has continued building capabilities for the production of the future S-100 products. The main focus is on the S-101 (ENC), S-102 (Bathymetric Surface) and S-124 (Navigational Warnings) products. Other S-100 products such as S-128 (Catalogue of Nautical Products) and S-127 (Marine Traffic Management) are under development as well.

The initial plan for the S-101 and S-102 production was finalized in 6/2022. The legacy S-57 based source database will be migrated into a new source database that is based on the S-101 data model, from where all chart products (S-57 ENCs + S-101 ENCs + paper charts) will then be produced.

The work so far has mainly focused on the preparation of the database migration. Next steps include, among other things, the S-101 and S-102 product configurations, development the interfaces to the external systems and configuration of the validation checks. The investigation and development are done in close cooperation with the software provider (Teledyne Caris).

Timewise the objective is to have the systems ready and capable to product S-57 and S-101 cells (parallel production) and S-102 data sets 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 participate 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
- HSSC/HSWG
- HSSC/MASSPT
- IRCC/WEND-WG (representing BSHC)
- IRCC/MSDIWG
- Baltic Sea Hydrographic Commission including BSHC/BSICCWG (Chair), BSHC-HELCOM/MWG (Chair), BSHC/BSMSIWG, BSHC/CDWG, BSHC/BSBDWG
- Nordic Hydrographic Commission including NHC/NCPEG, NHC/NSEG
- Arctic Region Hydrographic Commission (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 ARHC13 Conference in September 2023.