

National Report of Finland

Executive Summary

This Report highlights the main activities and achievements of the Finnish Hydrographic Office since BSHC 27 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 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.

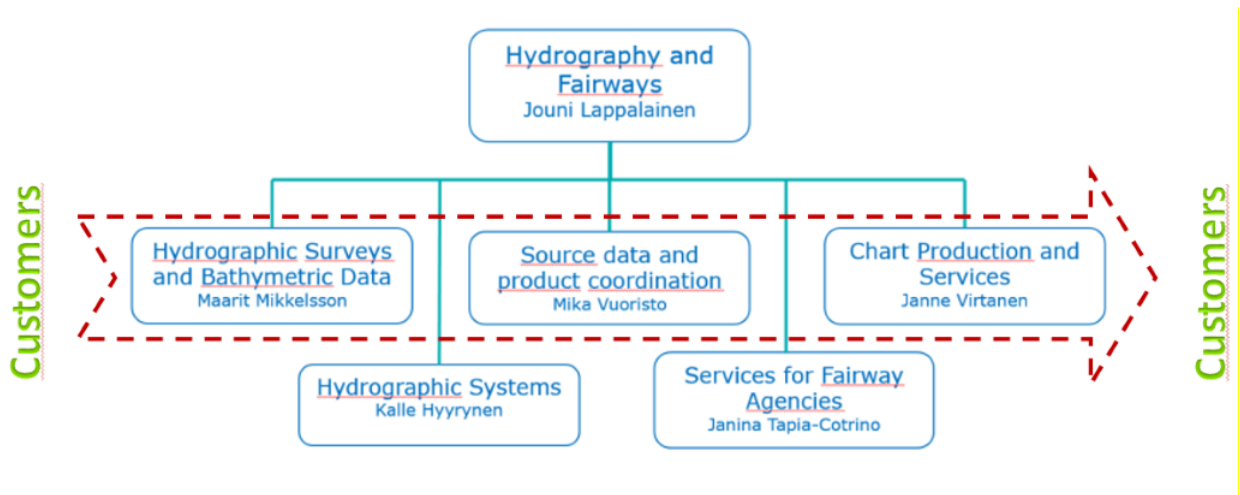


Fig.1. Hydrographic Office with underlying teams.

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

The FHO are reviewing it's Quality Management System and at some point will be audited with other Maritime activities of the Traficom based on ISO 9001 standard.

2. Hydrographic surveys

During 2022, hydrographic surveys took place in Gulf of Finland area consisting Vuosaari fairway and in inland waters the project Haukivesi-Kolovesi was going on. All the data of LIDAR 2019 was delivered and the quality of the data controlled and processed to the Bathymetric Database.

Request for tender for the surveys of Finland territorial sea border base points was published and the contract signed on TopoLidar and areal photography surveys with BSF Swissphoto AG and Tripodi Finland Oy. Surveys will be implemented during 2023 and possibly supplementary vessel surveys as well as calculations and coordinate listing are carried out during 2024.

Task	Surveyed by	Multibeam [km ²]
Vuosaari (VAYLA2022)	<i>Arctia Meritaito Oy</i>	225
Haukivesi-Kolovesi (HKJA 2022)	<i>Clinton Marine Survey AB</i>	175

Table 1. Statistics of hydrographic surveys in 2022.



Fig.2. Survey statistics for 2022

The Finnish part of the HELCOM-BSHC Revised Harmonised Hydrographic Re-Survey Scheme has been enhanced. Aging of Cat I surveys need to be studied.

- HELCOM Cat I fairway surveys were updated about 225 km².
- HELCOM Cat III new areal survey data to register about 370 km².

3. New Charts and updates

Printed charts

Due to the ongoing Ahti Development Project and ongoing N2000 fairway and nautical chart reform -project, limited amount of new editions of printed charts or ENC's was published in 2022. The chart correction service for both printed and ENC charts has been provided without interruption, though.

Published printed charts	2017	2018	2019	2020	2021	2022
<i>General charts</i>	1	2	1	-	-	2
<i>Approach charts</i>	9	6	3	-	10	12
<i>Harbour charts</i>	9	1	1	-	4	3
<i>Chart series</i>	1	2	-	-	-	1
<i>Other charts</i>	1	-	-	-	-	-

Table 2. Statistics of published New Editions of Finnish nautical charts in 2017 – 2022.

TRAFICOM
Läsnä ja vuorokautta
Transport- och kommunikationsverket
Finnish Transport and Communications Agency



Merikartat 2023
Sjökort
Nautical Charts



Fig.3. New Chart catalogue 2023

More information about Finnish nautical charts are available in the Chart Catalogue 2023. [Link](#)

The statistics of sold printed charts are presented in the *Table 3*. The overall sales of the nautical chart series decreased in 2022. It was likely influenced by the fact that new editions of popular nautical chart series were not published in 2022.

Printed paper charts	2017	2018	2019	2020	2021	2022
AO-size	4656	5155	4136	3579	3923	3732
Chart series	9899	9747	7592	11855	12869	6623
Total sold copies	14555	14902	11728	15434	16792	10355

Table 3. Statistics of sold printed charts 2017-2022.

In addition, there are many adopted printed charts from Finnish area of responsibility sold by UKHO.

ENC production and distribution

The ENC Statistics are visible in the *Table 4* and *Table 5*.

The number of ships and number of customers using ENC's increased in 2022.

Released ENC's	2017	2018	2019	2020	2021	2022
New ENC's	5	1	-	-	1	4
New editions	50	47	13	71	31	46

Table 4. Statistics of produced Finnish ENC 2017-2022.

Use of ENC	2017	2018	2019	2020	2021	2022
ENC's sold annually (excluded trial, training and demo usage)	95193	107101	115462	141973	144916	142429
No of ships (annually)	3659	4492	4698	4841	4921	5307
No of customers (annually)	1232	1467	1439	1401	1411	1512

Table 5. Statistics for the use of Finnish ENC's 2017-2022.

Quality control of ENC's has been further improved with the new chart production process. Some software tools for hydrographic data quality control and operation guidance have been enhanced.

4. New publications and updates

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 - Aland Sea
- Part 2.3.1 - Main approach channels - Sea of Bothnia
- 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.

Publication /service	2017	2018	2019	2020	2021	2022
<i>Notices to Mariners, vol of publications</i>	35	35	35	35	35	36
<i>Number of NtM notices</i>	388	366	306	296	340	292
<i>Number of ER updates</i>	668	776	562	595	595	580

Table 6. Annual statistics for nautical publications 2017-2022

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.

In total 202 navigational warnings were published during 2022.

Publication / Service	2017	2018	2019	2020	2021	2022
<i>Navigational Warnings</i>	239	200	84	244	262	202

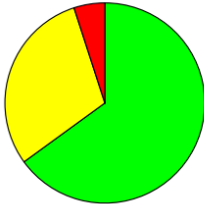
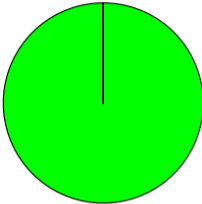
Table 7. Annual statistics for navigational warnings 2017-2022

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

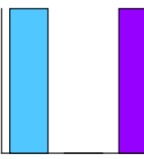
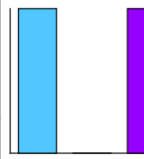
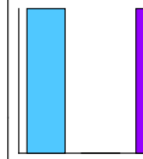
As part of the National S-100 Coordination, Traficom/FHO is cooperating with Traffic Management Company Fintraffic Ltd. in order to establish Navigational Warnings Service based on S-124 standard.

6. C-55

Status of hydrographic Surveys

Survey coverage Couverture hydrographique Cobertura hidrográfica	Depth < 200m Profondeur < 200m Profundidad < 200m			Depth > 200m Profondeur > 200m Profundidad > 200m		
	<p>■ Adequately surveyed Correctement hydrographié Adecuadamente levantado</p> <p>■ Re-survey required Nécessitant de nouveaux levés Requiere nuevo levantamiento</p> <p>■ Never systematically surveyed Jamais hydrographié systématiquement Nunca levantado sistemáticamente</p>	65	30	5	100	0
						

Status of Nautical Charting

Coverage of charts published Couverture des cartes publiées Cobertura de cartas publicadas	Offshore passage Navigation au large Pasaje offshore			Landfall and Coastal passage Atterrissage et navigation côtière Recalada y Pasaje costero			Approaches and Ports Approches et ports Aproches y puertos		
	<p>■ Covered by INT or other paper charts meeting S-4 Couvert par des cartes papier INT ou autres conformes S-4 Cubiertas por cartas de papel INT o otras cumpliendo S-4</p> <p>■ Covered by RNC meeting S-61 Couvert par des RNC conformes S-61 Cubiertas por RNC cumpliendo S-61</p> <p>■ Covered by ENC meeting S-57 Couvert par des ENC conformes S-57 Cubiertas por ENC cumpliendo S-57</p>	100	0	100	100	0	100	100	0
									

7. Capacity building

Nothing to report.

8. Oceanographic activities

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.

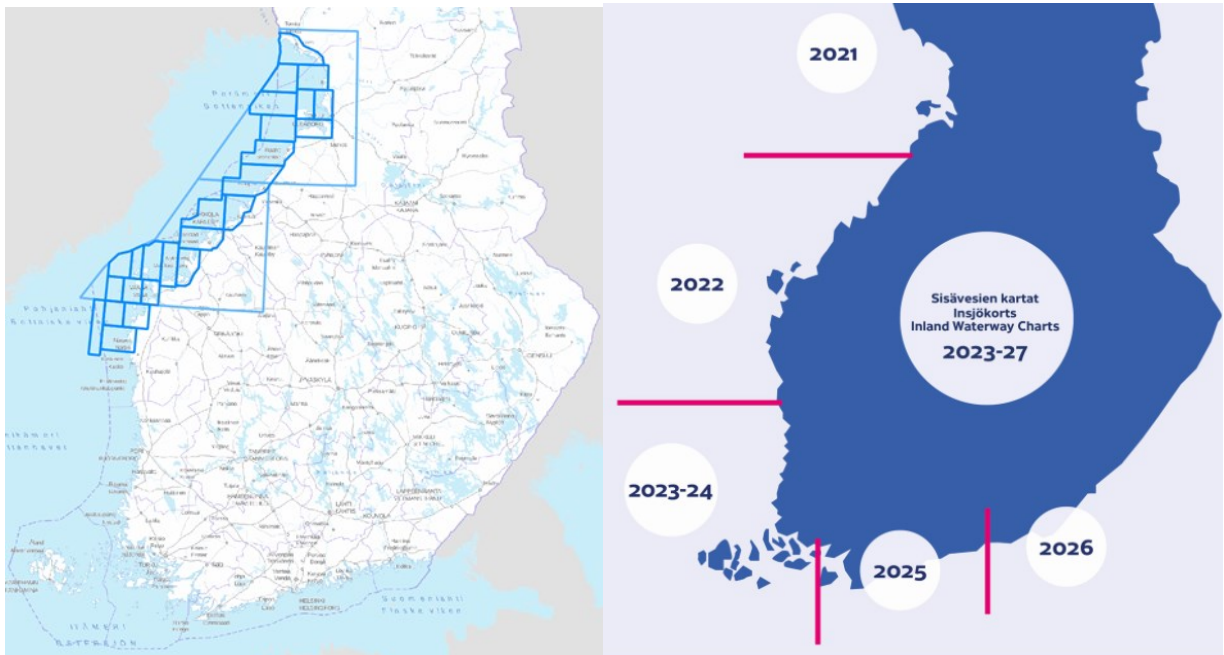


Fig.4. The Finnish N2000 charts coverage (Baltic Sea Chart Datum 2000) as of June 2023 and the schedule for N2000 charts.

[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 infrastructure

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

File download service for viewing and downloading datasets

- 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 is not suitable for navigation and does not meet the requirements for an official nautical chart.

Links:

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 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 take part of the Council, HSSC and IRCC meetings. Finnish experts are actively taking part of the work of;

- HSSC/NCWG (as Chair)
- HSSC/ENCWG
- HSSC/S-100WG and HSSC/S-101PT
- HSSC/DQWG
- HSSC/NIPWG (as Vice Chair)
- HSSC/TWCWG
- HSSC/HSWG
- IRCC/WEND-WG (representing BSHC)



TRAFICOM
Finnish Transport and Communications Agency

28th BSHC Conference
19-21 September 2023
Helsinki, Finland

Agenda Item B.3.3
National Report
Finland

- IRCC/MSDIWG
- Baltic Sea Hydrographic Commission including BSHC/BSICCWG (Chair), BSHC/MWG (Chair), BSMSIWG, BSHC/CDWG, BSHC/BS-NSMSDIWG, 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 PRIMAR WGs.

11. Conclusions

This report highlights the main activities of the Finnish Hydrographic Office since BSHC 27 Meeting in September 2022.