

National Report of Finland

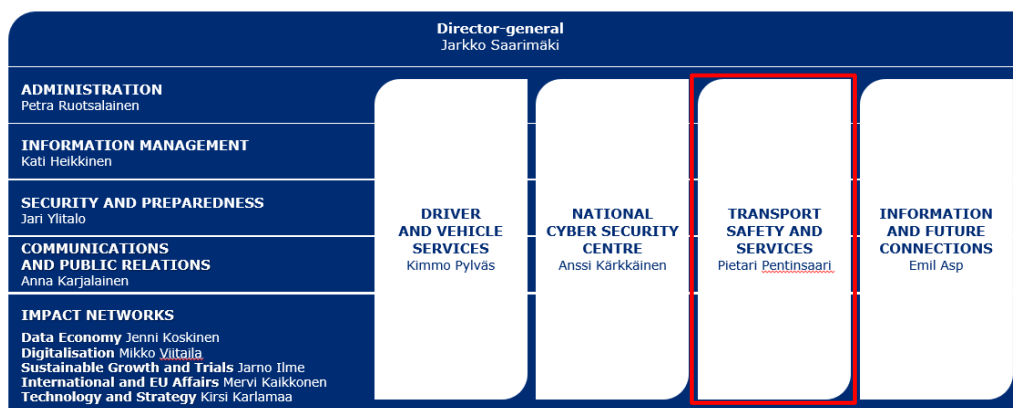
Executive Summary

This Report highlights the main activities and achievements of the Finnish Hydrographic Office since BSHC Meeting in September 2024.

- A new revision of the Hydrographic Survey Program (for 2026-2030).
- 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 completed in the Bay of Bothnia, the Quark, the Bothnian Sea and in the Northern part of the Archipelago Sea.
- Development of S-101, S-102, S-124 production capability and capacity are progressing well.
- A lot of activities for National Coordination of the S-100 implementation.
- A survey among maritime stakeholders on digitalisation and RDI activities in the maritime sector is conducted.
- The wind power study (open-water season) has been completed.

1. Finnish Hydrographic Office

The latest version of The Finnish Transport and Communications Agency Traficom organization came into force 1 October 2024.



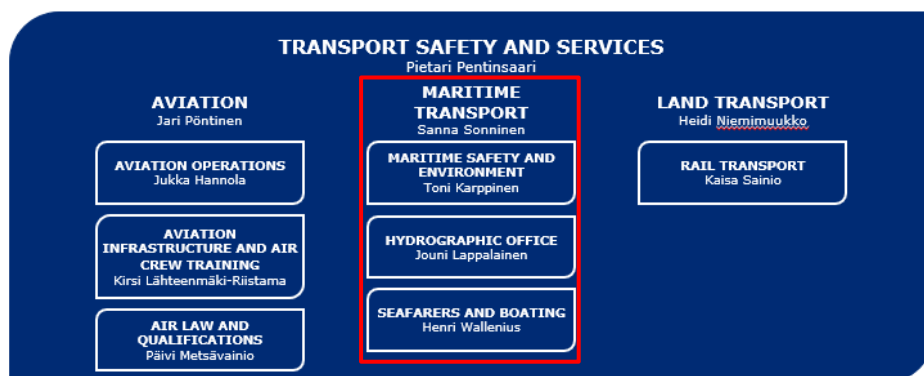


Fig.1. Finnish Transport and Communications Agency Traficom

Ms. Sanna Sonninen has been appointed Director of Maritime Sector of Traficom. She took up her post on 1 October 2024.

Mr. Rainer Mustaniemi holds the position of National Hydrographer in Finland.

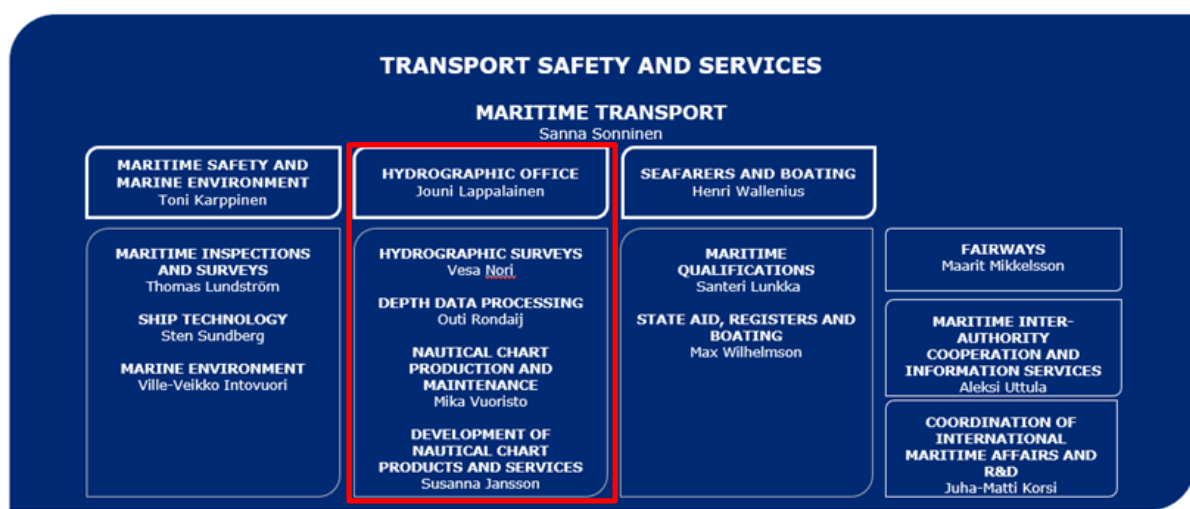


Fig.2. The Hydrographic Office.

The staff working for hydrographic office consist 63 employee and the annual budget for hydrographic activities is about 11,5 million euros.

The International Maritime Organization (IMO) audited Finland's maritime administration during late October to early November 2024. Some deviations and development areas were found by the auditors, but Hydrographic Services and respective operations were reported to fulfil IMO requirements without exception.

The FHO is refreshing its Quality Management System (based on the ISO 9001 Standard) as a part of full external audit covering the Agency Maritime sector.

2. Hydrographic surveys

During 2024, hydrographic surveys took place in Bay of Bothnia area consisting Kemi fairway and in inland waters the project Haukivesi-Kolovesi was going on. An USV survey platform has been piloted in HKJA2022 inland lakes surveys. NOSA2024 LiDAR field survey was completed and Fairway surveys started in inland lakes area in Northern Savonia. Also a small area LiDAR survey and shallow shoreline surveys were conducted in the Archipelago Sea. Large areas of earlier surveyed data have been verified and inserted to the database.

At this time commercial USV hydrographic survey operations for nearshore shallow areas are not allowed due to national maritime legislation, but at the moment studies are being carried out on changing the legislation.

Task	Surveyed by	Multibeam [km ²]
Kemi fairway (BBKE2024)	Arctia Meritaito Oy	205
Haukivesi-Kolovesi (HKJA 2022)	Clinton Marine Survey AB	100
Northern Savonia (NOSA2024) LiDAR	Field Finland Oy	825
Northern Savonia (NOSA2024) Fairway	Arctia Meritaito OY	45

Table 1: Survey statistics for 2024.

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 100 km².
- HELCOM Cat III new areal survey data to register about 1000 km².

Traficom has reviewed Hydrographic Survey Program for 2026-2030. A near future focus is at the Archipelago Sea in HELCOM Cat III areas, to be covered with combined LiDAR and MBES surveys. Unfortunately, national budget cutbacks slows down the implementation of the program.

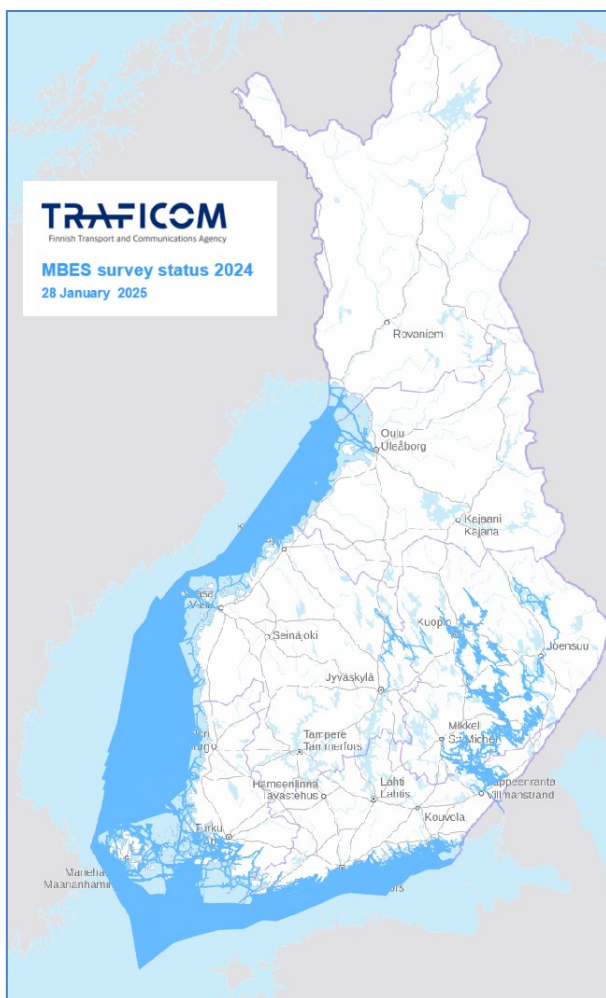


Fig.3. Hydrographic re-survey coverage at the end of 2024 surveyed according to IHO S-44 and FSIS-44 standards.



Fig.4. Helcom Category III areas, which need to be surveyed within up-to-date standards.

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 ENCs was published in 2024. The chart correction service for both printed and ENC charts has been provided without interruption, though.

Published printed charts	2019	2020	2021	2022	2023	2024
General charts	1	-	-	2	2	1
Approach charts	3	-	10	12	6	8
Harbour charts	1	-	4	3	2	3
Chart series	-	-	-	1	1	2
Other charts	-	-	-	-	-	

Table 2. Statistics of published New Editions of Finnish nautical charts in 2019–2024.

Merikartat 2025
Sjökort
Nautical Charts



Fig.5. New Chart catalogue 2025.

More information about Finnish nautical charts is available in the Chart Catalogue 2025. [Link](#)

The statistics of sold printed charts are presented in the *Table 3*. The overall sales of the nautical chart series decreased in 2024. It was likely influenced by the fact that new editions of popular nautical chart series were not published in 2024.

Printed paper charts	2019	2020	2021	2022	2023	2024
AO-size	4136	3579	3923	3806	2581	2594
Chart series	7592	11855	12869	6549	4574	5275
Total sold copies	11728	15434	16792	10355	7155	7869

Table 3. Statistics of sold printed charts 2019-2024.

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 ENCs increased slightly in 2024.

Released ENC	2019	2020	2021	2022	2023	2024
New ENC	-	-	1	4	2	1
New editions	13	71	31	46	34	47

Table 4. Statistics of produced Finnish ENC 2019-2024.

Use of ENC	2019	2020	2021	2022	2023	2024
ENCs sold annually (excluded trial, training and demo usage)	115462	141973	144916	142429	139505	136963
No of ships (annually)	4698	4841	4921	5307	5546	5550
No of customers (annually)	1439	1401	1411	1512	1553	1578

Table 5. Statistics for the use of Finnish ENCs 2019-2024.

Quality control of ENCs 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 2.1.2 - Main approach channels - Archipelago Sea, East
- Part 2.2.1 - Main approach channels - Aland Sea and Archipelago Sea, West (2025)
- 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.

Publication /service	2019	2020	2021	2022	2023	2024
Notices to Mariners, vol of publications	35	35	35	36	36	36
Number of NtM notices	306	296	340	292	275	290
Number of ER updates	562	595	595	580	383	472

Table 6. Annual statistics for nautical publications 2019-2024.

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.



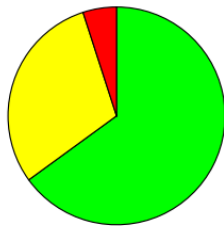
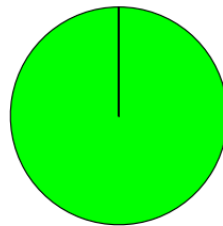

In total 341 navigational warnings were published during 2024.

Publication / Service	2019	2020	2021	2022	2023	2024
Navigational Warnings	84	244	262	202	346	341



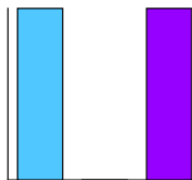
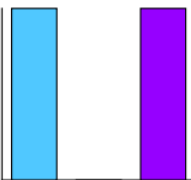
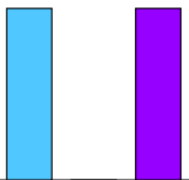

Table 7. Annual statistics for navigational warnings 2019-2024.

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		
 Adequately surveyed Correctement hydrographié Adecuadamente levantado	%	65	30	5	100	0	0
 Re-survey required Nécessitant de nouveaux levés Requiere nuevo levantamiento	%						
 Never systematically surveyed Jamais hydrographié systématiquement Nunca levantado sistemáticamente	%						

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		
 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	%	100	0	100	100	0	100	100	0	100
 Covered by RNC meeting S-61 Couvert par des RNC conformes S-61 Cubiertas por RNC cumpliendo S-61	%									
 Covered by ENC meeting S-57 Couvert par des ENC conformes S-57 Cubiertas por ENC cumpliendo S-57	%	INT	RNC	ENC	INT	RNC	ENC	INT	RNC	ENC

7. Capacity building

Traficom co-hosted 85th Multibeam Sonar Training Course 17 - 22 March 2025 in Helsinki, Finland. Total 71 participants from 17 countries including attendees from Tanzania and Kiribati.

Several training courses has been arranged for the staff of the Finnish HO e.g. Introduction to Merchant Shipping and Maritime Affairs.

8. Oceanographic activities

Review of Finland's limits of territorial seas

The survey of Finland territorial sea border base points was performed successfully with TopoLiDAR and areal photography by BSF Swissphoto AG and Tripodi Finland Oy. Documenting of revised base points and calculations of respective maritime limits are in process.

Baltic Sea Chart Datum 2000 project

The implementation project for "New vertical chart reference N2000" (Baltic Sea Chart datum 2000) is ongoing. BSCD 2000 vertical reference will be 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 publish in the end of 2021 and the reform has now progressed as far as the Åland and Archipelago Sea region (see figure 6).

Alongside vertical level corrections, a significant amount of bathymetric data are reprocessed to chart database and further on to the Finnish ENC's and other navigational products.

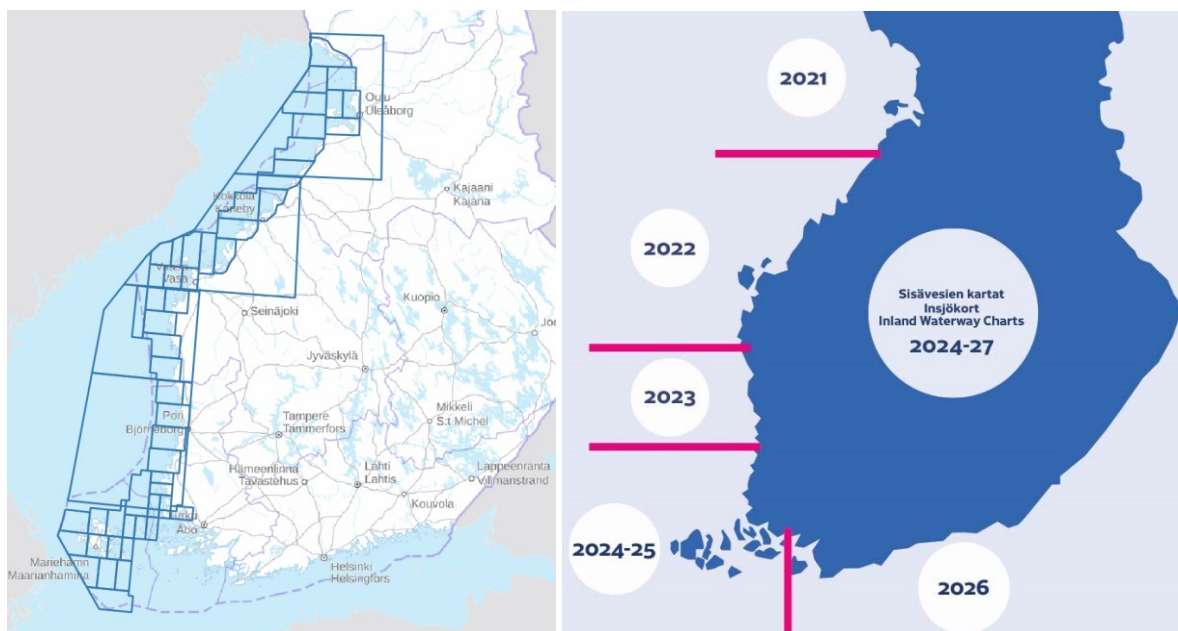


Fig.6. The Finnish N2000 charts coverage (Baltic Sea Chart Datum 2000) as of July 2025 and the schedule for N2000 charts.

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

9. Spatial data infrastructure

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 interfaces:

<https://www.traficom.fi/en/news/spatial-dataset-material/calls-interfaces>

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

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.

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

10. Innovation

Hydrographic survey 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 progress.

S-100 implementation in Finland

Traficom has developed an extended S-101+ data model in order to enable tri-fuel production (S-57 ENC, S-101 ENC and paper charts) from the one and only S-101+ source database.

Prior to launch the tri-fuel production, Traficom will perform a one-push migration from the legacy S-57+ database to S-101+ database and enable "reverse mapping" from S-101+ data model to S-57+ data model which will be used for S-57 ENC and paper chart production.

The one-push database migration is scheduled at the end of October 2025 from where S-101 production will start. The dual fuel S-57/S-101 distribution services by PRIMAR is planned to start in January 2026. Production of S-101 ENCs will start in the Archipelago Sea and proceed northwards. The plan is to have the most of Finnish coastal waters covered by S-101 ENCs before end of 2026.

A new S-102 Bathymetric Surface products will, in first phase, be published at the main ports and fairways, parallel with the first editions of the Approach S-101 ENCs.

Traficom in cooperation with Fintraffic Vessel Traffic Services Ltd. has established a development project for a new Maritime Safety Information management system (VILKKU). As a new feature the new system will provide Navigational Warnings in S-124 format.

Finnish Meteorological Institute (FMI) has developed a system for S-104 and S-111 production from where test data sets has already been submitted to the Baltic Sea eNav project.

In the first phase of S-100 production, Traficom will not provide S-128 Catalogue of Nautical Products, since PRIMAR will have automated process for creating S-128 Catalogues for products such as S-101, S-102, S-104 and S-111.

Maritime digitalisation and related RDI activities

Traficom conducted a survey among maritime stakeholders on digitalisation and RDI activities in the maritime sector. The aim of the survey was to gain a better understanding of how digitalisation and research, development and innovation (RDI) are perceived by different stakeholders, what expectations and challenges are associated with them, and how Traficom can best support and promote this development. The survey also aimed to identify parties interested in participating in a planned maritime digitalisation cooperation forum and in RDI collaboration.

The wind power study

The wind power study (open-water season) has been completed ([Link to document](#)). The aim of the study was to assess the risks that the construction of wind farms may pose to maritime traffic in the Bothnian Bay, and to propose measures for managing these risks. The results are expected to support decision-making by Finnish and Swedish authorities in finding an optimal solution that balances the needs of maritime traffic and wind power developers in this sea area.

The study was commissioned by the Finnish Transport and Communications Agency (Traficom). Other members of the steering group included the Finnish Transport Infrastructure Agency and the Swedish Maritime Administration. The practical implementation of the study was carried out by Ramboll. This study is also part of a broader assessment process, which will later address the impacts of wind farms on winter navigation as well as the benefits and costs for Finland and Sweden.

11. Other activities

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

Finland participate the Council, HSSC and IRCC meetings. Finnish experts are actively working in;

- HSSC/NCWG (as a Chair)
- HSSC/NIPWG (as a Chair)
- HSSC/ENCWG
- HSSC/S-100WG and HSSC/S-101PT
- HSSC/DQWG
- HSSC/TWCWG
- HSSC/HSWG
- HSSC/MASSPT
- IRCC/WENDWG (representing BSHC)
- Baltic Sea Hydrographic Commission including BSHC/BSICCWG (Chair), BSHC/MWG (Chair), BSMSIWG and BSHC/CDWCWG
- Nordic Hydrographic Commission including NHC/NCPEG, NHC/NSEG
- Arctic Region Hydrographic Commission (Associate Member) including ARHC/OTWG.

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

11. Conclusions

This report highlights the main activities of the Finnish Hydrographic Office since BSHC Meeting in September 2024.