

National Report of Finland

[31 August 2009]

Executive Summary

This Report gives an overview of the main activities of the Finnish Hydrographic Office since the previous BSHC 14th Conference. The main issues are:

- Traffic and Fairway administrations in Finland will be re-organised by 1st January in 2010. Two new agencies will be established to replace existing three administrations.
- Some decentralising will be done. The Hydrographic Office will be located in Helsinki area, but a new (8 - 10 staff) unit for inland areas will be established by 2015 in town of *Lappeenranta*.
- Hydrographic surveys will be moved to a state owned company by 1st January 2010.
- The production of nautical charts and ENC's has been as planned
- Hydrographic surveys have been performed about as planned, some engine failures have delayed surveys
- The Hydrographic Office has participated actively on the IHO and PRIMAR work.

1. Hydrographic Department

Administrative and Organisational Status

The FMA internal production including hydrographic surveys and fairway maintenance will be moved to a state owned company in 2010.

Hydrographic Office will be part of the Finnish Transport Infrastructure Agency by the 1st of January 2010.

The printing and distribution agreement for paper charts has been renewed (with a Print on Demand option) in 2008 with *John Nurminen Marine Ltd* (previous *Troil Marine Ltd*).

Hydrographic Department:

- The Director and Staff (5)
- Hydrographic Surveys Division (4)
- Chart Division (29)
- Hydrographic Information Division (24)

Internal Production Services includes

- **Survey Production Division** (12 + 26 survey officers on board vessels). In addition 40 + 42 persons were contracted from *VG Shipping Oy*.

The annual budget of all these units is roughly 10 - 12 Million €.

Future organisational plans

The Finnish Government has decided that the current road, railway and maritime administrations in Finland will be reorganised by 1st January 2010. The draft Government proposal calls for acts to be adopted on *Finnish Transport Infrastructure Agency* and a *Finnish Transport Safety Agency*. The draft proposal is also linked with another Government proposal for amending about 60 acts.

Under that proposal, the Finnish Rail Administration, the Finnish Road Administration's central administrative functions as well as the Finnish Maritime Administration's functions which are not being transferred to the Transport Safety Agency or to the undertaking to be set up with responsibility for internal production would be merged into the Transport Infrastructure Agency.

The Transport Infrastructure Agency will also be responsible for transport guidance for the Regional Centres for Transport Services, Environment and Industry. Correspondingly, the Finnish Maritime Administration's maritime safety function, official vessel traffic management and pilotage duties and vessel register maintenance, the Finnish Civil Aviation Authority, the Finnish Rail Agency and the Finnish Vehicle Administration would be merged into the Transport Safety Agency.

The Transport Infrastructure Agency will include Road, Railway and Maritime Departments. The Maritime unit includes Hydrographic, Maritime Traffic and Fairway Divisions.

The new main offices, including the Hydrographic Office, will be located on Helsinki area, but there are evaluations going on for de-centralising some 200 - 400 persons by 2015. This includes a new (8 - 10 staff) hydrographic unit for inland areas to be established by 2015 in town of *Lappeenranta* (some 200 km from Helsinki).

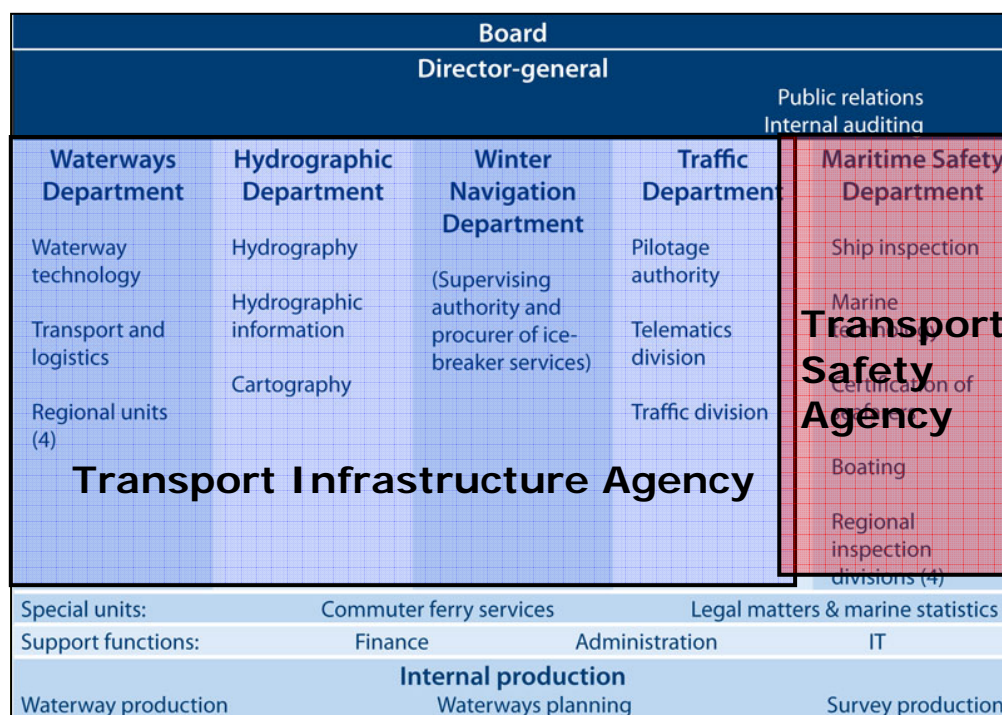


Fig. 1. *The organisation of Finish Maritime Administration in 2009 and its division into new organisations in 1 January 2010.*

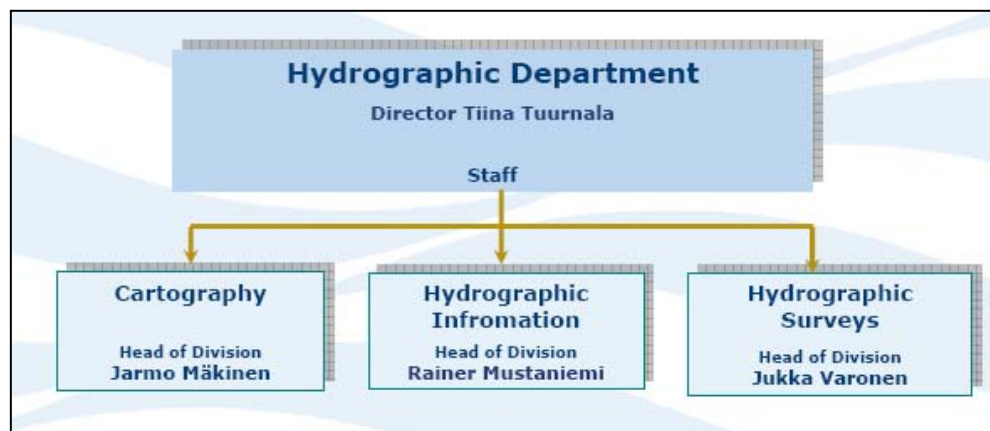


Fig. 2. *The organisation of Hydrographic Department in 2009.*

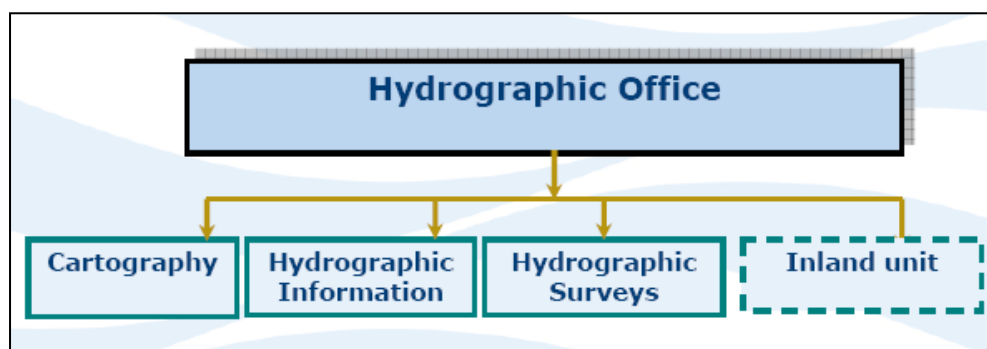


Fig. 3. *The organisation of Hydrographic Office from 1st January 2010.*

Strategic Plans

The Hydrographic Programme was updated for years 2008 - 2018.

The implementation of the **Navi Programme** is going on almost as planned. Insufficient resources have slowed down some activities.

The Process Management System (including **Quality Management and Environmental Program**): is operational. The focus in 2008 was to make sure that the Process Management System is in use in all core and support processes and operation is evaluated and improved by the owners of processes regularly. Implementing performance indicators is currently going on.

2. Hydrographic surveys

Survey results in total in 2008 (own production): included 330 km² single beam echo soundings and 2000 km² surveyed with multi-beam method.

The operational costs for hydrographic surveys were 7 million € (Hydrographic Surveys Division in Helsinki included).

Survey vessels of FMA Hydrographic Production

Vessel	Type / length	Multi-beam launch	Other survey launches	Crew during season	Operation area
Saaristo	Depot ship / 43 m	M640 M620 M646	3	33	<i>Coast of Finland</i>
Sesta	Depot ship / 19 m	SIMO	3	9	<i>Lake Saimaa</i>
Airisto	Survey ship/ 28 m	MBES: Reson SB7125		12	Gulf of Finland, Northern Baltic
Suunta	Survey ship/ 36 m	MBES: <i>SeaBat</i> 8111/7111		14	Coast & open sea
Kaiku	Survey ship/ 22 m	MBES: <i>SeaBat</i> 8101, also a small launch with SBES		5	<i>Lake Saimaa, Lake Keitele (2009)</i>

The two multibeam launches of depot ship **Saaristo** are similar 15 m type launches equipped with *SeaBat* 7125 multibeam, one smaller multibeam launch with SB 7125. S/v **Kaiku**, continued her effective work on the shallower fairways of the *Lake Saimaa*.

The geodetic survey team belongs to *Saaristo*, but works independently on all areas of Finland. The main tasks of the team (9 persons) is the survey of control points for the new EUREF-FIN coordinate frame and the survey of fixed aids for navigation.

S/v **Airisto** modernization project with Reson SB7125 dual frequency MBES system was completed and production started in June 2008.

The MBES onboard S/v **Suunta** was modernized in the spring 2009 to SB 7111, but the system is not yet fully operational.

The continuation of the re-survey of all sea fairway areas is the main objective of surveys (Navi Programme). This task is enlarged now to the surveys of open sea lanes (HELCOM survey plan). General surveys for chart renewals were continued by depot ship **Saaristo** and her launches in eastern part of Gulf of Finland. On inland lakes, the depot ship **Sesta** with her launches, and s/v **Kaiku** also, finalized 2008 the project for renewing the charts of north-eastern *Saimaa* (*Oravi – Joensuu* area). In 2009 depot ship **Sesta** started a chart renewing project of *Lake Kallavesi* (*Kuopio* area).

The BSHC/HELCOM Coordinated Hydrographic Re-Survey Plan has been updated with the survey results of the season.

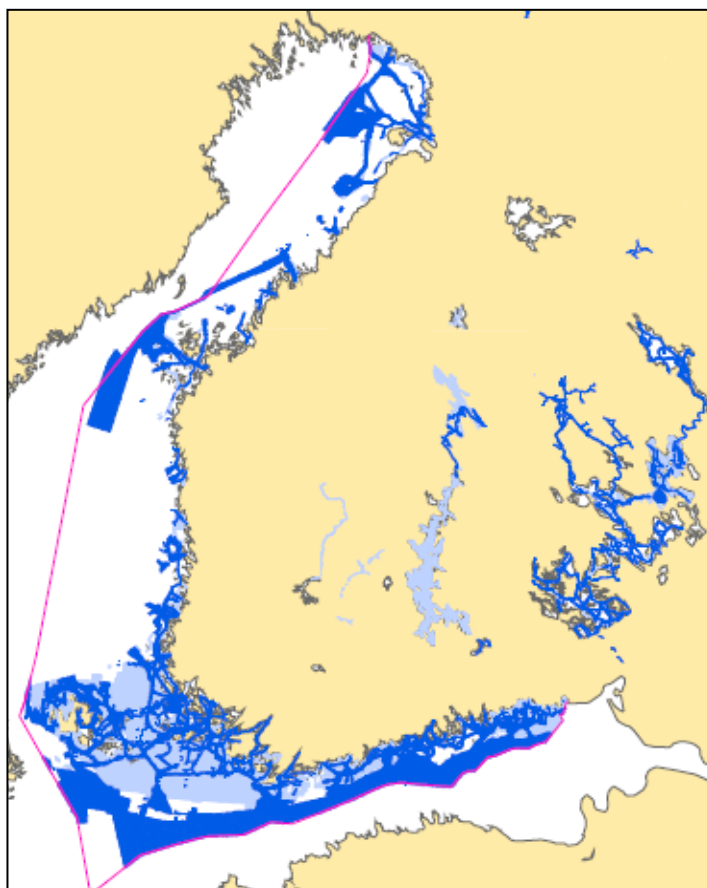


Fig 4. **Status of modern hydrographic survey data at end of 2008.**
Dark Blue: Multibeam
Light blue: Single beam

Hydrographic data processing and management

Survey data validation and quality checking against surrounding data as well as registration into bathymetric databases takes place in the FHO in

Helsinki. The soundings are stored as original soundings in the Sounding Database System (*SYRE*). At the end of the year 2008 *SYRE* did contain about 22 billion soundings covering ~24.000 square km coastal waters and inland lakes. Geographic information of controlled areas and metadata of all survey projects are stored and maintained in the Controlled Area Database System (*VARE*). Data processing systems and databases are developed further and maintained by the FMA.

The FMA has one centralised hydrographic information management system integrated with both the ENC and printed chart production lines. The data management system (*KATISKA*), based on *Oracle10/ArcSDE9* and *ArcMap9.1* include databases and tools for processing and maintaining hydrographic data and export functions for ENC production. Some additional tools for data processing are developed further, for example tool for maintaining certain CATZOC areas automatically.

Printed charts are produced using the *nSector* system via automated update management interface. Both digital and paper products from a single source to avoid discrepancies between the different products and for efficiency of data management.

All incoming correcting data is updated on-line to hydrographic database. At year 2008 FMA started the project to develop management of updates. The goal of this project is to handle chart updates in controlled and efficient way through the whole hydrographic process.

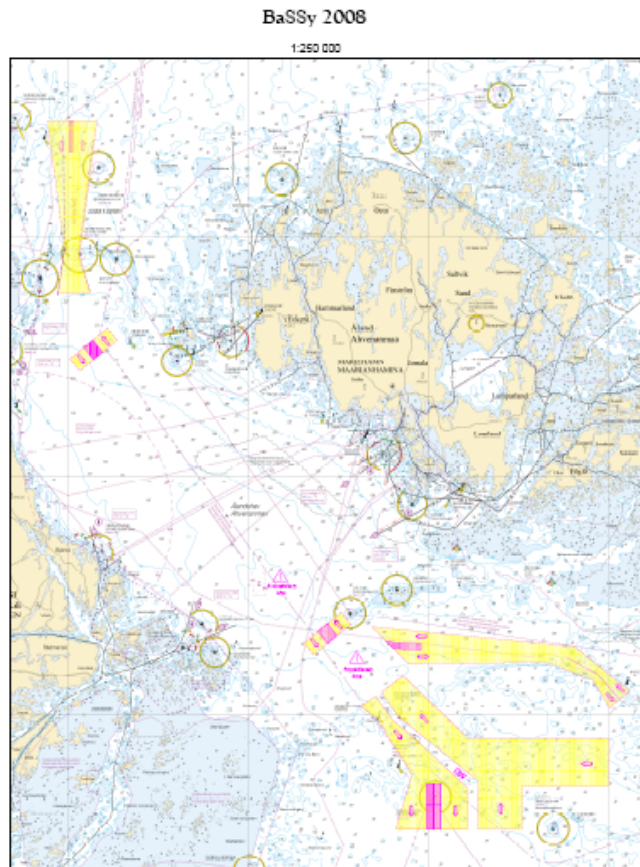


Fig 5. **New TSS on South-West to Archipelago Sea** (enters into force on 1 January 2010)

3. Nautical Charts

Cartography

The chart modernisation from traditional Finnish nautical charts into INT charts was completed for sea areas for charts for SOLAS traffic (General, Approach and Harbour charts). Also most of the yachting charts series have been renewed. The revision of the chart series in *Lake Saimaa* are going on. The revision of the whole chart portfolio (except some minor areas which may be withdrawn from paper chart portfolio) will be completed by the end of 2009 for charts of sea areas and for inland SOLAS traffic charts in 2011.

There are 86 nautical charts and 17 chart series for small crafts. Each series includes normally from 15 to 25 charts for public sale on both sea areas around Finnish coast and on main inland lakes. The amounts of sold copies were in 2008 about 9.500 charts and 17.000 chart series.

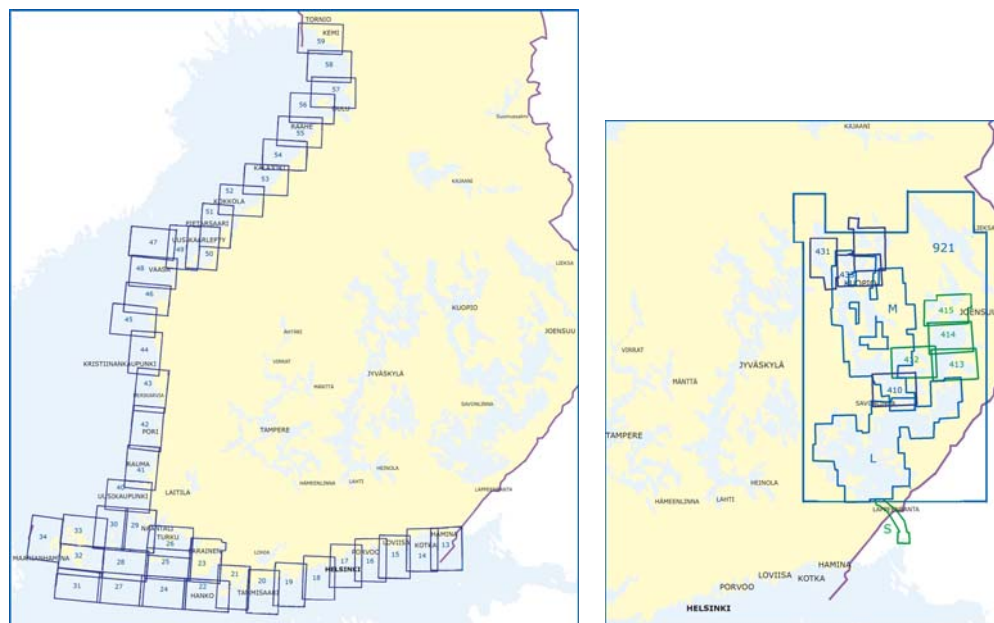


Fig 6. Renewed Finnish coastal charts and inland charts

ENC production and distribution

Currently there are 171 Finnish ENC cells on the market. These cells cover main fairways used by SOLAS vessels in sea areas. Target for adequate ENC coverage in all navigational purposes is end of 2010.

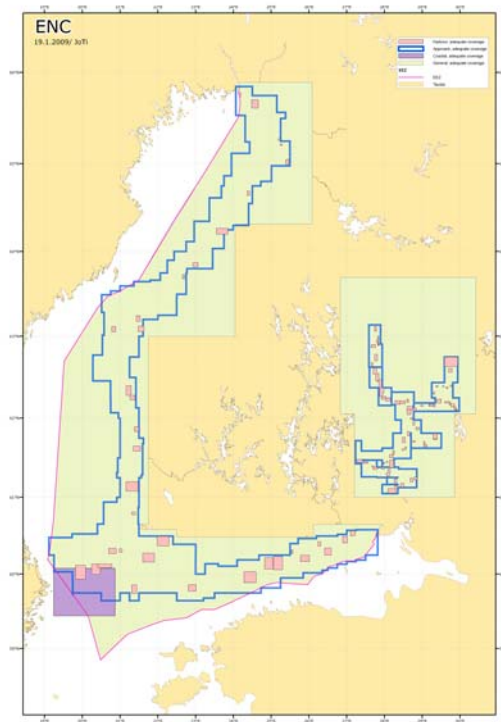


Fig 7. Target coverage for Finnish ENC data.

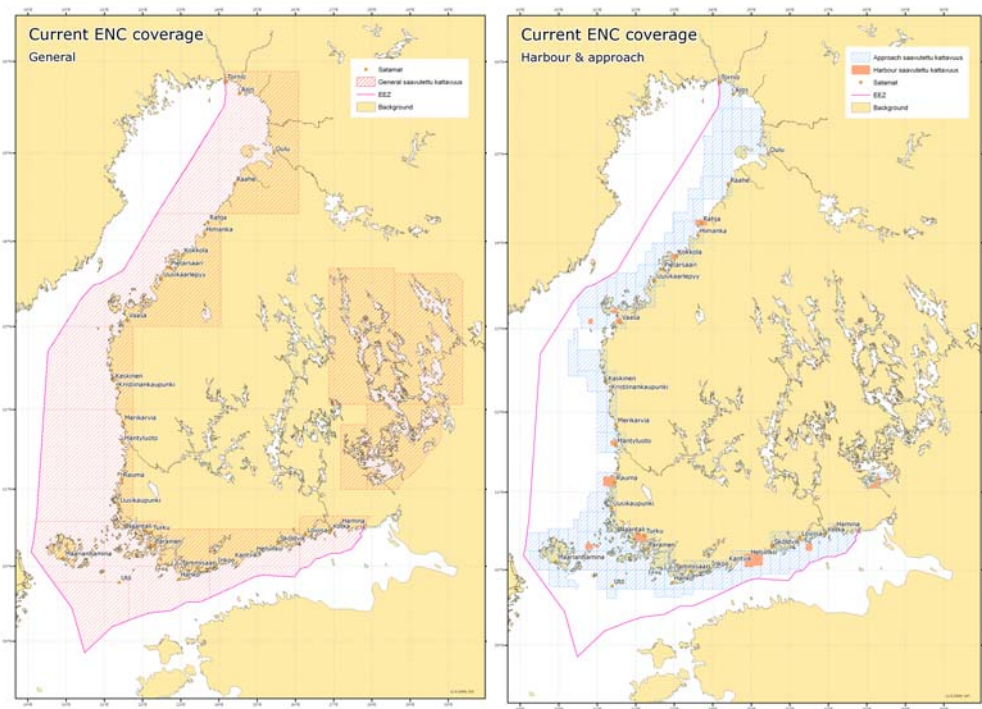


Fig 7b. Current ENC coverage for general , and for approach and harbour usage bands (by August 2009)

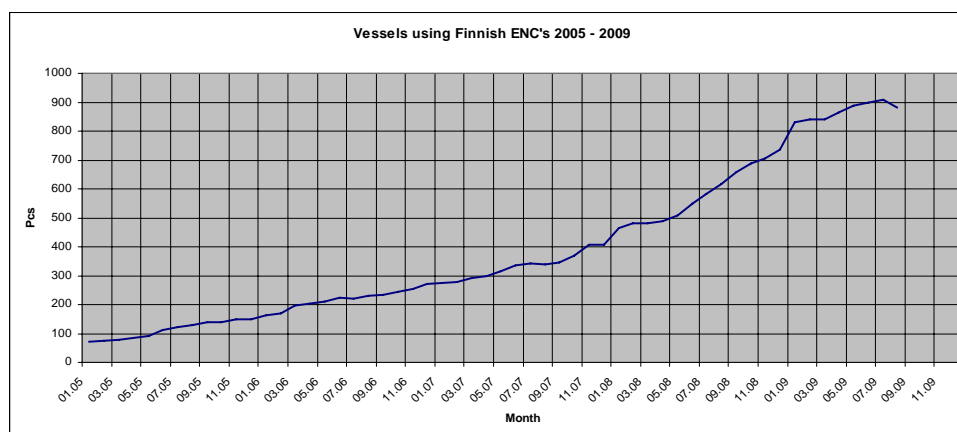


Fig 8. The number of ships using Finnish ENC's in 2005 - 2009.

ENC base cells are produced using tailor-made KATISKA software. ENC updates are produced using both KATISKA and *SevenC's* tools (*ENC Manager* and *ENC Designer*). Tools for validation of ENC's are *dKart Inspector* from *Jeppesen* and *ENC Analyzer* made by *SevenC's*.

The distribution of the ENC's is done via *PRIMAR*. The FHO has used the VPN service as a main data transfer tool. Also other services and tools (*VRC*, *S57 Advisor*, discussion group etc.) provided by *PRIMAR* are used. The experiences of services have been very positive.

Currently there are about 280 customers and about 880 vessels using Finnish ENC's. The total number of active subscriptions is approximately 38500.

4. Nautical publications 2009

Notices to Mariners are published every tenth day and are available also on the Internet. ENC charts are updated once a week based mainly on the NtM material. Notices to Yachtsmen, which are compiled on the basis of the NtM, are published five times a year. Notices to Mariners have been published also in English language since June 2008, and Notices to Yachtsmen since October 2008.

The next edition of the List of Lights on the Finnish Coast will be published in Autumn 2009. General information is given in Finnish, Swedish and English, but the actual list of lights is only in Finnish and Swedish. The database will be updated continuously. The coordinates of all lights are given both in the Finnish national and WGS-84 (EUREF-FIN) coordinate systems. The book contains a complete list of lights and general information about the piloting, DGPS and rescue services.

A latest edition of the Catalogue of Finnish Nautical Charts was published in April 2005. The new sales Catalogue of Finnish Nautical Charts was published in February 2009.

A new edition of Chart 1 will be published in 2009.

5. MSI

Navigational Warnings. The FHO (Helsinki Co-ordinator), *Turku Radio* and the designated persons in the Maritime Districts maintain an up-to-date file for navigational warnings. *Turku Radio* (24h service) is sending the Finnish navigational warnings based on this. Navtex warnings will be sent to *Baltico* in Sweden and transmitted by Stockholm Radio.

The system is supervised and co-ordinated by The Hydrographer and Helsinki Co-ordinator, whereby the Finnish navigational warning practice constitutes a part of the international navigational warning system.

From 1st January 2010 there will be technical changes in the Finnish MSI network. This will cause some changes in the Finnish Coastal and Local warning practices. These changes will be arranged in co-operation with Baltico and informed in the Notices to Mariners.

6. S-55

The S-55 database has been updated March 2009 (only minor changes).

IHO S-55: Finland						Updated	09 March 2009	INT Region	E
Status of Hydrographic Surveys						A1/A2 = % adequately surveyed 0-200m / >200m B1/B2 = % requiring re-survey at larger scale or to modern standards 0-200m / >200m C1/C2 = % which has never been systematically surveyed 0-200m / >200m			
A1	A2	B1	B2	C1	C2	Comment			
40	0	52	10	8	90	1. Contributes to the HELCOM harmonised re-survey programme. 2. Complex sea area with extensive shallow waters, islands and rocks critical to navigation. 3. Shortfalls in areas needed by ice navigation especially in the Bay of Bothnia.			
Status of Nautical Charting						A = % covered by INT Charts, B = % covered by RNC, C = % covered by ENC			
Offshore passage/Small			Landfall Coastal passage/Medium			Approaches Ports/Large			Comment
A	B	C	A	B	C	A	B	C	
80	0	100	100	0	65	95	0	15	
Percentage of metric paper charts			100	Percentage of paper charts on a satellite datum			100		
Status of Maritime Safety Information									
Local Warning			Coastal Warning			Port Information			NAVAREA Warning
YES			YES			Partial			NO
Master Plan			Area A1	Area A2	Area A3	NAVTEX		SafetyNET	
NO			YES	YES	NO	YES		YES	
						In co-operation with BALTICO		In co-operation with BALTICO	

7. Capacity building

Nothing to report.

8. Oceanographic activities

The FMA has an action plan to take a new vertical reference datum in use. This new datum will be based on the European Height reference system. However there is no fixed time schedule for this transition. In Finland also the land mapping authorities have decided to move on the same vertical reference datum. The BSHC countries are looking for a common vertical reference on the Baltic Sea.

The Hydrographic Department has a close co-operation with the Finnish Meteorological Institute for which is now responsible for sea level observations. There are common development plans for enhancing the

methods and procedures for distributing actual sea level data and its interpolations and estimations. Finland has been active on promoting the non-tidal water level issues in the HSSC TWLWG.

9. Other activities

Bilateral Arrangements

The Nordic Countries negotiations with UKHO was finalised and a new Bilateral Arrangement including chart adoption concept was signed. At the same time a new commercial agreement covering ARCS was signed. The same concept has been introduced to Russia as well. The co-operation with in dual-batch concept with Germany has started well.

Spatial Data Infrastructure and Services

The non-navigational use of hydrographic data is increasing all the time and the INSPIRE directive demands new activities from HOs. The directive has been implemented in Finland by a Spatial Data Infrastructure Law which entered into force in Summer 2009. FMA has participated actively on the work of National Geo Data Portal. The Primar Web Chart Service has been linked to the portal and it is in trial use.

International activities

The Hydrographic Office has participated actively on the IHO work. Finland has had representatives in the WEND, CHRIS and HSSC Committees, and in their various working groups e.g. TSMADWG, CSPCWG, DIPWG, HICWWG (Vice-chair), MSDIWG, DQWG, TWLWG (representing BSHC). Also Finland has represented both the NHC and BSHC in the ISPWG.

Finland has been active within the BSHC on ENC harmonisation (BSEHWG), harmonisation of vertical datums (ChartDatumWG Chair), Hydrographic Re-Survey Monitoring WG (MWG Chair), BSICC (Chair). Within NHC Finland has been active on Data Quality issues (establishing and chairing of Nordic DQWG), and enhancing paper chart production (PCPWG) and hydrographic data transfer (IDEWG). Finland has participated to the work of all the working groups of PRIMAR.

Printing On Demand

The FMA has worked with the Technical Research Centre of Finland (VTT) on the issue of Printing On Demand. The pre-study for FMA has been made. During this year several tests will be made in order to make a recommendation of acceptable printing solutions.

10. Conclusions

This report highlights the main activities of the Hydrographic Department since the previous BSHC 13th Conference.