

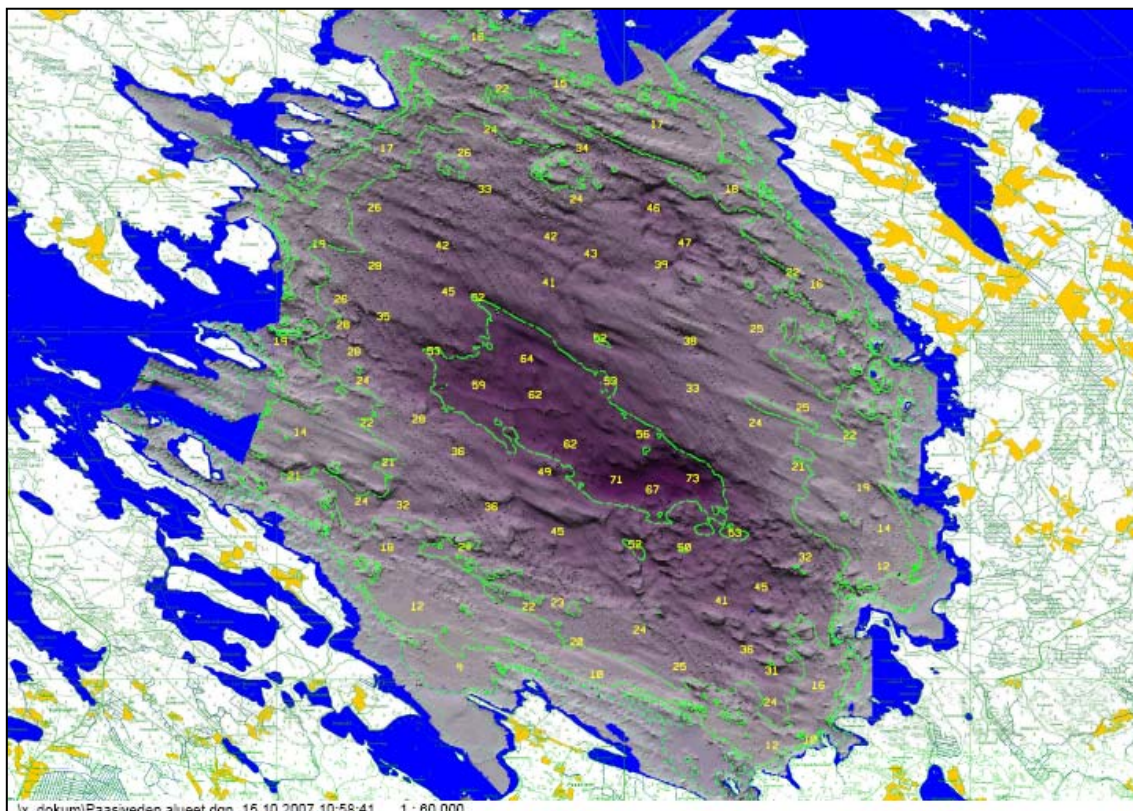
National Report of Finland

[26 June 2008]

Executive Summary

This Report gives an overview of the main activities of the Finnish Hydrographic Office since the last BSHC 12th Conference. The main issues are:

- Chart Production Section has been moved back to the authority part of the Finnish Maritime Administration
- Hydrographic surveys will be moved to a state owned company in 2010.
- The production and publishing yachting charts will continue with current organisational arrangements at least the next four years
- The production of nautical charts and ENC's has been delayed due resource and technical reasons. New ENC production line has been taken into use.
- Hydrographic surveys have been performed about as planned
- The Hydrographic Office has participated actively on the IHO and PRIMAR work.



A meteorite crater in a lake identified during surveys in 2007.

1. Hydrographic Department

Administrative and Organisational Status

There are studies going on regarding to the re-organisation of the maritime and traffic administrations in Finland.

Chart Production Section has been moved back to the authority part of the Finnish Maritime Administration. The internal production including Hydrographic surveys will be moved to a state owned company in 2010. The production and publishing yachting charts (chart series) will continue with current organisational arrangements at least the next four years. The printing and distribution agreement for paper charts will be renewed (with a Print on Demand option) in 2008.

The Director Mrs. *Tiina Tuurnala* is on her maternity leave about by the end of 2008, Mr. *Rainer Mustaniemi* as the acting director.

| Board | | | | |
|----------------------------|-----------------------------|--|------------------------|---|
| Director-general | | | | |
| | | | | Public relations Internal auditing |
| Waterways Department | Hydrographic Department | Winter Navigation Department | Traffic Department | Maritime Safety Department |
| Waterway technology | Hydrography | (Supervising authority and procurer of ice- breaker services) | Pilotage authority | Ship inspection |
| Transport and logistics | Hydrographic information | | Telematics division | Marine technology |
| Regional units (4) | Cartography | | Traffic division | Certification of seafarers |
| | | | | Boating |
| | | | | Regional inspection divisions (4) |
| Special units: | | Commuter ferry services | | Legal matters & marine statistics |
| Support functions: | | Finance | Administration | IT |
| Internal production | | | | |
| Waterway production | | Waterways planning | | Survey production |

Fig. 1. *The organisation of Finish Maritime Administration in 2008.*

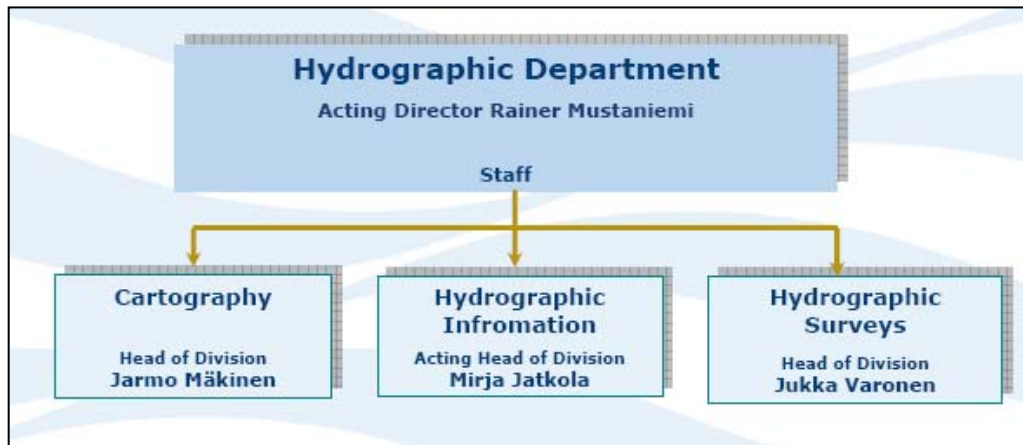


Fig. 2. *The organisation of Hydrographic Department in 2008.*

Hydrographic Department:

- The Director and Staff (4)
- Hydrographic Surveys Division (4)
- Charts Division (28)
- Hydrographic Information Division (22)

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 Million €.

Strategic Plans

The Hydrographic Programme for 2005 - 2015 was in use and it will be updated for years 2008 – 2018 by September 2008.

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**): The aim of this strategic project is to improve the quality and performance of the operations. The FMA has defined its core processes in 2005-2007 and the Hydrography is one of them. The *QPR Process Guide* software for process modelling and the *QPR ScoreCard* for measuring were taken in use in 2006. The Process Management System is a quality management system including productivity measurement tools, risk management of processes and Environmental Program. The Environmental Program 2004 - 2008 has been updated 2007.

The focus in 2008 is 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.

2. Hydrographic surveys

Survey results in total in 2007 (own production):

- 501 km² single beam echo soundings
- 2059 km² surveyed with multi-beam method
- 290 geodetic control points measured
- 180 fixed aids for navigation measured

The operational costs for hydrographic surveys were 7.5 million € (Hydrographic Surveys Division in Helsinki included).

Survey vessels of FMA Hydrographic Department

| Vessel | Type / length | Multi-beam launch | Other survey launches | Crew during season | Operation area |
|-----------------|-------------------|---|-----------------------|--------------------|----------------------------------|
| Saaristo | Depot ship / 43 m | M640 M620 | 3 | 33 | <i>Gulf of Bothnia</i> |
| Sesta | Depot ship / 19 m | - | 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 | | 14 | Coast & open sea |
| Kaiku | Survey ship/ 22 m | MBES: <i>SeaBat</i> 8101, also a small launch with SBES | | 5 | <i>Lake Saimaa</i> |

The two multibeam launches of depot ship **Saaristo** are similar 15 m type launches equipped with *SeaBat* 8101 multibeam. S/v **Kaiku**, continued her effective work on the shallower fairways of the *Lake Saimaa*. Operating software on all multibeam vessels was changed to QPS QINCy.

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. During the season 2007 this group renewed survey control network over the coast of Gulf of Finland and in Lake *Ruovesi-Virrat*. Another task of this team is the positioning of fixed aids to navigation and various specific GPS-surveys.

S/v **Airisto** modernization project with ATLAS FS 30 C was continued, Fansweep 20 was installed for testing purposes. At the end of the season the project was ceased in common understanding with the manufacturer. Reson SB7125 dual frequency MBES system was selected for a new system and production will start June 2008.

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 and also finished in the western parts of *Åland* by depot ship **Saaristo** and her launches. On inland lakes, the depot ship **Sesta** with her launches, and s/v **Kaiku** also, continued the project for renewing the charts of north-eastern *Saimaa* (*Oravi – Joensuu* area).

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

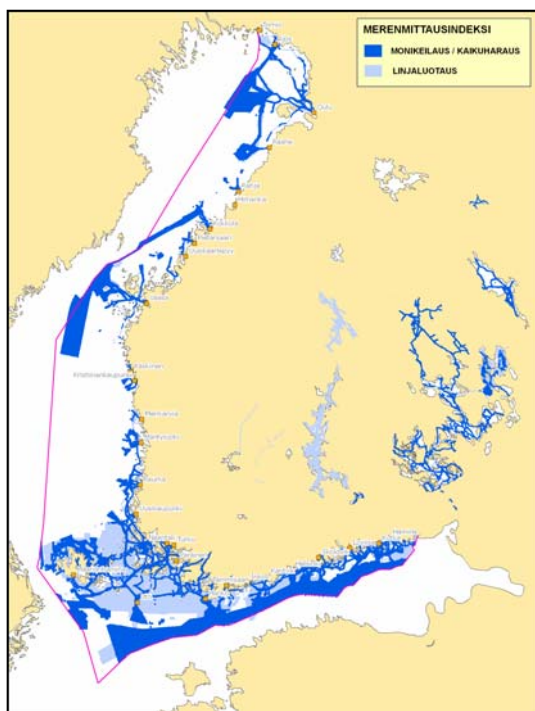


Fig 3. **Status of modern hydrographic survey data.**

Dark Blue: Multibeam
Light blue: Single beam



Fig 4. **Status of processing of modern hydrographic survey data.**

Blue: Processed
Grey: Not processed

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 2007 SYRE did contain about 17 billion soundings covering 21600 square km coastal waters and inland lakes. Geographic information of controlled areas and meta data 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 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* include databases and tools for processing and maintaining hydrographic data and export functions for ENC production. Printed charts are produced using the *nSector* system via automated update management interface. Since both digital and paper products are derived from a single source there are no discrepancies between the different products.

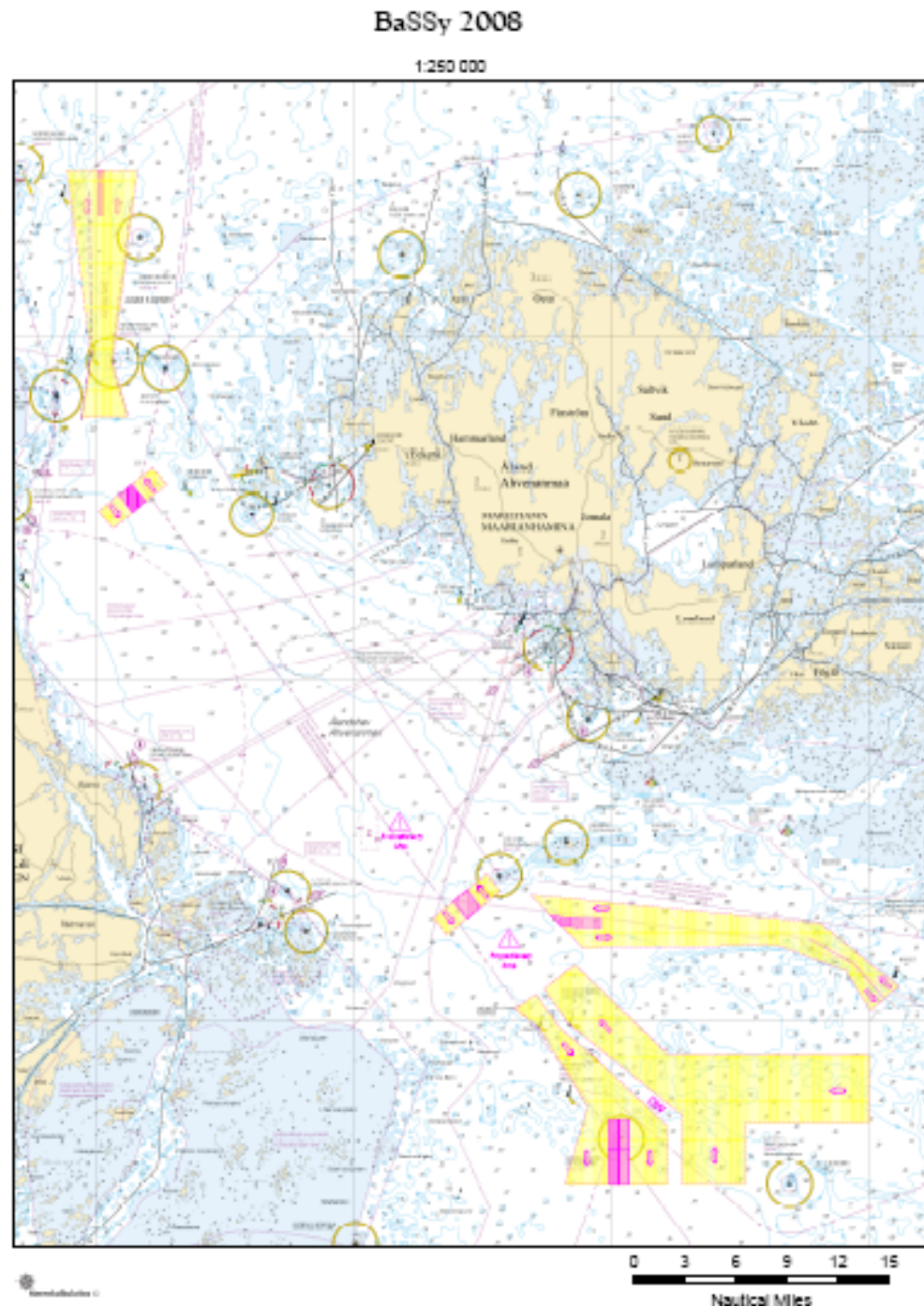


Fig 5. *Proposed new TSS on South-West to Archipelago Sea*

3. Nautical Charts

Cartography

The chart modernisation where traditional Finnish nautical charts will be compiled as INT charts was started in 2003. The progress of this process has been somewhat slowly than planned, some problems with the new system drawbacks have been encountered. So far all coastal charts, all existing harbour charts (except one), 4 general charts and about 60% of the yachting charts series have been renewed. The revision of the whole chart portfolio will be completed by the end of 2009 for charts of sea areas and for inland SOLAS traffic charts in 2010.

New charts are produced by the chart production system called *nSector*. The production line has been integrated with the KATISKA -system. KATISKA is a new upgraded version of former HIS system. KATISKA has been taken into use for production of paper charts during 2006. New ENC production line via KATISKA is taken into use.

The CHRIS Chart Standardisation and Paper Chart Working Group (CSPCWG) has approved the proposal for the fairway area and IHO has also approved that. Harmonization of paper chart symbology as close as possible to M-4 is going on. New Chart/New edition/Reprint terminology will be taken into use in Finnish paper charts in 2008.

There are 101 nautical charts and 18 chart series for public sale on both sea areas around Finnish coast and on main inland lakes. The amounts of sold copies were in 2007 about 11.000 charts and 20.000 chart series.

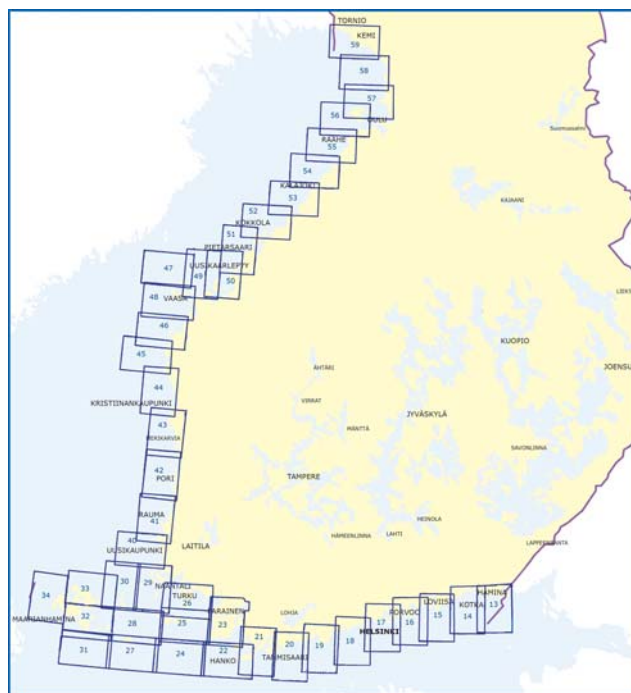


Fig 6. Renewed Finnish coastal charts

ENC production and distribution

Currently there are 132 Finnish ENC cells on the market. These cells cover main fairways in Gulf of Finland, Archipelago Sea and Gulf of Bothnia. Adequate ENC coverage in navigational purpose approach will be reached by mid 2010.

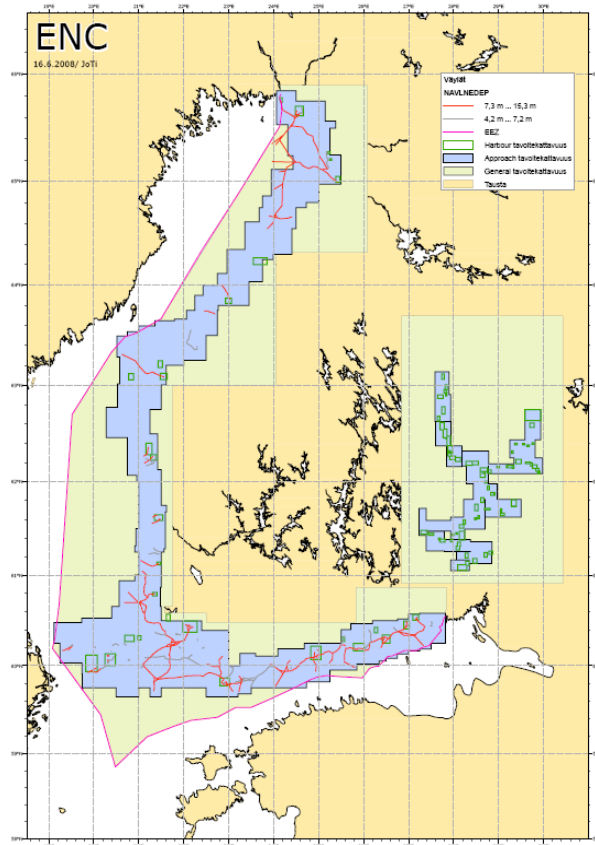


Fig 7. Finnish ENC production plan.

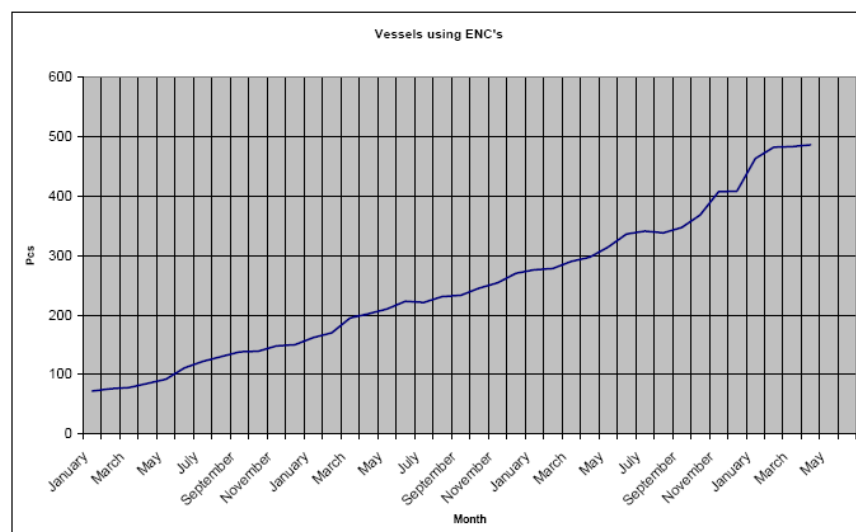


Fig 8. The number of ships using Finnish ENC's in 2005 - 2007.

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

The distribution of the ENCs 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 190 customers and about 510 vessels using Finnish ENCs. The total number of active subscriptions is approximately 24700.

4. Nautical publications 2008

Notices to Mariners are published every tenth day and are available also on the Internet. ENC charts are updated once a week based 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 will be published also in English language since June 2008.

The latest edition of the List of Lights on the Finnish Coast was published in May 2007. 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 2008.

A new edition of Chart 1 will be published in 2008.

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.

6. S-55

The S-55 database has been updated April 2008 (only minor changes).

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. In Finland also the land mapping authorities have decided 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 Marine Research Institute for which is 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.

9. Other activities

Bilateral Arrangements

A Bilateral Arrangement including "Dual batch" concept with Germany was signed. Negotiations are going on with UKHO together with Denmark, Norway and Sweden.

International activities

The Hydrographic Office has participated actively on the IHO work. Finland has representatives in the WEND and CHRIS Committees, and FIG/IHO/ICA Committee on competence of Hydrographers and Nautical cartographers, and in various working groups e.g. TSMADGW, CSPCWG (Vice-chair), S-44WG, HICWWG (Vice-chair) and MSDIWG. 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 (Chairing ChartDatumWG) and on Coordinated Hydrographic Re-Survey Plan (Chairing BSHC/HELCOM MWG). Finland has participated to the work of all the working groups of PRIMAR.

10. Conclusions

This report highlights the main activities of the Hydrographic Department since the last BSHC 12th Conference.
