

UPDATES ARCTIC HYDROGRAPHY NORWAY

Executive Summary

This report gives an update of the activities that have taken place within the Norwegian Hydrographic Service (NHS) since the autumn 2011. Some main issues are:

- The LEAN methodology has contributed positively to our performance
- The survey activity around Svalbard cancelled
- Extensive surveying in the Mareano project
- The Blast project has achieved tangible results
- Five new ENC's at Svalbard
- The Pleco and the NMDB projects to be re-started

1. Hydrographic Office

No significant change has taken place in the organizational structure. Reference is made to the National Report for ARHC1.

The organizational development program for continuous improvement based on the LEAN tools has been ongoing and terminates in autumn 2012. A project manager was recruited in September 2011. Several improvements is already implemented.

Total budget for NHS 2012 is NOK 265 mill., included the additional allocation of NOK 55 mill for the Mareano project

2. Hydrographic Surveys

2.1. Surveying 2011/2012

Svalbard

The surveying planned for the coastal waters around Svalbard in the 2012 season was cancelled as the survey capacity was requested for the Mareano project

Barents Sea

As part of the Mareano project some surveying has taken place along the agreed delimitation line between Norway and the Russian Federation.

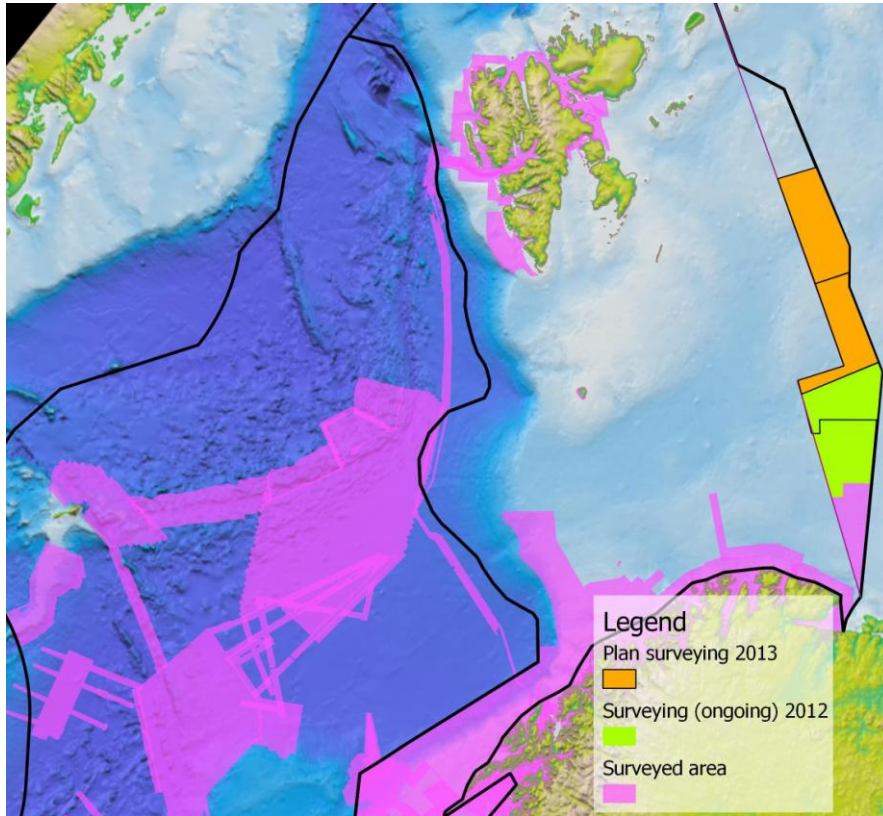


Fig. 1: An overview of the existing multibeam surveying in the Norwegian Arctic waters. The surveying for the Mareano project in 2012 and plans for 2013 is included.

The main part of the surveying in the Mareano project took place to the south of the area shown in the figure above. The greater part of the surveying is done by contracted private companies.

Norwegian coast

Two survey launches, equipped with EM 3002D, have been operating on a 12-hour daily. Our R/V Hydrograf has contributed with the EM710 in some fjords in addition to the surveying off the coast (Mareano project). All the surveyed coastal areas are outside the Arctic region.

2.2. Planned surveying at Svalbard 2013

Based on inputs from the main stakeholders a long term survey plan for the territorial waters of Svalbard has been developed.

The guidance for the plan is that the whole Svalbard area shall be covered by adequate ENC/navigational charts, except for a few areas that are seldom visited

The surveying takes place at the western side in the beginning of the season as the eastern part is normally covered with ice until July/August. The routes for the cruise traffic will be prioritized in

the west and north. On the east side safe navigation is some main passages will govern the priority of surveying. The detailed plan for 2013 is not yet available.

3. New charts and updates

A chart plan comprising both surveying and ENC/chart production for the Norwegian coast and the Svalbard area for the period 2013 – 2017 was published April 2012.

3.1 Paper charts

Svalbard Charts:

The Main chart series at Svalbard is in scale 1:100.000. In 2011 all charts were issued as new edition. This was done after updating a general warning of restrictions of navigation in unsurveyed areas. Up to now 14 charts out of the planned 26 are published.

In 2011 new edition of the coastal and general charts in the Svalbard areas were issued. The charts were issued as INT-charts and ENCs were made for the same areas.

<i>National No</i>	<i>Title</i>	<i>Scale</i>	<i>Published</i>
501	Bjørnøya	1:40.000	1969
513	Svalbard havner	1:15.000 – 1:50.000	2009
521	Femtebreen - Gråhuken	1:100.000	2011
522	Forlandsrevet - Femtebreen	1:100.000	2011
523	Isfjorden	1:100.000	2011
524	Prins Karls Forland - Barentsburg	1:100.000	2011
525	Bellsund – Van Mijenfjorden	1:100.000	2011
526	Hornsund	1:100.000	2011
527	Sørkapp	1:100.000	2011
533	Storfjorden. Freemansundet – Heleysundet – Sørporten	1:100.000	2011
534	Olgastretet. Freemansundet - Svenskøya	1:100.000	2011
535	Erik Eriksenstretet. Sørporten – Fosterøyane	1:100.000	2011
536	Hinlopenstretet S. Sørporten – Fosterøyane	1:100.000	2011
537	Hinlopenstretet N. Fosterøyane – Nordporten	1:100.000	2011
539	Norskebanken	1:100.000	2011
540	Hinlopenrenna. Moffen - Lågøya	1:100.000	2011

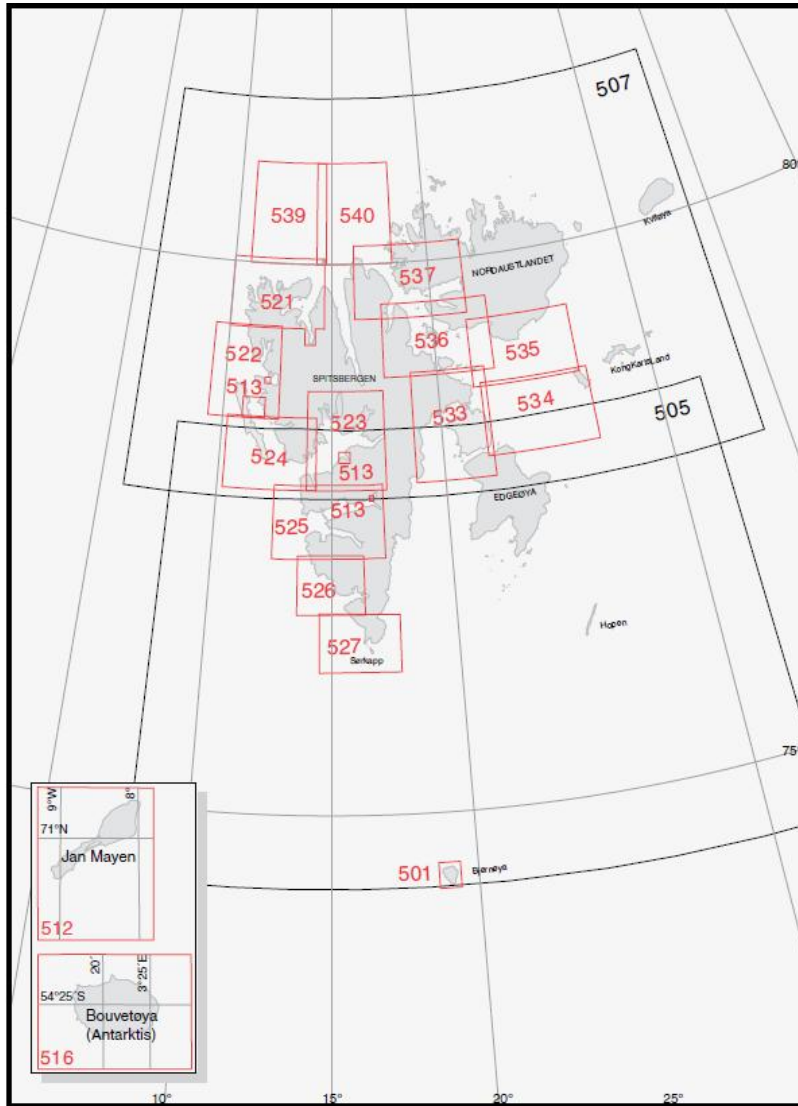


Fig. 2: Overview of the existing Main chart series at Svalbard, scale 1:100.000

INT-charts:

<i>INT No</i>	<i>National No</i>	<i>Title</i>	<i>Scale</i>	<i>Published</i>
INT 100	(NO 303)	Norskehavet. Norge – Jan Mayen	1:3.500.000	2008
INT 113	(NO 315)	Grønlandshavet	1:3.500.000	2008
INT 174	(NO 514)	Barentshavet	1:2.000.000	2011
INT 175	(NO 515)	Svalbard - Grønland	1:2.000.000	2011
INT 1015	(NO 505)	Svalbard	1:700.000	2011
INT 1016	(NO 506)	Barentshavet	1:700.000	2011
INT 1017	(NO 507)	Svalbard. Nordstvalbard	1:700.000	2011
INT 1421	(NO 512)	Jan Mayen	1:100.000	2011

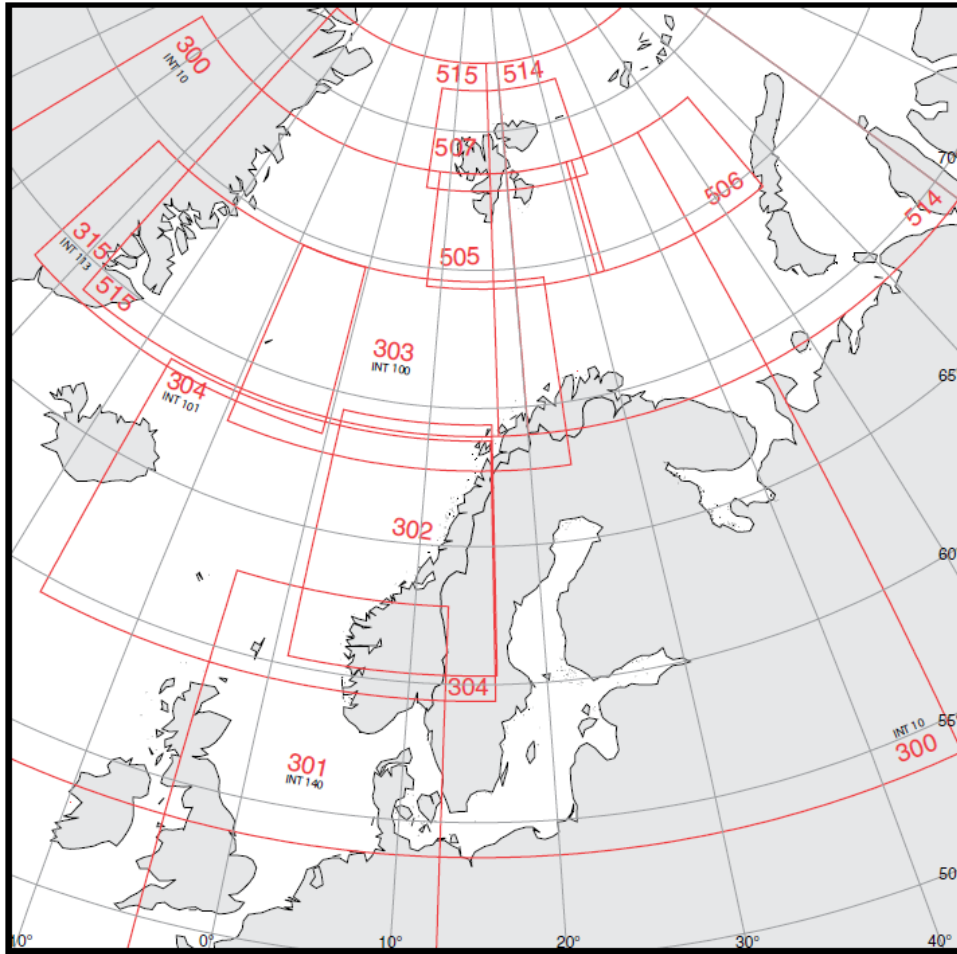


Fig. 3: Overview of coastal and general charts published by Norway

3.2. ENC

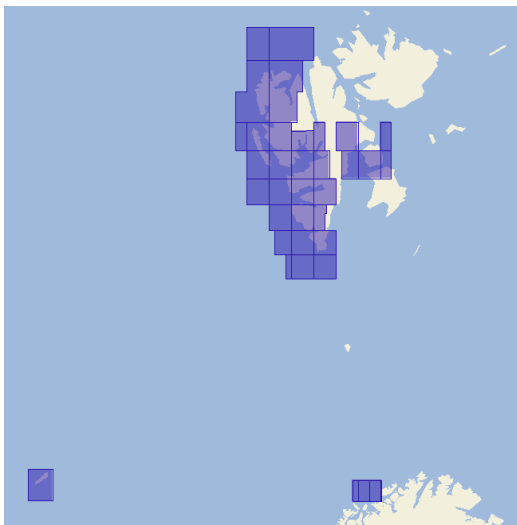


Figure 4: ENC coverage in the Svalbard area, (User Band 2 and 3)

Since the last report the ENC coverage in the Svalbard area has been extended with 5 new Coastal ENCs on the eastern side of Svalbard, see Figure 4. One more Coastal ENC in the same area will be produced in the next few months. In addition Jan Mayen has been covered by a new Coastal ENC.

3.2. Technology

Print On Demand (POD)

The NHS initiated in 2007 a project with the objective of establishing a Print on Demand (POD) service. In January 2011 we offered the Main Chart Series (143 charts) as POD charts. Some Harbour Charts (28) was included in the POD service from January 2012.

New files are created every 14 days, based on a continuous day to day update routine of the production data base. The available files in pdf format can be downloaded by the actual distributor and printed locally. The total amount of distributors is close to 10.

4. Nautical Publications

A new edition of the “Norwegian Pilot”, volume 7, Svalbard, was printed in august 2011. A edition written in English is in progress.

Notices to Mariners

Totally 24 editions are published every year. The publication is available both as printed version and in PDF-format for distribution by e-mail. Notice to Mariners is also published on <http://www.statkart.no/efs/>.

5. MSI

The Norwegian Coastal Administration is the national authority responsible for MSI in Norway.

6. C-55

Update of C-55 was sent to IHB in November 2011.

7. Capacity building

Norway is a member of the IHO Capacity Building Sub-Committee, but did not attend the meeting in June 2012.

8. Oceanographic activities

The project on establishing a model of the MSL for coastal/inshore waters has been ongoing since last meeting.

All our 23 tide gauges along the coast have been operational with good results. We are in the planning process for establishing a permanent tide gauge at Jan Mayen.

A new web page (www.sehavniva.no) has recently been launched, giving water levels, tidal predictions, trends in sea level etc. The new product is made in cooperation with the Division of Geodesy within the Mapping Authority

9. Other activities

9.1. The BLAST project – Bringing Land and Sea Together

More information about the BLAST project can be found at the project website www.blast-project.eu

The project period end autumn 2012. Results from the different work packages below are recently updated at the web. A final work shop for the project was held in Edinburg 16-17 September.

Work packages:

- [Land and Sea Model](#)
- [Navigating the North Sea](#)
- [Maritime Traffic Harmonisation](#)
- [Climate Change in the Coastal Zone](#)

A presentation of the BLAST project will be given at ARHC3

9.2. The MAREANO Program

More information about the Mareano program is available at www.mareano.no.

In 2012 the program received NOK 88.4 mill in total through earmarked funding to Mareano through the National budget with a focus in selected offshore areas between 62°N-66°N and the previously disputed zone in the Barents Sea. NHS received NOK 55 mill.

The multibeam surveying is described in chapter 2.

A presentation of Mareano will be given at ARHC3

9.3. The Pleco project

This project for procuring a new post-processing system of multi-beam echo-sounder data was presented in the last year report. An invitation to tender was announced in September last year. Due to lack of response no supplier was selected. All potential suppliers were invited for further discussions. After a new tender process a candidate is selected. We expect to sign the contract in near future.

The main goals of the project are

- to be able to manage the high volumes of data produced by modern multi-beam echo-sounders systems
- to be able to efficiently visualize the data in 3D

- to have efficient statistical algorithms for data cleaning
- to report shoals, based on the cleaned dataset in an efficient way
- to get a system that allows for recreation of the final result from its raw data based on the corresponding recorded cleaning steps
- to get a system that can be used for quality control and validation of depth data in the field and in the office
- to get a system that absolutely minimize the number of manual operations and mouse movements (with occupational health and safety in mind).

The Norwegian Bathymetric Database - NMDB

The Norwegian Hydrographic Service awarded in 2008 a contract to a Dutch company for the delivery of a new management and distribution system for high resolution depth data, called the Norwegian Bathymetric Database (NMDB).

The NMDB will have three main functional parts: Data assembly, data management and data distribution. For more details, see National report to ARHC1.

The company that was contracted for developing the NMDB solution went bankrupt after having delivered the main components. NHS has decided to terminate any further development on the existing solution. We are preparing a new tender process.