



## **NHC66, 21/22 March 2023**

**21.03.2023; Morning Session**

### **A1. Opening of Conference**

### **A2. Welcome from the host country**

DK: Chair opened the conference, and welcomed all NHC participants, as well as the IHO Secretary General Dr. Mathias Jonas as representative of the IHO Secretariat.

### **A3. Adoption of the Agenda**

DK: Chair presented the agenda. Explained the situation of the current statutes and a revised draft prepared by DK and NO ahead of NHC66. Also, DK suggested to add a minor agenda item concerning the Nordic representation to IENWG as agenda item E4.

SE: Suggested to move the agenda item statutes to the afternoon of day two of NHC66. This allows a small project team to work on the statutes prior to that.

→ **Agenda was adopted with minor changes.**

### **A4. Minutes and actions from NHC65**

DK: Chair presented the List of Actions from NHC65, focusing only on the items that were still open or where the status was unclear.

Item 1: CATZOC 'best practice' call:

NO: DQWG chair has left.

SE: This is a general point of the DQWG, so no longer an action point for NHC.

→ **Action closed.**

Item 3: FI to share contact details related to HD Contours.

FI: Done

Item 7: NCPEG to compile best practice from all MS on procedures relating to T/P in ENC messages

→ Task NCPEG again to work with T/P in ENC Messages

→ **Action closed.**

Item 9: Restructuring National Reports.

→ Reports are valuable, NHC keeps the existing structure.

→ **Action closed.**

Additionally, the Chair presented some elements from the NHC64 List of Actions in order to clarify whether they can be closed.

1. Closing point 1:
  - NHC63 B1: MS to establish CATZOC policies and provide information to DQWG.
2. Closing point 5:
  - NHC64 E1: MS to inform on data distribution policy with regards to resolution, TW, EEZ



3. Closing point P2:  
- To report status and developments under S-100.

→ **1. Action: S-100 Implementation to be placed as standing item on the NHC agenda.**

### **B1. Report from the IHO Secretariat**

SG: The IHO Secretary General briefly presented a general record of the current IHO membership situation.

Ahead of Assembly 3, the Secretary General updated NHC member states on the state of preparation, participating IHO member states and the fact that the Council has become the main content contributor to Assembly.

While reporting on the recent USCA Hydrographic Conference, the Secretary General mentioned that US/CA will work on drafting a template to describe S-100 progress. He encouraged the NHC to consider adapting such template when ready.

A lively discussion arose about the share of the world fleet of ships on international voyages carrying ECDIS. According to the figures received from RENCs, this number accounts for approximately 35000 vessels in comparison to a total number of around 120000 vessels from the smallest (< 500 GT) to largest size forming the global fleet. This insight triggered considerations about the ongoing need for provision of paper charts and effective ways to produce them. Member states stressed such questions relate to regulatory issues, that may lie outside of the responsibility of the IHO.

The Secretary General finished his report updating on the current state of the S-100 implementation. The WMO approved the S-4xx series to standardize weather warnings. Also, the UN Decision on 30% Marine Protected Areas by 2030 may notably be a chance to rely on the IHO S-122 standard accordingly. Such implementation would strengthen the mapping authority of the IHO.

#### **B1.2. Council 6 Report**

FI: Finland, who currently holds the NHC Council Seat, reported on Council 6 (October 2022). Particular emphasis on the proposed increased budget for the IHO Secretariat. The Secretary General added a more detailed explanation of the way the current inflation challenges the IHO budget.

Lastly, FI highlighted a number of Council proposals to Assembly, such as the Adoption of the S-100 Dual Fuel Concept and the Adoption of the IHO Resolution - S-100 Implementation.

### **B2. Denmark National Report**

DK: Denmark presented a number of highlights of the past year, as well as an update on general tasks such as charting in Greenland, S-100 implementation, and the current work with externally funded projects.

An updated 50meter model of Danish waters is freely available and has also been provided to EMODnet.

Denmark launched semi-automated extractions of land-data in Greenland, drastically reducing the time used when producing charts of Greenland.



### **B3. Finland National Report**

FI: Finland presented their recent survey progress focused on shallow and near shore areas with Lidar and multibeam, while the Finnish Hydrographic Office continues to use around 20-30 % of their capacity on inland waters.

Finland/Traficom is reconsidering it's open data service for high resolution bathymetric data (Web Coverage Service (WCS) - bathymetric data ) since it provides locations of pipelines and cables in Finnish waters. .

### **B4. Iceland National Report**

IS: Iceland explained their current work dealing with the correction of old charts, cancelling parts of the charts instead of the whole chart.

Further, an update on the work on coastal charts and new harbor plans was given.

The Icelandic Hydrographic Office is challenged by limited resources and few employees.

### **B5. Norway National Report**

NO: Norway presented the planned celebrations of '250 years Norwegian Mapping Authority'. This will be marked with a number external and internal celebratory events.

Further, Norway presented 'Marine Base Maps for the Coastal Zone', highlighting the benefits of working across agencies, co-creating value data and information for customers and users.

Norway provided an update on ENC HD projects, and S-102 datasets in harbors. Norway aims to sell S-102 through PRIMAR.

SE: What are the thoughts on the S-102 business model when selling it through PRIMAR?

NO: It is thought of as a service. Both in terms of updating and interoperability. It won't be free but available for low costs. It is a separate product.

DK: In light of the EU Open Data Directive. The option may be to add 'services' to the data sets to charge for it.

SE: We will need to distinguish navigational data and elevation data.

### **B6. Sweden National Report**

SE: Sweden updated on recent changes in the organization of SMA. Magnus Wallhagen is the new National Hydrographer.

SMA initiated several In-House programs for Improvement of processes. More efficient, less duplication of work. E.g. CATZOC updates, introduce dialog with harbors, improvement of survey planning.

Improvement of Survey to-ENC-Process: Developing standardized criteria and instructions regarding the process of identifying and appointing significantly reduced depths discovered by recent hydrographic surveys.

SMA recorded a significant increase in the sale of Paper Charts due to an increased demand by the Navy. ENC sales have also increased significantly.



DK: Increased traffic in the waters due to ships changing their routes following the war in Ukraine, might have an effect on ENC sales.

- **NHC66 noted the reports.**
- **The Chair thanked for the reports and the input, questions and discussion.**

## **21.03.2023; Post-Lunch Session**

### **C1. (T)CSB Project DK**

DK: Denmark presented their ongoing GAVIAN (T)CSB project and the ideas on Trusted-CSB underlying the project. Essentially, DK sees Trusted-CSB as one of several answers to the existing lack of data in Danish waters. By working with trusted-partners, CSB data would become chartable.

DK has finished creating and building a prototype-box. The box will now be installed on a Danish vessel, testing the data collection before operationalizing the box further on Lake Volta, Ghana, and within the EU MobiSpaces project.

Ideally this box will serve as a VDES box whilst also being a data logger.

NO: Invited DK to present this presentation at the next IHO CSB meeting in August in Stavanger.

SG: Inquiring the meaning and idea behind the trusted crowds. Will DGA proactively approach vessel operators?

DK: Yes, the Danish Hydrographic Office aims to collaborate with selected vessel operators.

- **The presentation was greatly appreciated.**

### **C2. S-100 Products in Finland**

FI: Finland (Traficom) explained their internal approach on S-100 products and organization, elaborating on their collaboration with S-100 partners: Contacting the different partners on a technical level, not only management level. Finland further introduced a meeting schedule with relevant agencies (half-year/one-year meetings), as well as a seminar for all stakeholders in Sep/Oct 2023.

Traficom was able to conclude that partners have high interest in implementing S-100 standards. The Finnish Meteorological Institute (FMI) took a decision to take care of S-104 and S-111, potentially also on a regional level in the future. FMI is otherwise responsible for the S-4xx series.

Key partner for the Traficom/Finnish HO is FMI, but they have also initiated contact with FTIA (Finnish Transport Infrastructure Agency), Fintraffic and Finnpiilot.

SE: PRIMAR is very open to work with other state agencies as well.

Mathias: Emphasizes again that WMO has approved S-4xx as their standard. The big question is how to get the information on the ship.

- **The presentation was highly appreciated emphasizing the need for regional S-100 collaboration.**



### **C3. S-100 Implementation.**

Based on three questions provided by the NHC Chair, member states were invited to report on challenges with S-100 implementation. The aim was to keep the discussion strategic on a management level allowing for the exchange of experiences among National Hydrographers.

NO: Norway named their resource situation, the balance of timing, cost, and maturity as big challenges. Dealing with a complex and diverse data owner structure presents challenges as well, particularly in relation to S-111. Yet, they are the official Geodata Coordinator which is a role that may be used to convince other agencies to cooperate more efficiently.

SE: Resources are a big problem. Trying to get some extra funding through EU. Highlighted also that their production systems are not yet mature enough. Taking the S-100 Coordinator role is challenging. While lots of responsibility lies under the SMA, it is important to coordinate with the Swedish Meteorological and Hydrological Institute (SMHI) for S-104, S-111 and S-4xx. They have initiated discussions on a management level: Looks like that for now SMA will produce S-104 and S-111 products based on the data provided by SMHI. Production process in SE is already data oriented. Lots of new employees in the last 5-6 years who are very open for new production processes.

DK: Resources, competencies, and the current production system are the three main challenges. Very demanding is the extensive need for coordination with other agencies: S-100 will challenge the relationship with the Danish Maritime Authority (DMA) who are responsible for NtMs, Aids to Navigation and Navigational Warnings, while DGA is responsible for chart corrections. The Danish Hydrographic Office is aware of the role as National S-100 coordinator: So far, there is dialogue with the two biggest stakeholders – on an expert level. Now, it'll need to be formalized through high level meetings.

IS: With current staff – there is hardly any time to work on S-100. Acquiring data for S-100 is challenging as well. In IS everything is file-based. Have been waiting for CARIS to have their DB solution built on S-100.

FI: Resources and time are very present challenges. Particularly, Dual Fuel is a very complex issue. FI does not expect to need to reorganize their structure, but expand their skill set. As presented under agenda item C2, the Traficom/Finnish HO has the National S-100 coordination role.

#### **Discussion:**

A lively discussion and exchange started with the dual fuel concept and the need of producing S-57 and S-101, as well as of possibilities of transforming S-101 to S-57, and the other way around. It was summarized that the added-value of S-101 compared to S-57 comes with its operability with other S-1xx products.

SG: Instead of focusing too much on the 1<sup>st</sup> January 2026 as a key date as such, focus may more be on cross-agency cooperation making the S-1xx standards an actual value-added product. S-1xx further helps to place HOs as a/the central maritime authority.

Focusing back: Why do we need S-1xx actually? This is the big WHY that we need to be better explain. The big story.

→ **The presentations and discussions were appreciated and found useful. As Action 1 states, S-100 Implementation becomes a standing agenda item.**



## **D6. Statutes**

NO: Evert explained the process, of aligning the Statutes with the IHO strategy plan. He further elaborated that the idea was to implement a more common set of Statutes linked to the IHO strategy plan.

DK: Going through the statutes.

A brief discussion on both the scope as well as the content of the revised Statutes. Particularly with sharpened focus to simplify the statutes to make them generic in order to account for future changes in the IHO Strategic Plan.

Following SE proposal of setting up a small project team drafting a revised version considering the different elements mentioned

→ **Small Project team came together drafting a revised version for the next meeting day.**

## **C6. Implementation of FAIR Principles in Marine Data in Norway**

NO: Short recap on the Norwegian Mariano program and the implementation of FAIR principles. FAIR principles both in relation to metadata and data content. With help of a FAIR Calculator published at geonorge.no (<https://register.geonorge.no/mareano-statusregister>), the FAIR status of different data sets can be reviewed.

→ **The presentation and introduction to FAIR was appreciated.**

## **22.03.2023; Morning Session**

### **C4. NHC NCPEG**

DK: As Chair, and following NHC65, DK organized two workshops on the future of the NCPEG.

In order to coordinate the S-100 transition processes regionally, NHC66 agreed to the proposed ToR that support the engagement with new standards and the future of paper charts for instance, or matters on compilation of hydrographic and other chart data (bathymetric, terrain, fairways, AtoNs, etc.).

- **NHC66 noted the report of the workshops.**
- **NHC66 suggests to remove 'marketing' from the ToR.**
- **NHC66 approved the new ToR without the term *marketing*.**
- **2. Action: The incoming NHC Chair to communicate to the NCPEG that the ToR have been approved, and that the group is ready to start working and to select a Chair considering the nomination presented to NHC66.**



## C5. NHC NSEG

DK: As Chair, and following NHC65, DK also organized a workshop on the future of the NSEG. The changes to the ToR only relate to the administrative parts of the ToR facilitating the Chair selection among others.

NO: While NCPEG has changed and will take on a coordination role, the NSEG focuses more on exchange of experiences instead of policies.

IS: Still value the group a lot as it helps solving practical questions that Iceland is confronted with.

NO: Maybe we can task the group with investigating and focusing automation (artificial intelligence) of post-processing of survey data.

SE: The ToR are broad enough. The group may very well be focusing on automation of post-processing of survey data

- NHC66 noted the report of the workshops
- NHC66 approved the new ToR and RoP
- **3. Action: The incoming NHC Chair to communicate to the NSEG that the ToR have been approved, and that the group is ready to start working and to select a Chair considering the nomination presented to NHC66.**
- **4. Action: The incoming NHC Chair to communicate to the NSEG that they have been tasked to looking at automation of post-processing of survey data.**

## D1: WEND WG Report

SE: As NHC representative to WENDWG, Annika Axne reported on the recent WEND WG meeting, elaborating on the WEND S-100 matrix, and the results presented at WENDWG.

She particular highlighted the good presentation from both RENCS, highlighting that they are ready for S-100, as well as a joint NIPWG/S-100WG concept paper on the operational use of S-128.

DK: We acknowledge the challenges for NIPWG, especially as the national responsibilities may lie in several agencies. Coordinating S-128 is a big task.

SE: Indeed, S-128 does need to cover several services coming from different sources. This is part of the complexity.

DK: Even if RENC will produce S-128, HOs still have to collect metadata and distribute it with the RENCS. Or other national agencies may have to have an agreement with RENCS?

Fruitful discussion and exchange of ideas.

SE: Shall the NHC representative to WENDWG in future present the matrix results of BSHC and NSHC to NHC?

DK: We have S-100 as a standing item on the NHC agenda from now on. That may be sufficient?

- NHC66 confirms SE (Annika Axne) as NHC representative to WENDWG.



## **D2. GEBCO - Seabed 2030**

NO: Short recap on activities of the last year. Celebrating 120 years of Gebco, as well as initiated the work started to get the IHO CSB initiative endorsed as UN Decade Action.

Elaborating on the CSB progress of IHO. By now the IHO DYBDB has collected almost 1 Billion soundings. Genuinely, CSB is great for IHO, as it helps to become part of this citizen and industry-driven approach.

NO: Norway formally proposes for NHC to sign a MoU with Seabed2030. Several countries have already done so, but NHC would be the first regional commission to publicly display their support for Seabed2030. The MoU may not include any deliveries or obligation but may rather be seen as a sign of good-will.

DK: From a DK perspective, this is really also a resource issue. Due to limited resources, we do not have time to set a system in place that can deal with the incoming data. On top, DK is restricted by National Legislation on sharing of data.

NO: Evert, this is a question that may also tackle a cultural change. CSB data may not be revisited and in future possibly put into charts as CSB data. Also, elaborating on the fact that GEBCO data is already used in technical and marine spatial planning, such as the planning of wind farms.

DK: Elaborating on the national regulations that make this issue at the moment difficult.

Norway, Sweden, Iceland and Finland were ready to sign the MoU. DK was not in a position to sign a MoU at the moment. This means NHC cannot sign a MoU as a Regional Commission.

→ **The status and proposal of signing a MoU was greatly appreciated. However, NHC will await that all countries are in a position to sign.**

→ **11. Action: DK to report to NHC67 on the status of potentially signing a MoU with Seabed2030.**

## **D3: Baltic E-Nav and Sincere**

SE: Elaborating on Baltic E-Nav project dealing with S-100 implementation in the Baltic Sea. Baltic E-Nav under Interreg Baltic Sea program with several goals, such as

- Develop production capabilities for S-101 ENC, S-102 bathymetry and to some extent S-104 water level
- Establish harmonization rules for S-10x-products, under the BSHC umbrella.
- Test, evaluate, and reevaluate S-1xx products.

SE: Elaborating on project Sincere, a research project, with the aim to mainstream the use of dynamic Under Keel Clearance Management (UKCM) systems through the open release of a reference implementation to be used by companies that develop maritime information display systems.

→ **The project presentations were highly appreciated.**

## **D4: IRCC14 preparations**

Reporting is quite streamlined. Yet, Chair will ask for comments on the proposed report to IRCC.

→ **Confirm that SE as the incoming chair will present the NHC report to IRCC.**

→ **5. Action: The incoming NHC Chair to contact NHC participants for input concerning the IRCC14 report.**





#### **D5: NHC Seat on the IHR Editorial Board**

DK suggested Giuseppe Masetti as candidate.

→ **Approved the Danish Candidate for the NHC Seat on the IHR Editorial Board.**

→ **6. Action: The outgoing NHC Chair to inform IHR editor-in-chief of the new NHC representative to the IHR editorial board.**

#### **E4. NHC IENWG Representation**

→ **NHC agreed that SE, Annika Axne will represent NHC at IENWG**

→ **7. Action: The outgoing NHC Chair to inform IENWG of the new NHC representative to the WG.**

#### **D6: Statutes**

The Statutes project team presented the updated Statutes.

→ **NHC agreed to review the final version by correspondence and sign the Statutes at Assembly.**

→ **8. Action: The outgoing NHC Chair to send out the revised Statutes for approval. NHC member states to report back.**

→ **9. Action: DK to bring the revised NHC Statutes to Assembly 3. The document will then be signed during Assembly by physical correspondence.**

#### **E1. NHC & Assembly 3**

##### **Assembly proposal 3.5**

NO presented the Assembly proposal 3.5 focusing on the establishment of a task force under the Council to explore the potential merits, structures, and options for alternate fund generation. Current IHO budget carries only around 60 000 Euro for non-earmarked projects. This is not-sufficient. Task force would try to come up with solutions to find new forms of funding.

SE: Magnus stresses that such task-force or WG would be better suited under IRCC as IRCC is open to all IHO member states.

##### **Assembly proposal 2.3**

NHC had a lively discussion on the Assembly proposal 2.3. While acknowledging general challenges surrounding the so-called sub-ECDIS marked and addressed by the proposal, NHC discussed the wider implications of potential new regulations and/or standardizations dealing with the sub-ECDIS market. NHC further engaged with the aim of the proposal and how it may aim to tackle that, as well as whether founding a working group dealing with the so-called sub-ECDIS marked within IHO structures is the best possible way to go forward.

Alternatively, contacting the respective IMO representatives and addressing the issues linked to the sub-ECDIS marked through IMO has also been mentioned and discussed.



## **NHC Assembly report.**

Gathering core elements to be included in the NHC presentation to Assembly 3.

- Establish a technical group to work on S-100
- Support of global initiatives to map the seabed.
- NHC Strategy work

→ **The outgoing NHC Chair will present the NHC report to A3.**

→ **10. Action: DK to draft the NHC presentation to Assembly 3 and circulate the document among NHC member states.**

## **E2. Election of new Chair**

- **Sweden takes over as NHC Chair.**
- **Magnus Wallhagen is the new NHC Chair**
- **Annika Axne is the NHC vice-chair**

## **E3. Place and Date of NHC67**

Sweden as incoming NHC Chair informed on next year's NHC schedule. NSHC and NHC will be scheduled back-to-back reducing travel costs.

- **8-10 April 2024 NSHC37 in Malmö**
- **11-12 April 2024 NHC67 in Malmö with an Ice-breaker on the evening of 10 April.**