

**14th MEETING OF THE IHO INTER-REGIONAL COORDINATING COMMITTEE
IHO-IRCC14
Denpasar - Bali, Indonesia + VTC (Hybrid Meeting)
6-8 June 2022**

NORTH SEA HYDROGRAPHIC COMMISSION

NSHC report to IRCC14

1. Chair

Chair: Mr. Koen Vanstaen, (Belgium) from October 2019
Mr. Georg Lárusson, (Iceland) from April 2021
Mr. Magnus Wallhagen (Sweden), from April 2022

Vice-Chair: Mr. Árni Þór Vesteinsson, (Iceland) from October 2019
Mr. Magnus Wallhagen (Sweden), from April 2021
RAdm Rhett Hatcher (United Kingdom) from April 2022

2. Membership

Members: Belgium, Denmark, France, Germany, Iceland, Ireland, Netherlands, Norway, Sweden, United Kingdom. Associate member(s): None. Observers: None.

3. Meetings:

Following NSHC meetings have taken place:

35th Meeting – Reykjavík, Iceland (5th - 6th April 2022)

Next meeting: 36th NSHC 29th - 30th March 2023 (VTC meeting).

4. Current NSHC Working Groups:

- a) North Sea International Chart Coordination WG (NSICCWG)
- b) Baltic Sea and North Sea MSDI WG (BSNSMSDIWG)
- c) Resurvey WG (RWG)
- d) Tidal Working Group WG (TWG)

5. Status of IRCC actions and recommendations to RHCs

a) Status of actions (relevant for the NSHC):

#	Action	Status
5	<i>IRCC members involved to develop measurements to the SPI allocated to them and report back to IRCC14.</i>	Discussed at NSHC35 - Agenda Item D.3 (see 6. Agenda Items)
6	<i>RHCs and WGs to include the measurement of the SPI attributed by IRCC in their annual Work Plans (Permanent).</i>	Discussed at NSHC35 Agenda item B4 and B4.1 (see 6. Agenda Items)

b) Status of Recommendations to RHCs:

#	Recommendation	Status
1	<i>Upon the recommendations based on the proposals made by the NCWG on the Future of the Nautical Paper Chart, RHC to encourage Member States to focus on ENC Schemes, but still follow applicable IHO Resolutions and Standards for any continuing INT chart production.</i>	Complete. MS informed. Discussed at NSHC35 - Agenda Item C2. See: NSHC35-C2 Future of the paper nautical chart - outcome
2	<i>RHCs to recommend MS to Note the information on ECDIS anomalies and support the implementation of the recommendations given by the ENCWG.</i>	Complete. MS informed. NSHC35 Action Item
3	<i>RHC and MS to advise the IHO Secretariat of any update/change to their position in relation with the CSB questionnaire (IHO CL 21/2020)</i>	Complete. MS informed.
4	<i>RHC to identify regional coordinators to act as a point of contact for CSB/Seabed 2030 and to raise the profile of data gather and provision within their respective Region.</i>	Complete. MS informed
5	<i>RHC to encourage MS to participate in the Empowering Women in Hydrography project.</i>	Ongoing. NSHC35 Action Item
6	<i>RHC to encourage MS to submit Articles and Notes for publication in the IHR.</i>	Complete. MS informed.
7	<i>RHCs to consider extend the role of Charting Regional Coordinators for the implementation of the S-100 Implementation Roadmap.</i>	Ongoing. NSHC35 Action Item
8	<i>RHCs to try to plan at least one face-to-face meeting between the 2nd and the 3rd Session of the IHO Assembly.</i>	Complete
9	<i>RHCs to coordinate the efforts on the implementation of S-100 and promote the cooperation and exchange of experiences.</i>	Ongoing. NSHC35 Action Item
10	<i>RHCs to apply Resolution 1/2005 in case of disasters occurred to support the affected States in their regions.</i>	Complete (no action required).
11	<i>RHCs to invite relevant Member States to report to the IMO Secretariat and the Chair of the EGC Coordinating Panel on the progress and status of implementation of newly recognized mobile satellite services by MSI providers.</i>	No action needed.
14	<i>RHCs to encourage all Member States to actively contribute with new data to GEBCO and to discuss how MS can share existing data.</i>	Ongoing (continuous action)
15	<i>Encourage RHCs and relevant Bodies to contribute to the recommendations provided by Shell to increase the cooperation between HO's and Natural source Regulators and reduce permitting requirements for transits through countries EEZ's.</i>	Complete (no action required).

6. Agenda Items:**Agenda item B.3:** What does the future have in store for us?

Following NSHC35 agenda items B.1 and B.2 i.e. IHO SG report on IHO Secretariat's work, Council matters and Work Programme items Dr Mathias Jonas gave a presentation: What does the future have in store? See: [IHO - What does the future have instore for us?](#)

Agenda item B3.1: Round-table discussion following agenda items B.1 and B.2

Focus of the discussion was the question: Where do MS wish to see IHO in few years' times? The question was discussed and reflected on from multiple angles. One of many points raised and discussed was whether NSHC should direct its work towards more cooperation with the other RHCs in the North Atlantic Ocean. IHO has for a long time focused on uniformity in hydrographic products and capacity building. Uniformity of hydrographic services remains important and new data services that must be established, must have global reach. To expand on the idea of standardization, extended regional approach in the North Atlantic could be an opportunity to showcase this and attract industry stakeholders. A thing to remember though is that IHO is an intergovernmental organization and MS HOs must seek confirmation with their respective governments.

Agenda item B4: IHO SP 2021-2026, NSHC MS Gap Analysis.

Belgium presented summary results of gap analysis by contributing NSHC MS

Goal 1: Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 1.1 Deliver standards for hydrographic data and specifications of hydrographic products; support their regular production; and coordinate regional and global services for their provision	SPI 1.1.1 Percentage of Member States having operationalized production and distribution of hydrographic data products and services based on IHO Universal Hydrographic Data Model (S-100), under an implementation framework of coordination and agreed timelines (2026: 100%)	<ul style="list-style-type: none"> Those commenting on current products and production felt they delivered against current requirements. Generally low percentages 0-40% of S-100 production. Mostly limited to S-100 trials Several MS are currently developing S-100 plans Some MS highlighted challenges to resource the transition 	<ol style="list-style-type: none"> The SPI measures the % of Member States, but how will MS interpret if they have operationalized and distributed product effectively? Enough to do this for S-101 for part of area of responsibility, required for S-101 for all of area of responsibility or production of all possible S-XXX layers? Resources are limited. Some collaborations between MS exist, for example S-101 collaboration SHOM and UKHO. Should there be more regional collaborations? NO and BE mentioned S-102 interest, UK and GE S-104, France S-124. Several MS are developing S-100 implementation plans, often with technology providers. Opportunity for sharing between MS and maximise alignment between production plans. The status of specifications and technology developments hamper effective transition to production. Some members states developing own software and systems. Important role for RENCs (PRIMAR, IC-ENC) and IHO WGs. Active participation by NSHC MS needed. <p><i>How do we align implementation to avoid S-1XX islands?</i></p>

Goal 1: Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 1.1 Deliver standards for hydrographic data and specifications of hydrographic products; support their regular production; and coordinate regional and global services for their provision	SPI 1.1.2 Number of hydrographic data products and services based on the Universal Hydrographic Data Model that cater for the new requirements: autonomous shipping, reduction of emissions		HSSC task
SPI 1.2 Develop standards, specifications and guidelines in the areas of data assurance, including cyber security and data quality assessment	SPI 1.2.1 Percentage of hydrographic data products and services based on the S-100 model that are covered by IHO standards, specifications and guidelines on cyber security (2026: 100%)		HSSC task

Goal 1: Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 1.2 Develop standards, specifications and guidelines in the areas of data assurance, including cyber security and data quality assessment	SPI 1.2.2 Percentage of navigationally significant areas (e.g. charted traffic separation schemes, anchorages, channels) for which the adequacy of the hydrographic knowledge is assessed through the use of appropriate quality indicators	<ul style="list-style-type: none"> Generally felt to be over 90% compliant. Ongoing good internal communications within MS is needed to take account of changing shipping routes or other developments. 	<i>Is the methodology used by MS compatible across MS borders? If this item will be discussed in the RHC s and IRCC then this point would not be a problem.</i>
SPI 1.3 Use capacity building and training to develop and increase the ability of Member States to support safety and efficiency of maritime navigation	SPI 1.3.1 Ability and capability of Member States to meet the requirements and delivery phases of the S-100 implementation plan (2026: 50%)	<ul style="list-style-type: none"> Generally 100% or "Yes" for own country. FR highlighted importance of getting all data providers onboard (e.g. harbour authorities) to provide data to meet future needs 	<ul style="list-style-type: none"> Some MS reported to have resources and budget allocated, others reported challenges accessing the necessary resources or knowing when to allocated human or financial resources due to sliding timescales. <i>Do we set our own NSHC timescale and fix a regional timescale?</i>

Goal 2: Increasing the use of hydrographic data for the benefit of society

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 2.1 Build a portal to support and promote regional and international cooperation in marine spatial data infrastructures (MSDI)	SPI 2.1.1 Number of hits downloading data/information from the portal	<ul style="list-style-type: none"> MS reported that they felt they had the necessary MSDI data portals in place or in development. NO measures success through FAIR principles, UK has data principles. 	<i>NSHC MS actively link to IHO MSDI infrastructure or regional infrastructures. Should NSHC take more proactive role in EMODnet as regional platform?</i>
SPI 2.2 Promote new tools and methods to accelerate and increase coverage, consistency, quality of surveys in poorly surveyed areas	SPI 2.2.1 Percentage of adequately surveyed area per coastal state	<ul style="list-style-type: none"> MS reported that adequately surveyed areas varied from 58% to 100%. Resurvey schemes are in existence and discussed at NSHC Resurvey WG 	Agree methodology for reporting: use C-55 figures? <i>Task for NSHC Re-survey WG?</i>

Goal 2: Increasing the use of hydrographic data for the benefit of society

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 2.2 Promote new tools and methods to accelerate and increase coverage, consistency, quality of surveys in poorly surveyed areas	SPI 2.2.2 Number of new applications of the new version of Standards for Hydrographic Surveys (S-44)	<ul style="list-style-type: none"> Several MS are undertaking trials with new technologies such as drones, Lidar and SDB Role of crowd-sourced bathymetry still being investigated. UK has translated S44 Ed6 into own specification. NSHC Resurvey WG ensures consistent approach across region. MS challenged use of S44 outside HOs 	<p>What are new applications? How do we improve visibility and uptake outside traditional sectors? See comment FR SPI 1.3.1 about uptake within ports.</p> <p>MS to promote use of IHO and other standards for data collection amongst national stakeholders</p>

Goal 2: Increasing the use of hydrographic data for the benefit of society

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 2.3 Apply UN shared guiding principles for geospatial information management in order to ensure interoperability and extended use of hydrographic data in combination with other marine- related data	SPI 2.3.1 Number of HO's reporting success applying the principles in their national contexts (2026: 70%)	<ul style="list-style-type: none"> Responses varied strongly from 0 to 100%, but all suggesting intentions to implement IGIF and FAIR principles. 	<p>How do we measure this? How do we share best practice? What does regional collaboration look like?</p> <p><i>MS to share how this is applied and share best practice?</i></p>

Goal 3: Participating actively in international initiatives related to the knowledge and the sustainable use of the Ocean

Strategic Performance Indicators	Target	Current status	NSHC opportunities
		<ul style="list-style-type: none"> Many different initiatives listed by MS: UN Ocean Decade, G7, COP26, National events, overseas assistance, training, Seabed2030 Some fundings challenges wrt need and sharing of data 	<ul style="list-style-type: none"> UK: economic impact assessment and value chain mapping FR: development of e-learning initiatives How will MS or NSHC contribute to UN Ocean Decade and SDGs? What would NSHC voluntary commitment look like? How will NSHC MS contribute to achieving Seabed2030 targets within NSHC region? NSHC Re-survey WG to identify gap?
SPI 3.1 Collaborate with other bodies who deliver capacity- building and training to improve effectiveness of capacity- building activities and programs	SPI 3.1.1 Percentage of Coastal States that are capable to provide marine safety information (MSI) according to the joint IMO/IHO/WMO manual on MSI (2026: 90%)	All MS reported that this target was met in their country. Note that not all HO's have responsibility for this themselves	No NSHC action.

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 3.2 Improve knowledge of the world's seafloors	SPI 3.2.1 Amount of data received per year by the IHO Data Centre for Digital Bathymetry (DCDB)		No NSHC action
SPI 3.2 Improve knowledge of the world's seafloors	SPI 3.2.2 Number of contributors to DCDB who are not hydrographic offices		MS to actively encourage data owners to share hydrographic data, also outside of MS waters.
SPI 3.2 Improve knowledge of the world's seafloors	SPI 3.2.3 Percentage of total sea area that is Seabed 2030 compliant for incorporation into the GEBCO dataset and services	MS reported current state between 33% and 100%	Some MS aiming to produce 50/100m product, others relying on EMODnet. Need for standardization across NSHC region? Better sharing of existing web services.

Strategic Performance Indicators	Target	Current status	NSHC opportunities
SPI 3.3 Implement a comprehensive IHO digital communication strategy in order to enhance its visibility and accessibility to its work	SPI 3.3.1 Number of visits, likes, re- postings, etc. associated with the IHO social media sites	MS commented that this needs to be reported by Secretariat	<p>Future of NSHC website? http://www.nshc.pro/ no longer up to date (and offline beginning 2022). Can we just leave it to IHO?</p> <ul style="list-style-type: none"> NSHC yearly update against for example Seabed2030 aims in NSHC region. Regional data portal list? Regional training opportunities?
SPI 3.3 Implement a comprehensive IHO digital communication strategy in order to enhance its visibility and accessibility to its work	SPI 3.3.2 Volume downloaded from the IHO website and Geographical Information System (GIS)	MS commented that this needs to be reported by Secretariat	No NSHC action.

Agenda item B4.1 S-100 plans - Roundtable discussion: Where would NSHC MS like to be in a few years' time?

This is very much a current issue. We need a plan for how “our” S-100 plans fit to the plans of the surrounding IHO MS. We should start thinking about this now, rather than going each our own way and realizing down the road that things don’t match. We should start now and use the time to find the solutions and find this joint coverage for the region. If we can’t do this, then maybe the IHO roadmap as a whole is not realistic.

Action item:

NSHC tasks the North Sea International Chart Committee Working Group (NSICCWG), Tidal Working Group (TWG) and Resurvey Working Group (RWG) to review their Terms of Reference to reflect strategic priorities for S-1xx data services. Specifically, the NSHC tasks NSICCWG to focus on S-101 implementation and TWG on S-104 and S-111 implementation; and to review their membership to reflect this.

Agenda Item C1: [HSSC - items relevant to NSHC \(incl. S-100 Roadmap Implementation\)](#)

HSSC Chair presented items relevant for NSHC. Following the presentation was a discussion on S-100 Roadmap implementation. The discussion did dwell on S-111 Surface Currents and the need for one consistent route monitoring package with seamless coverage. MS discussed the feasibility of tasking this to the TWG and propose a way forward for regional cooperation for S-111?

Agenda Items C3, C4, C5: Regional and national developments

Ireland reported on the progress of the INFOMAR seabed mapping programme. Norway presented marine base maps in Norway and Denmark presented the Danish Geodata Agency - strategy 2021-2030.

Agenda Items D3 and D3.1: Strategic Performance Indicators (SPI) allocated to IRCC (D3) and Roundtable discussion - How do we identify or provide values needed to measure the SPIs? (D3.1)

The discussion was opened by the Netherlands with an introduction on the SPIs allocated to RHCs by IRCC. See NSHC35-D3 [Strategic Performance Indicators \(SPI\) allocated to IRCC](#)

SPI 1.2.2. *Percentage of navigationally significant areas for which the adequacy of the hydrographic knowledge is assessed through the use of appropriate quality indicators.*

To measure SPI 1.2.2. two parameters need to be defined.

- **What are navigational significant areas?** Those areas could be the areas covered by ENC’s UB 3-6 (based on risk assessment). Those UB’s typically cover coastal waters, approaches, harbours, berthing areas, fairways, and channels.
- **What are appropriate quality indicators?** Besides appropriate meta data and CATZOC, SOUACC of Soundings and POSACC and SOUACC of objects/wrecks could be provided in the ENC. This approach is subject to further findings of the DQWG.

This means that the data has the appropriate quality indicator, not that the chart or survey is adequate. After discussion, the conclusion was that SPI 1.2.2 should first be measured as a percentage of CATZOC other than U, Unassessed. The usage of SOUACC and POSACC in ENCs is encouraged.

SPI 1.3.1. *Ability and capability of Member States to meet the requirements and delivery phases of the S-100 Implementation Plan.*

Allocated CBSC as supported by CBCs of RHCs. The CBSC proposed to develop a questionnaire in conjunction with the IHO S-100WG. CB coordinators can then disseminate this to RHCs. This questionnaire initially seeks to provide an insight in the plans of the Members States, not so much the status of the execution of those plans. After discussion the NSHC agreed with this approach recognizing that translation of the questionnaire into a normative measure would likely require further work.

SPI 2.1.1. *Number of hits downloading data/information from the portal.*

This SPI has been allocated to the MSDIWG as supported by RHCs. The NSHC agreed with the approach for developing a portal at the IHO secretariat and to derive a number of hits as described in the remarks of ANNEX A of CL1/2021.

SPI 2.2.1. *Percentage of adequately surveyed area per coastal State.*

To measure this SPI, there is a need for a common definition of what “adequately surveyed” means. Adequately surveyed directly refers to the C-55 survey status. But, C-55 currently offers no definition for ‘adequate’.

The C-55 RPT recommended to use CATZOC for ENCs to derive survey status data as a first step to the quality and especially the consistency of C-55. However, there is no proposal on how CATZOC translates to “adequately surveyed”.

To operationalize this SPI, one will have to start somewhere. The following simple scheme was presented.

C-55		CATZOC
Adequately surveyed	< 40 m	A1, A2
	40 m > < 200 m	B
	> 200 m	Meeting Seabed 2030 grid requirements

SPI 2.3.1. *Number of Hydrographic Offices reporting success applying the principles in their national contexts.*

The UN-GGIM Shared Guiding Principles for Geospatial Information Management are generic in nature. Many Member States already work to those or comparable principles through international and national (M)SDIs and other data sharing mechanisms, often without using these UN Shared Guiding Principles as a starting point. After discussion, the NSHC concluded that the maturity of the arrangements of the various Member States could be assessed by way of a questionnaire indicating to what extent the UN Shared Guiding Principles for Geospatial Information Management have been implemented.

Agenda Item D4: NSHC sub-WGs. The three NSHC sub-WGs presented reports of their work under Agenda Items D4.1, 4.2 and 4.3.

Agenda Item D4.1: [NS-International Chart Committee \(NSICCWG\)](#)

The RWG made the following recommendation for WENDWG to note:

NSICC and WENDWG Representative will support and encourage members to resolve Overlaps deemed as High Risk and Medium Risk overlaps would also be considered as ‘HO Must Correct’ which would mean all overlaps for most Band 3 and 4 cells (used for navigation) must be resolved alongside those for Bands 5 and 6.

In future NSHC will report on ENC overlaps deemed medium and high risk and ENC gaps that are larger than 1mm at compilation scale. At present none exist.

Agenda Item D4.2: Tidal Working group (TWG)

The TWG plans a VTC (TWG24) in sep/okt 2022. Work of TWG has been on hold from TWG23 in Iceland in February 2022.

Agenda Item D4.3: [Resurvey Working group \(RWG\)](#)

The RWG had a VTC meeting in December 2021. RWG12 will be hosted by NL in September 2022.

Agenda Item D5: [Report of the WENDWG](#)

NSHC Region D report to WENDWG12 (February 2022) stated how Gaps and Overlaps will be treated in Area D. NSICC and WENDWG Representative will support and encourage members to resolve Overlaps deemed as High Risk and Medium Risk overlaps would also be considered as “HO Must Correct” which would mean all overlaps for Band 3 and 4 cells (used for navigation) must be resolved alongside those for Band 5 and 6. In future NSHC will focus on ENC overlaps deemed medium and high risk and ENC gaps that are larger than 1mm at compilation scale.

Agenda Item D6: [BSNSMSDI WG](#)

There is a need for the HO to focus on and strengthen the maritime approach to MSDI and to ensure that maritime information is included. Some of the challenges from a national and regional approach for BSHC and NSHC MS in relation to MSDI are seen as:

- Ensuring that MS participate in the MSDI work
- Ensuring that regional MS HO have the possibility to contribute to the development of the regional MSDI and MSP
- Ensuring the use of data/information provided by HO is fit for purpose for wider dissemination
- Establishing access to Best Practises related to SDI/MSDI

Agenda Item D7: [Status CSB/GEBCO/Seabed 2030](#)

Presentation covered status of CSB/GEBCO/Seabed 2030 “the last great mapping endeavour of our planet”. For NSHC MS 70% have responded to provision of CSB data but in general the response % is about 30%.

Agenda Item D8: [Proposal for establishment of a Maritime Safety Information \(MSI\) WG](#)

NSHC35 accepted UKHO proposal to set up a new Working Group for Maritime Safety Information to improve the delivery of new policy, communications, and cooperation between NAVAREA I constituent MSI providers. The purpose being to create a working group to better engage with partners abroad in a suitable forum, particularly to understand requirements, consistency, and efficiency between all nations within our area of responsibility.

7. NSHC cooperation with stakeholders (organizations, industry, etc.):

NSHC is continuously looking for possibilities of arranging back-to-back meetings with relevant stakeholders.

8. Difficulties encountered and challenges yet to be addressed

To measure SPI 1.2.2. two parameters need to be defined.

1. What are navigational significant areas?
2. What are appropriate quality indicators?

Chairing of NSHC WGs needs to be on long-term basis for effectiveness. Steps to change this have been introduced.

9. Achievements and lessons learned:

The completion of the NSHC IHO SP gap analysis

Establishment of a Maritime Safety Information (MSI) Working Group (NSHC MSIWG)

Statutes of NSHC need to be updated to reflect changes brought on by IHO Res 2/1997 as amended.

10. Conclusions:

The cooperation within the NSHC is good. The NHC MS participate actively in the NSHC WG. MS have continued to contribute to the work of the IHO and have been active in IHO working groups and Committees.

11. Actions required of IRCC:

The IRCC is invited to:

- a. note the NSHC report, and
- b. take any further action as it may consider appropriate.

Árni Þór Vésteinsson, Iceland

Outgoing NSHC Vice-Chair