

27th Baltic Sea Hydrographic Commission Conference

20-22 September 2022 Stockholm, Sweden

Status report

Baltic Sea and North Sea Marine Spatial Data Information Working Group (BS-NSMSDIWG)

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| Submitted by: | Chair of BS-NSMSDIWG, Denmark |
| Executive Summary: | This report reviews the work group's findings, status and the planned next steps. |
| Related Documents: | C-17 - Spatial Data Infrastructures: The Marine Dimension - Guidance for Hydrographic Offices Development of Spatial Data Infrastructures for Marine Data Management, OGC-IHO MSDI Concept Development Study (MSDI-CDS) |
| Related Projects: | UN-GGIM Working Group on Marine Geospatial Information, Arctic SDI, ARHC MSDIWG, IHO MSDIWG and OGC MDW. |

This report contains the status and planned actions of the BS-NSMSDIWG.

BS-NSMSDIWG

Meetings held during reporting period

The Baltic Sea and North Sea Marine Spatial Data Infrastructure Working Group (BS-NSMSDIWG) online meeting No. 9 took place September 1-2 2021. MS from the North Sea Hydrographic Commission and the Baltic Sea Hydrographic Commission participated in the meeting. External stakeholders also attended the meeting. See *Annex 1. The BS-NSMSDI agenda* and *Annex 2. List of participants*.

The overall aim of the workshop was to create a common MSDI framework and to receive input from external stakeholders on items relevant from a regional MSDI approach and to discuss the framework for the upcoming S-122 pilot project in the Baltic- and North Sea as part of the OGC Federated Marine Spatial Data Infrastructure Pilot (FMSDI). The meeting evaluated BS-NS MSDI work plan for 2021 to 2024, with a focus on how the BSHC and NSHC can benefit from a regional approach to MSDI. The meeting also evaluated the status on the different existing action items and agreed on establishing new action items. See annex 4.

Day 1.

In order to create a common MSDI framework and an update on national status with relation to SDI and MSDI implementation, members of the wg gave national MSDI and MSP presentation related to:

- The national SDI and MSP cooperation
- INSPIRE
- EMODnet
- The framework for maritime spatial planning in Europe (MSP-directive).

The presentations also included topics with relation to the key successes and challenges within the four pillars from the IHO publication C-17. (ref. C-17, 2.1. Policy and Governance, Technical standards, Information systems and Geographic content).

On day one, the external presentations focused on relevant topics and initiatives relevant from a regional MSDI perspective:

- MSP Data ESG works
- S-122
- OGC API Standards
- Wend-100
- UN-GGIM IGIF-Hydro

After the presentations there was a discussion on how to proceed in a forward-looking perspective. It was agreed that the BS-NSMSDIWG Chair should ensure that relevant online meetings was arrange with relevant external stakeholders, e.g. the MSP Data ESG and with the UN-GGIM IGIF-Hydro team.

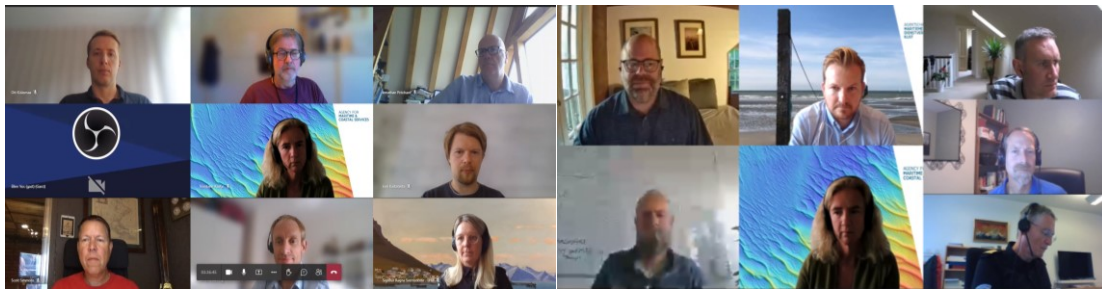


Figure 1. Some of the BS-NSMSDIWG members and external stakeholders attending day one.

Day 2.

On day 2 of the workshop, the MS focused on reviewing the action plan and the way forward and planned actions in order to address how the BSHC and NSHC can benefit from a regional approach to MSDI in the future. There was also presentations from MS and EMODnet, the Singapore – IHO Innovation Lab and the new EU blue strategy.

Presentations on day 2 from external stakeholders focused on the S-122 pilot project in the Baltic- and North Sea as part of the OGC Federated Marine Spatial Data Infrastructure Pilot (FMSDI). OGC also gave a status on another part of the FMSDI pilot that is sponsored by UKHO. This part focuses on Data Fidelity, Mobility, and Versatility.

Following the presentations, there were discussions on how the Baltic- and North Sea hydrographic offices can participate in the S-122 pilot project in the Baltic- and North Sea as part of the OGC Federated Marine Spatial Data Infrastructure Pilot (FMSDI). Some of the conclusions were that OGC should invite all BS-NSMSDIWG MS to participate in the pilot project and that MS should act as national contact points.

At the end of the meeting, the format of the meeting and the online system was evaluated. The general approach was positive to the format and the system. The online meeting also allowed almost all BSHC and NSHC MS to participate the meeting and many different external stakeholders to participate. This was seen as a very positive thing and the BS-NSMSDIWG agreed that more frequent and shorter online meetings should be arranged in order to focus on specific topics. It was also agreed that a physical BS-NSMSDIWG should be arranged every second year.

For more information, see <http://www.bshc.pro/working-groups/msdiwg/>

Next meetings planned

The next meetings of the BS-NSMSDIWG is planned to be arranged as one day online meetings. The focus will be on the UN-GGIM IGIF Hydro document, Singapore – IHO Innovation Lab and a joint meeting with the MSP Data ESG.

Due to the ongoing situation, no meetings are planned. When meetings will be planned, it will also be considered to invite other relevant stakeholders and organizations e.g. NorthSEE, OSPAR, EuroGOOS, INSPIRE, HELCOM, VASAB and OGC to participate in the BS-NSMSDIWG meeting.

Baltic- and North Sea S-122 pilot project the FMSDI Pilot.

At the BSHC 25 meeting, it was agreed that the BS-NSMSDIWG should investigate how the BSHC and NSHC could work with S-122 and if it was possible and desirable to establish a pilot project with the North Sea and Baltic Sea as an S-122 testbed. At the NSHC 34, this approach was also confirmed. The S-122 pilot project will also be relevant from a MSP perspective.

Several challenges have been identified in engaging a MSDI:

- Lack of an integrated policy and operational framework to facilitate rapid acceptance, qualification, ingest and use of relevant geospatial information from a range of government, commercial providers, and citizens.
- The current focus on products supporting a single customer group
- Inability with existing metadata approaches to quickly discover and understand which information sources are most useful in the context of a user's need.
- Inability to properly fuse and synthesize multiple data sources.
- The need for a persistent platform to organize and manage marine information and tools necessary for collaborating organizations fully utilize the variety of marine data.

The FMSDI Pilot will demonstrate practical application(s) of OGC Standards and OGC APIs developed around IHO Standards and the international data needs of Land/Sea use cases. FMSDI pilot will be executed in two phases:

Phase 1: Marine Data Availability and Accessibility Study (Baltic/North Sea only) will bring together diverse stakeholders from the global marine community to assess the current state of Marine SDI. The study will document data exchange technologies, develop an inventory of available data and geospatial Web services across different marine domains, and define use-cases and scenarios for the second phase of the pilot. This request for information (RFI) is part of phase one, used to gather the knowledge from marine domain stakeholders and contributors. The BS-NSMSDIWG members will act as national contact points.

Phase 2: The Pilot is an OGC initiative with the goal of articulating the value of interoperability and to demonstrate the benefits of standards through engineering reports and demonstrations. This will be done through development around IHO S-100 Standards as well as demonstrate the capabilities and complementary aspects of the OGC API building blocks. The pilot will provide an adequate test of the standards and provide a process to accelerate adoption and implementation of these Standards.

The Pilot(s) will support future MSDI enhancements by:

- Making more marine data available through FAIR (findable, accessible, interoperable, reusable) principles.
- Analyzing consistent and long term retainability practices for marine domain material.
- Complementing it with clients, tools, and applications that allow efficient use of MSDI data, processing resources and long-term storage capabilities.

DGA will arrange a workshop when the OGC engineering report I finalized and approved.

OSPAR Marine Protected Areas Network

16 July 2021

Marine Protected Areas (MPA) Network. These data are presented as a live feed from the MPA Web Feature Service <http://mpa.ospar.org/>

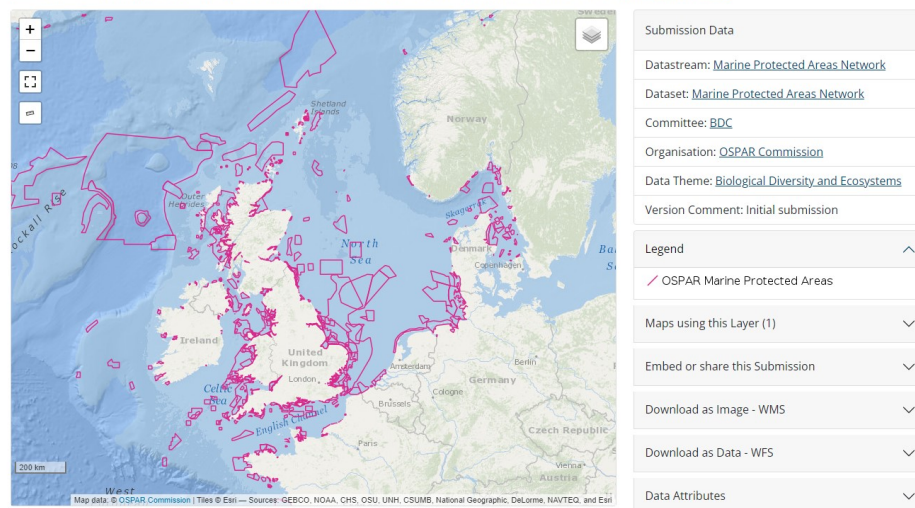


Figure 2. MPA North Sea from the OSPAR web page.

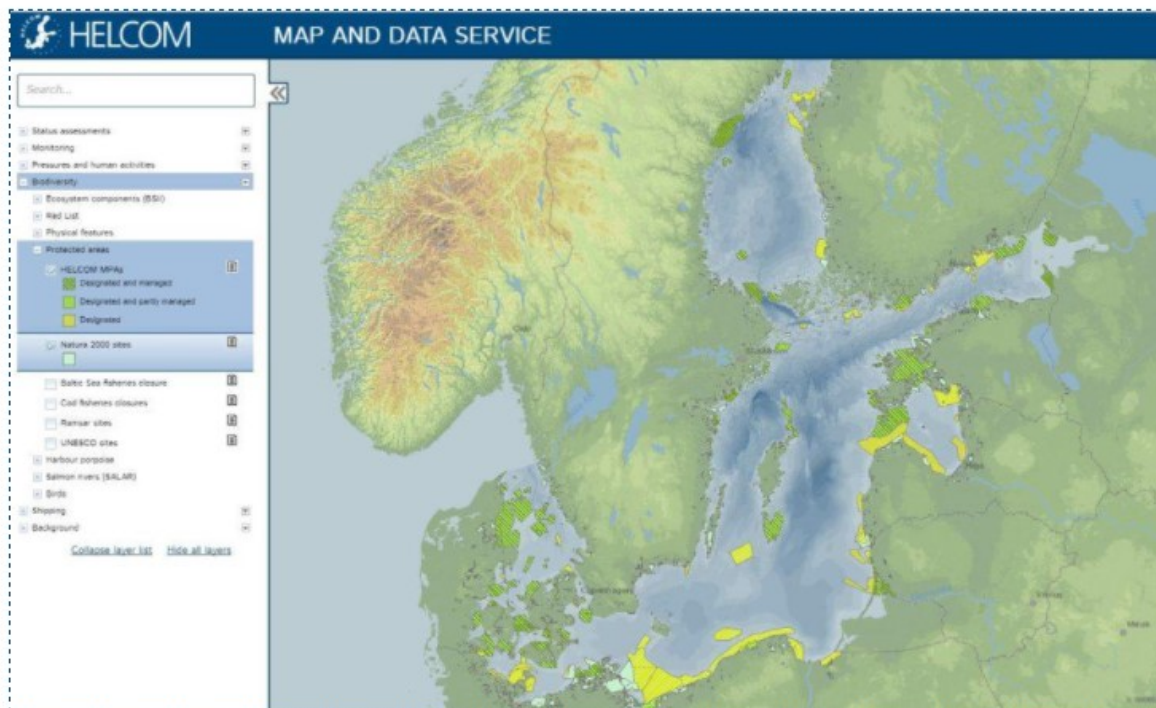


Figure 3. MPA Baltic Sea from the HELCOM web page.

Conclusions and Recommended Actions

A well-functioning MSDI ensures that relevant maritime authorities can contribute their spatial information and related updates, and that this information can easily be collected with other information to generate a current, overall picture. As a result, MSDI can support such varied activities as coastal zone management, planning of energy production at sea, fishing, marine environmental protection and nature conservation, planning charts, navigation, civil and military preparedness, tourism, and maritime spatial planning.

From a MSDI perspective, it is important that the MS should be the “providers of choice” for authoritative foundational marine/maritime information through engagement and participation in MSDI in addition to their existing navigational role. It is actively strengthening its understanding and knowledge of the role of hydrography in MSDI through its outreach programmes with other SDI stakeholder groups.

From a more practical approach, 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

Justification and Impacts

The work in the MSDI WG is progressing well and a supporting updated Action Plan compiled. The Work Programme creates the framework for the WG, in order to cope with the challenges in a forward-looking perspective. The Chair for the BS-NSMSDIWG will leave the Danish Hydrographic Offices at the end of August 2022 and will not be able to continue this long, challenging and enthusiastic collaboration with the BS-NSMSDIWG.

The BSHC 27 is invited to:

- a. Note the report
- b. Elect a new Chairman for the BS-NSMSDIWG
- c. Take any other action as appropriate.

Annex 1.**List of participants BS-NSMSDIWG:**

March 25, 2022

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Annex 2. Work plan 2021 – 2024.

| Theme | Subject | Responsible action item |
|---|--|-------------------------|
| Task 1. Work item: Common understanding | <ul style="list-style-type: none"> - Establish a framework for common understanding of MSDI - The opportunities and challenges from a national and regional MS perspective - Definition of HO role in MSDI | |
| Task 2. Work item: Liaison with external projects | <ul style="list-style-type: none"> - Identify relevant use cases for MSDI - Analyse the user need for relevant HO data set - Identify relevant EU projects and WG's with relevance for BS-NS MS | |
| Task 3. Work item: S 100 | <ul style="list-style-type: none"> - Conduct a study on visualization of S-100 datasets from a MSDI perspective (Non navigation) - Investigate the possibility to establish a regional S-121 testbed - Evaluate on how to promote S-100 in the Baltic and North Sea | |
| Task 4. Work item: INSPIRE | <ul style="list-style-type: none"> - Study on IHO standard S 57 in relation to INSPIRE - The difference between S 57 and S 100 - Identify the challenges with S-102 on interoperability with INSPIRE | |
| Task 5. Work item: Hydrographic data and legal aspects | <ul style="list-style-type: none"> - Study on status on implementation and responsibility with relevance to MSDI in the Baltic and North Sea countries | |
| Task 6. Work item: Pilot projects/demonstration | <ul style="list-style-type: none"> - Study on the possibility to establish BS-NSMSDI WEB pages - Demonstration project (e.g. S-121 testbed and use of BS-NS MSDI datasets) - WEB GIS demonstrator with BS-NS HO datasets | |

Annex 3. Action items.

Baltic Sea- North Sea Marine Spatial Data Infrastructures Working Group

Online meeting 1 – 2 September 2021

Action list.

| No. | MSDI Meeting/ Work Task | Action | Responsible | Deadline | Status -Permanent -Done -Pending -Awaits -Closed/out |
|-----|----------------------------|---|---------------------|---------------|---|
| 4 | 1/2016 | To prepare a presentation about S-100. Invite Johnathan Prichard to MSDIWG9 | Germany/JP | MSDIWG9 | Done |
| 5 | 1/2018 | To investigate the possibility to establish a pilot project with the focus on availability/distribution of different S-100 datasets. | Germany and Denmark | MSDIWG9 | Done |
| 7 | 1/2018 | To create a discussion paper/presentation about process data models from a MSDI perspective with regards to IHO, MSP and INSPIRE, S-57 and S-100 and the need for harmonization | Germany | MSDIWG9 | Done |
| 13 | 1/2019 | To establish a MSDI BC and Indicators framework/template for general use. See IHO Webpage. | Denmark | MSDIWG9 | Done |
| 14 | 1/2019 | Establish an EMODnet inf. paper dealing with the challenges from a hydrographic perspective | Norway | MSDIWG9 | Ongoing |
| 15 | 1/2019 | To investigate what information about data encryption is releasable and send it to the MS. | UK | October 2019 | Done |
| 17 | 1/2019 | To establish a project description of a S-100 testbed pilot project about distribution. Done OGC Pilot project | Germany | MSDIWG9 | Done |
| 18 | 1/2019 | To establish MSDI/MSP information platforms for the BS and NS. | Denmark | MSDIWG8 | Ongoing |
| 21 | 1/2020 | MS to investigate the possibility to participate in the new EMODnet call and report back to SHOM (Thierry.Schmitt@shom.fr) | All | October 2020 | Done |
| 22 | 1/2020 | All MS to investigate their national approach to official (e.g. hydrographic) data and legally binding data/maps with relation to MSDI, SDI and MSP and report back. | All | MSDIWG9 | Ongoing |
| 23 | 1/2020 | To follow the development of the UN-GGIM IGIF (water) model. See 1/2021. | Chair/UKHO | MSDIWG9 | Done |
| 24 | 1/2020 | All MS to send links to their national MSDI and or MSP platform and URL to geospatial services | All | October 2020 | Ongoing |
| 25 | 1/2020 | To establish a demonstration showing BS-NSMSDI data available | All | MSDIWG9 | Ongoing |
| 26 | 1/2020 | To investigate the possibility to establish a regional S-121 testbed | Denmark MS? | November 2020 | Done |
| 27 | 1/2020 | To investigate the possibilities to establish a joint online meeting between the EU MSP Technical Expert group on data and the BS-NSMSDIWG. See 1/2021 | Chair | MSDIWG9 | Done |
| 28 | 1/2020 | To follow the EU project eMSP and report back to the BS-NSMSDIW | Chair | MSDIWG10 | Ongoing |

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|----|--------|---|---------------|--------------|---------|
| 31 | 1/2020 | To arrange a BS-NSMSDIWG online meeting. | Chair | MSDIWG9 | Done |
| 32 | 1/2021 | To send out the draft the UN-GGIM IGIF Hydro paper. | IIC | October 2021 | Done |
| 33 | 1/2021 | To establish a joint online meeting between the EU MSP Technical Expert group on data and the BS-NSMSDIWG | Chair | 2021/2022 | Ongoing |
| 34 | 1/2021 | To arrange online BS-NSMSDIWG meetings every 4. Month and a physical meeting every second year | Chair | 2022 | Ongoing |
| 35 | 1/2021 | To send out a questionnaire about national approach to official (e.g. hydrographic) data and legally binding data/maps with relation to MSDI, SDI and MSP. | Chair/all | 2022 | Ongoing |
| 36 | 1/2021 | To send out a questionnaire about links to national MSDI and or MSP platform and URL to geospatial services and data. | Chair/all | 2022 | Ongoing |
| 37 | 1/2021 | To include the general questions from Netherlands presentation in the agenda for the next BS-NSMSDIWG meeting as a discussion topic. Netherlands to prepare the discussion. | Netherlands. | 2022 | Ongoing |
| 38 | 1/2021 | To invite Singapore – IHO Innovation Lab to an online meeting to discuss possibilities for cooperation in the future. | Chair | 2022 | Ongoing |
| 39 | 1/2021 | To send out information about the FMSDI and request for participation in the pilot. | Chair/OGC/All | 2021 | Done |