

**35th North Sea Hydrographic Commission meeting
Reykjavik, Iceland, 5 - 6 April 2022**

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

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.

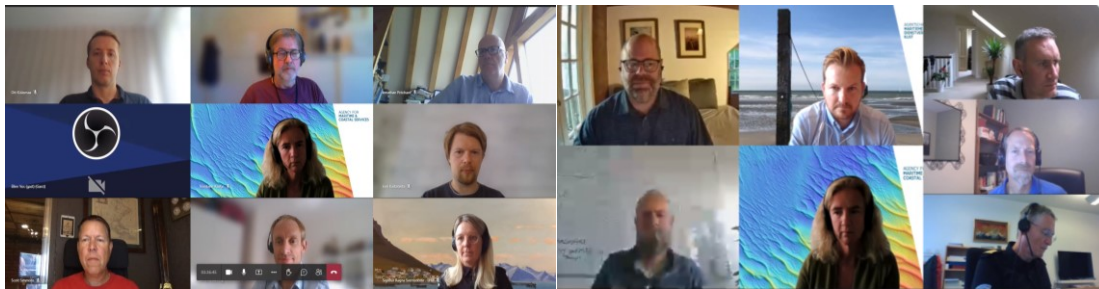


Figure 1. Some of the BS-NSMSDIWG members and external stakeholders attending day one.

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 approached 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..

OSPAR Marine Protected Areas Network

Viewing latest version: 001

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/>

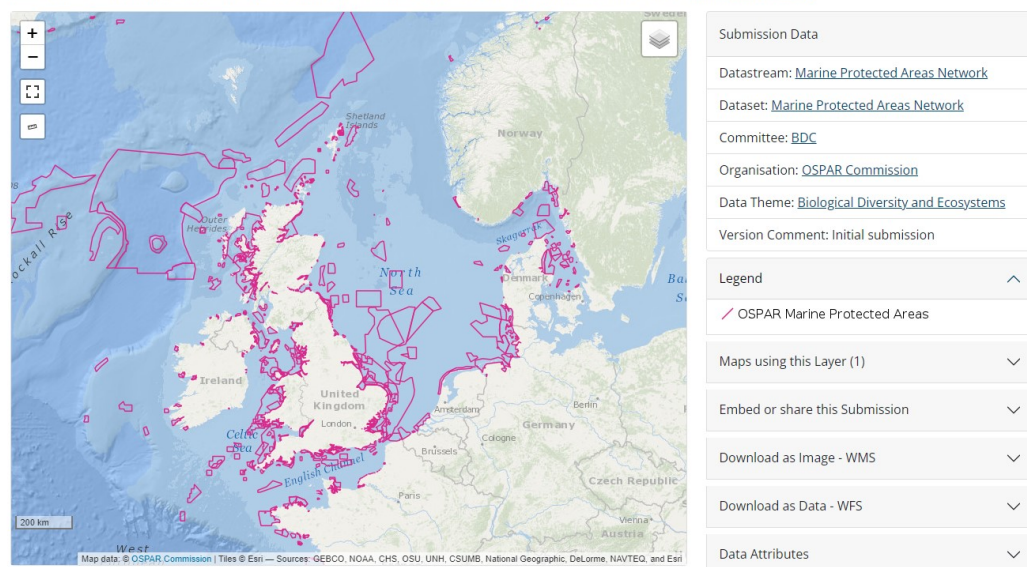


Figure 2. MPA North Sea from the OSPAR web page.

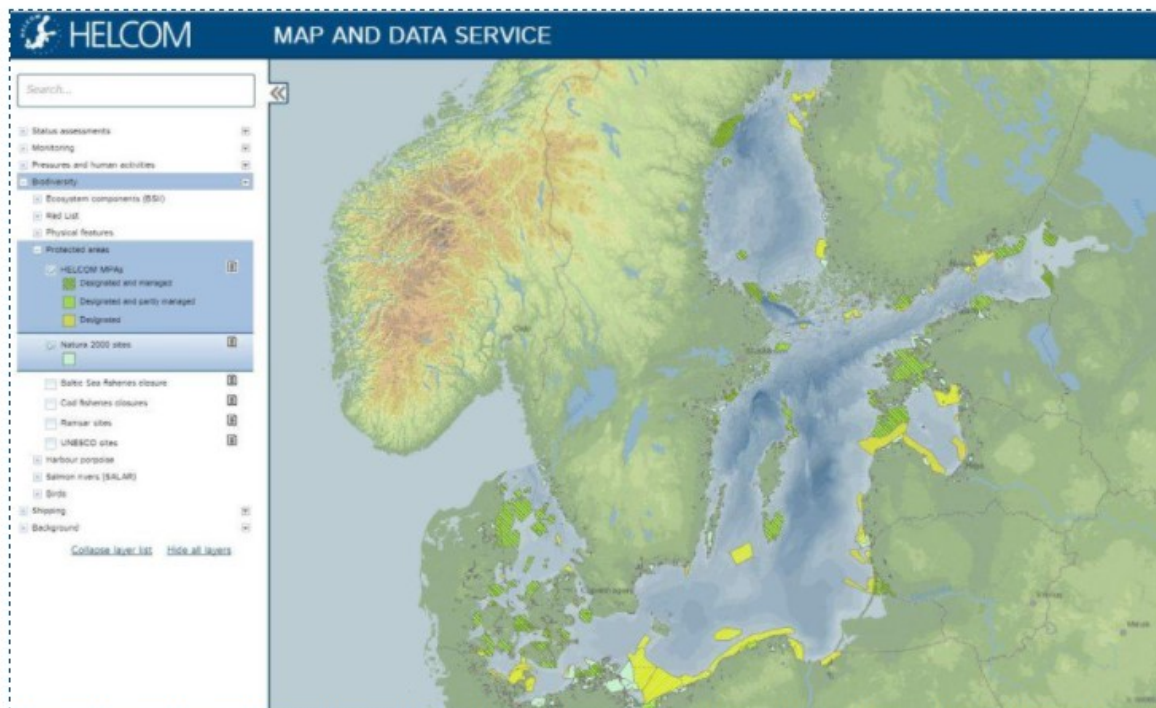


Figure 3. MPA Baltic Sea from the HELCOM web page.

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 NSHC 35 is invited to:

- a. Note the report
- b. Update the list of participants to BS-NSMSDIWG
- c. Take any other action as appropriate.

Annex 1. The BS-NSMSDIWG9 agenda.

Day One: September 1, 2021.

Theme	Time	Subject	Responsible
Welcome	1000 - 1030	Welcome, introduction of participants and practical information. Approval of agenda.	Chair
Status		Introduction to the MSDI Online Workshop 9 <ul style="list-style-type: none"> - Aims of the workshop and the meeting - Expected achievements - Status of Action list and Work program 	Chair
		Status on the MSDI work of IHO (MSDIWG) (Review of the papers circulated and responses to it)	Chair
National presentations. Presentations and discussions	1030 - 1230	National presentation from members on the status of MSDI related to: <ul style="list-style-type: none"> - The national SDI cooperation - INSPIRE - EMODnet - The framework for maritime spatial planning in Europe (MSP-directive) Presentations to include; what is the key successes and challenges within the four pillars (ref. C-17, 2.1. Policy and Governance, Technical standards, Information systems and Geographic content. Discussion on how the BS-NSMSDIWG can support MS.	All BS-NSMSDIWG MS All
Lunch	1230 - 1300		
External stakeholders Presentations and discussions	1300 – 1320 1320 – 1340 1340 – 1400 1400 - 1420 1420- 1445	Presentation from external stakeholders: <ul style="list-style-type: none"> - MSP Data ESG works - S-122 - OGC API Standards - Wend-100 Discussion on the how to proceed in a forward-looking perspective.	Joni Kaitaranta Jonathan Pritchard Scott Simmons John Nyberg All
Evaluation and preparation	1445 - 1500	Evaluation and preparations for the second day	Chair

Day Two: September 2, 2021.

Theme	Time	Subject	Responsible
Welcome	1000 - 1030	Welcome and the conclusions from Day One	Host/chair
Status		BS-NSMSDI WG Work plan and Action list - What are the outputs for each task?	Chair
		Action list - working on the tasks defined in the Action list.	Chair/All
Presentations Presentations and discussion	1030 – 1230	- National presentation from members on the status of MSDI. - EMODNET - New EU blue strategy	BS-NSMSDIWG MS Chair
Lunch	1230 - 1300		
Pilot project Presentations and discussion	1300 - 1430	Pilot project in the Baltic- and North Sea OGC Federated Marine Spatial Data Infrastructure Pilot (FMSDI). Discussion on how to proceed	Chair Trevor Taylor/ Rollin Phillips All
Work plan	1430 - 1445	Update of work plan and action list	All
	1445 - 1450	Any other business Next meeting	All
Closing	1450 - 1500	Closing of the online meeting	Chair

Annex 2. List of participants.

List of participants to the BS-NSMSDIWG9 online meeting 1-2 September 2021.

Country	Name	e-mail	
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Ireland	Trevor Alcorn	Trevor.Alcorn@decc.gov.ie	
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OGC	Trevor Taylor	ttaylor@ogc.org	
OGC	Rollin Phillips	rphillips@ogc.org	
OGC	Athina Trakas		
HELCOM	Joni Kaitaranta	joni.kaitaranta@helcom.fi	
IIC	Jonathan Pritchard	jonathan.pritchard@iictechnologies.com	
Invited			
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CHS	Brunt, Douglas	Douglas.Brunt@dfo-mpo.gc.ca	
Do not participate			
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Sweden	Benjamin Hell	benjamin.hell@sjofartsverket.se	
Germany	Cindy Niemeyer	Cindy.Niemeyer@bsh.de	
Germany	Patricia Slabon		
Finland	Tiihonen Juha	juha.tiihonen@traficom.fi	

List of participants BS-NSMSDIWG:

March 25, 2022

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Annex 3. Work plan 2021 – 2024.

Theme	Subject	Responsible action item
Task 1. Work item: Common understanding	- 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	- 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	- 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	- 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	- 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	- 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 4. 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 <i>-Permanent -Done -Pending -Awaits -Closed/out</i>
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

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