32th NSHC meeting Agenda Item E1
21 - 23 June 2016 Denmark
Dublin, Ireland

Report of the Baltic Sea – North Sea Marine Spatial Data Infrastructures 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
Related Projects:	IHO MSDIWG, Arctic SDI, Maritime Economical Information Programme (MEIP)

The BSHC at its 15th Conference recognised the need to initiate a study of MSDI in the Baltic Sea in order to identify areas where maritime SDI implementation is underway and where problems can be foreseen and how the Baltic member states see the future development of MSDI in the region and the BSHC agreed to establish the Baltic Sea MSDI Working Group (BSMSDIWG).

The BSHC at its 20th Conference approved a request from NSHC to expand the BSMSDIWG also to include the NSHC in a dual MSDI WG. Therefore the BSHC 20th Conference approved to expand the BSMSDIWG to the BS-NSMSDIWG with the task to study MSDI in the Baltic Sea and the North Sea.

The Working Group should:

- Identify and analyse the current status of individual MS MSDI implementation.
- Consider MSDI policies within the related international project e.g. e-navigation, ICZM, INSPIRE, MSP, EU Integrated Maritime Strategy, the Marine Strategy Framework and EU Strategy for the Baltic Sea Region.
- Analyse how maritime authorities can contribute their spatial information and the necessary updates, so information can easily be collated with other information to a current overall picture for the region.

- Focus on how BSHC in the future can benefit from a regional approach.
- Monitor the development of SDI that could be relevant for the Baltic Sea.
- To present a yearly report to the BSHC and a report to NSHC every second year at their meeting. This report should include a description on the current status, recommendations on how to proceed with the MSDI implementation and if deemed necessary an action plan with specified time schedule for future BSHC and-NSHCMSDI actions.

BS-NSMSDIWG meetings held during reporting period

The Baltic Sea Marine Spatial Data Infrastructure Working Group (BSMSDIWG) Workshop No 3 took place in Rostock January 20-22, 2015. MS from the North Sea Hydrographic Commission (NSHC) was invited to participate in the workshop. Members from the hydrographic offices of French, UK and Netherlands participated in the workshop.

The overall aim of the workshop was to create a common MSDI framework and to evaluate the BSMSDIWG work plan for the Baltic Sea which focuses on how the BSHC can benefit from a regional approach to MSDI.

The next meeting no 4 of the BS-NSMSDIWG took place in Helsinki, Finland at the Finnish Transport Agency (FTA) 16-18 November 2015. All MS from BSHC and NSHC was invited to participate in the meeting. Members from the HELCOM secretariat also participated in parts of the meeting.
For more information see http://www.bshc.pro/working-groups/msdiwg/

Next meetings planned

The next meeting no 5 of the BS-NSMSDIWG is planned to take place in Riga, Latvia at the Latvian Hydrographic Offices in late -2016. All MS from BSHC and NSHC will be invited to participate in the meeting.

BS-NSMSDI Draft Work Programme

At the 4rd meeting of the Baltic Sea North Sea Marine Spatial Data Infrastructure Working Group, the work group adjusted the draft work program. The work plan is now divided in 6 work items and there are relevant milestones and coordinators for each item. The draft work program focuses on tasks that are foreseen to be important and challenging from a regional and a national perspective. At the BSHC20 meeting the work programme was approved.

Work plan for BS-NSMSDIWG 2015-2020. (Rev 1. November 2015)

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	1
Task 2. Work item: Liaison with external projects	- Identify relevant use cases for MSDI - Analyse the user need for relevant HO data set	2,3,4,5,6,7,8,9
Task 3. Work item: S 100	- Conduct a study on S-102 from a MSDI perspective (Non navigation) - Evaluate on how to promote S-100 in the Baltic and North Sea	10,11,12
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	13,14,15
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	16
Task 6. Work item: Pilot projects/demonstration	- Study on the possibility to establish BS-NSMSDI WEB pages - Demonstration project - WEB GIS demonstrator with BS-NS HO datasets	17,18,19,20, 21

IHO MSDIWG

Introduction / Background

The 18th International Hydrographic Conference confirmed the importance of marine spatial data infrastructure (MSDI) activities for the IHO and its Member States. With IHO´s definition of hydrography in place, MSDI delivers the instruments for the enhanced scope of hydrographic information users. MSDI delivers the instruments for the enhanced scope and re-use of hydrographic information. MSDI can create the framework for future provision of this information beyond the classic field of surface navigation. The key interest for the IHO is that MSDI provides a framework for the provision of hydrographic information beyond the traditional field of surface navigation to support asset management and decision support by users such as scientists, engineers, environmental consultants, ports operators, marine planners, energy companies and fisheries. From an HO perspective, it is important that the IHO takes the lead in addressing MSDI matters for the maritime sphere through its MS; the IHO MSDIWG is seen as an appropriate WG to deal with these opportunities from an international approach.

Next Planned Meeting

The IHO MSDIWG expect to hold a MSDI Open Forum meeting, in Canada, Toronto, in January or February 2017, in conjunction with the seventh MSDIWG meeting that will take place in 2017. The meetings are expected to be hosted by the Canadian Hydrographic Offices.

Last Meeting
The IHO MSDIWG arranged a MSDI Demonstration Workshop and an Open Forum meeting, in Tokyo, Japan 25-26 January 2016, in conjunction with the seventh MSDIWG meeting that took place 27-29 January 2016. The meetings were hosted by the Japan Hydrography and Oceanography Department (JHOD) in Tokyo, Japan.

The extension of the activities to 5 days enabled the MSDIWG to host a one-day Demonstration Workshop for expert contributing bodies adjacent to the Open Forum and MSDIWG-7. This allowed non-MSDIWG stakeholders (e.g. EAHC MS, government, academia, industry, donor agencies, NGO representatives) to come along to see what the MSDIWG commercial partners cut offer. Attendees at the workshop were encouraged to stay on for the Open Forum. This approach was developed in consultation with the hosts.

The Open Forum meeting was followed up by a three day-long MSDIWG7 meeting at the same venue and the meeting included WG Work Plan task group break-out sessions. To download the presentations from the Demonstration Workshop and an Open Forum meeting go to the link below: https://www.iho.int/mtg_docs/com_wg/MSDIWG/MSDIWG7/Open/Document_List_for_MSDI.htm

Figure 1. The MSDIWG members attending the meeting.

Work Programme
Responsibility for the MSDIWG has moved from HSSC to IRCC with effect from 1 January 2015. Communication between MSDIWG and HSSC (with the main focus on technical issues and standardization) will in the future be channelled through IRCC.
The MSDIWG has reviewed its new role as part of IRCC and endorsed the change of focus resulting from the move to IRCC governance. The 2015-16 Work Programme was refined at the

MSDIWG6 meeting. This was based on the HSSC6 agreed 2014-15 Work Programme for the WG and the change to IRCC.

Key to being able to deliver this Work Programme is the seven supporting tasks now in place, namely:

MSDIWG Tasks:

A. Identify and promote national and regional best practices
B. Assess the existing and new standards in the provision of marine components of spatial data infrastructures
C. MSDI training and education
D. Facilitate (external) MSDI communication
E. Maintain and extend the publication IHO MSDI C-17 (IHO Task 2.9.2 refers)
F. Conduct annual meetings of MSDIWG, arranged back to back with 1-day MSDI Open Forum (IHO Task 2.9.1 refers)
G. Ensure that MSDI is a standing agenda item for RHCs' meetings (IHO Res 2/1997, as amended, refers)

See https://www.iho.int/mtg_docs/com_wg/MSDIWG/MSDIWG_Misc/MSDIWG-WorkPlan.pdf for full details of the work programme.

Progress on IRCC Action Items

Establishing a MSDI training syllabus

The IHO is committed, through its Capacity Building Programme for 2013-2017, to support MS improve their corporate governance in respect of data management, database design and MSDI through a variety of training courses and briefing sessions, ranging from half-day workshops and briefings to more comprehensive 5-day residential courses aimed at all levels of staff including practitioners, managers and directors.

Training and Education has never been more important and timely as pressures grow on HO to engage in initiatives aimed at greater sharing and exchange of data, information and ideas in order to meet governmental as well as market requirements. This may well require a MS to fundamentally change the way it operates both as an organisation and how its people adapt to new ways of working. There is no doubt that the biggest obstacle in successfully adapting to change rests in the mindset of its individual people and the organisation as a whole and their willingness to do so. The syllabus is about making sure decision makers and employees have the skills, knowledge and understanding to approach the different elements of MSDI. It is not intended to set out exactly what instructors should do.

The syllabus sets out the learning outcomes that, as a minimum, must be achieved. It is important that components and elements from national and regional perspectives are also considered and

added to the MSDI training course, in order to achieve the right skills, knowledge and understanding needed from a national perspective.

The syllabus is divided in four, one MSDI orientation and three detailed MSDI courses:

1. General introduction to MSDI.
2. Fundamentals of a Marine Spatial Data Infrastructure (MSDI)
3. Database Design, Data Management and MSDI for Practitioners (i.e. Hydrographic Surveyors, Cartographers, Oceanographers, IT specialists)
4. Marine Spatial Data Infrastructure (MSDI) for Senior Managers (i.e. Directors, Hydrographers, HR Managers)

Involvement in RHC

RHCs are critical to ensuring that its MS are made aware of the strengths and weaknesses that exists in many MS; the opportunities that exist for MS having a wider and enduring role in the future maritime information world but also the threats that exist if cultural and organizational change cannot be effectively delivered and quickly.

Fundamental to enabling the development of an effective MSDI is the definition and implementation of appropriate governance. This requires a clear definition of all stakeholder interests and anticipated outcomes. Successful implementation will require commitment by MS to grasp a better understanding of the four key components of MSDI, and how these interact to deliver more efficient operational HO/HS which is better placed to meet the needs of a wider data user community. To do this, HO/HS will need to invest time and money in the processes of organisational and personal "change". Clear success criteria and progress milestones will need to be defined before embarking on programmes of work. The figure below shows the members of the MSDIWG and RHC

Towards Data Centricity

The output of most HO/HS is focused on products rather than data with focus centred on supplying products to a narrow group of users, driven by the need for compliance with SOLAS or support to national navies. Although a large amount of data is collected, only a small amount (less than 5%) is passed on to the recipient in that product. Thus, the extent of knowledge transfer is only a small part of the potential of the original data. However, most hydrographic data sets have the potential of delivering a wider range of information to a wider range of users.

MSDI requires data to be held in a generic way, rather than as a particular product for a specific user group or purpose. The development of the Universal Hydrographic Data Model (S-100) is a strong enabler of enhanced data sharing across multi-disciplinary groups. S-100 is well understood to contribute to e-navigation, but its development is still relatively immature with very little data existing yet. The potential for HO/HS to contribute to MSDI and e-navigation is becoming more realistic, but requires serious consideration in terms of how data is managed.

HO/HS need to consider their ability to provide data rather than products. At present most HO/HS work in a relatively restricted domain, mostly due to their government status, tightly defined responsibilities and funding arrangements. This limits their opportunities to reach their full potential as data custodians rather than product producers. Authorities who define the role of HO/HS need to be challenged to encourage support for increasing the potential of hydrographic data beyond existing use.

Conclusions

The IHO is seeking to develop its Vision of being the authoritative worldwide hydrographic body which actively engages all coastal and interested States to advance maritime safety and efficiency and which supports the protection and sustainable use of the marine environment. To support the role of the IHO in ensuring that the Hydrographic community is fit and able to meet the global remit of extracting greater wealth and knowledge from the world's oceans, the MSDIWG is supporting the IHO to adopt a more proactive stance in the way data is collected, managed, and disseminated by HO/HS thereby providing a leading role in developing the "blue economy".

The work in the MSDIWG is well underway and a new Work Programme and a supporting Action Plan has been established. The new Work Programme will establish the framework for the WG, in order to cope with the challenges in a forward-looking perspective.

An 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 more practical approach there is a need to focus on and strengthen the maritime approach to MSDI and to insure that maritime information is included. Some of the challenges from a regional approach for IHO 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
- Ensuring the use of data/information provided by regional HO is fit for purpose for wider dissemination

The NSHC meeting is invited to

- take note of the report
- discuss the implication of MSDI from a HO perspective and how MS can benefit from a regional approach to MSDI
- discuss if information/status about MSDI should be included in the National report from MS to NSHC meetings