

## **63rd Meeting of the Nordic Hydrographic Commission Meeting 9 – 11 April 2019, Helsinki, Finland**

### **Status report of the IHO Marine Spatial Data Information Working Group (IHO-MSDIWG)**

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

#### **IHO MSDIWG**

##### **Meetings Held During Reporting Period**

The MSDIWG10th meeting of IHO Marine Spatial Data Infrastructures Working Group (MSDIWG) took place in Busan, Republic of Korea, 4 - 5 March 2019. The meeting was followed by the OGC Marine DWG Meeting, 6 March 2019 and the UN-GGIM WGMGI1 Meeting, 7 - 9 March 2019 (by invitation only)

The outcome of the meeting is available from the IRCC section of the IHO Website under the MSDIWG.



Figure 1. The IHO MSDIWG10 meeting in Busan.

The aim of the MSDIWG10 meeting was to focus on MSDI and to propose ways to progress MSDI implementation within the Organisation and its Member States.

The primary goals of the meeting was identified as:

- Information on MSDI implementation from MSDIWG members
- MSDI training and e-learning
- Maturity Assessment template to RHC
- Update of C 17
- The IHO/OGC conceptual study
- Cooperation with OGC
- Cooperation with UN-GGIM
- Communication
- The MSDIWG to focus on “security”
- IHO strategic plan and establishing a draft IHO MSDIWG input
- Spatial Data Quality
- S-100
- Cooperation with the International Cable Protection Committee

#### **Next Planned Meeting:**

The IHO/MSDIWG will arrange a MSDI Open Forum meeting, the MSDIWG11 meeting with an integrated OGC Marine Domain WG part in 2020 in Rostock, Germany 24-27 February. Logistics and meeting details will be available at:

[https://www.iho.int/srv1/index.php?option=com\\_content&view=article&id=483&Itemid=370&lang=en](https://www.iho.int/srv1/index.php?option=com_content&view=article&id=483&Itemid=370&lang=en)



Figure 2. The IHO MSDIWG members attending the MSDIWG 10 meeting.

The IHO/MSDIWG will continue to facilitate a MSDI Open Forum which would allow non-MSDIWG stakeholders (e.g. RHC MS, government, academia, industry, funding bodies and NGOs) to attend to see what the MSDIWG and the commercial partners can offer. Attendees at the Open Forum would then be encouraged to stay on for the MSDIWG11 meeting. This approach is being developed in consultation with the hosts.

The Open Forum meeting will be followed by a three day-long MSDIWG11 meeting at the same venue and the meeting will include WG Work Plan task group break-out sessions. The MSDIWG will investigate the possibility to arrange the meeting as a back-to-back meeting with the UN-GGIM WG on Marine Geospatial Information.

The key interest for the IHO is enabling MS to ensure MSDI provides a framework for the provision of hydrographic information beyond the traditional field of surface navigation.

#### Terms of Reference of MSDIWG:

At the IRCC 10 meeting a proposal to extend the task of the IHO MSDIWG to also include Marine Spatial Planning (MSP) was discussed. As Marine Spatial Planning (MSP) was seen as an important issue in many countries around the world. The IRCC10 meeting agreed that the IHO MSDIWG should follow the development in MSP implementation worldwide and focus on the following topics,

- establish a list of relevant MS National MSP Data Contact Points and contact persons,
- establish a list of additional relevant institutions, contact person/data experts,
- study the most relevant MSP issues in a cross-border / trans-boundary context in relation to data and information seen from a MS perspective,
- compile minimum requirements for Hydrographic data for Maritime Spatial Plan Data and recommendations of distribution/sharing of this data,
- provide an overview on (national / regional) MSP best practice,
- establish MSP on the IHO website under body of knowledge.

Consequently, the MSDIWG Terms of Reference and Rules of Procedures has been adjusted in order to contain these topics. The MSDIWG Terms of Reference and Rules of Procedures has also been adjusted in order to be aligned with the other IRCC WG.

#### **Work Programme**

Work Plan 2018–2021. The Work Programme was discussed and evaluated at the MSDIWG10 based on recent achieved results with a focus on MSDI from an international regional and national perspective. In order to deliver this Work Programme eight MSDI Tasks has established. The work programme can be found on the IRCC section of the IHO Website under the MSDIWG.

#### **Progress on IRCC Action Items**

IRCC9/18. RHC Chairs to encourage Member States in the region to nominate RHC MSDI Ambassadors to promote MSDI and to help Member States to prepare the national reports with respect to the status of MSDI. A vital element of this work would be to collect and collate responses from Member State on MSDI prior to each RHC meeting. Several RHC have now established regional MSDIWG and at the IHO MSDIWG10 meeting reports from RHC MSDIWG was presented.

It is important that RHC consider taking MSDI as a RHC agenda item, therefore the IHO MSDIWG suggest that National MSDI reports should be presented at every RHC meeting. The report should incorporate the status of MSDI, plans for involvement in MSDI and challenges facing the HO.

It is recommended that the MS presentations include the topics from C-17 2.1. What constitutes an MSDI:

- Policy and Governance
- People & Organizations
- Enablers (the framework for data acquisition, management, updating and dissemination)
  - Standards
  - Technology
  - Metadata
- IHO S-100 Universal Hydrographic Data Model
- Content
- Education and Learning

#### Education and Learning.

At the latest meeting of the IHO Inter-Regional Coordination Committee (IRCC), which took place in 2018, MSDI was highlighted as an important component of the future development of hydrographic offices. It was concluded, that there is either no or very little basic teaching material available for MSDI training that is free of charge for IHO Member States. IRCC therefore decided to task the IHO MSDI working group to establish basic MSDI training material, in order for IHO Member States and the Regional Hydrographic Commissions to conduct basic MSDI education/training. DGA volunteered to finance the development of the training material. The MSDI training material should be available free of charge from the IHO webpage and from the DGA webpage.

The establishment of MSDI training material, including the teaching material, will be divided into two phases:

MSDI orientation. The course is aimed at students who are marine focused but who have very little experience of MSDI concepts or practice.

This course is modelled on the IHO MSDI WG standard Orientation syllabus and is aimed at decision makers possibly at a senior level, not necessarily from a hydrographic background but certainly involved in marine geospatial data.

Fundamentals of a Marine Spatial Data Infrastructure. The course is aimed at students who are marine geospatial professionals but who have very little experience of marine spatial data infrastructures (MSDI). It is designed as an introductory one-day course in the fundamentals of MSDI concepts, theory and practice. The course is based on material in the public domain, the many sources of information about MSDI available and includes notes on the accompanying slides and exercises to be considered as appropriately. These exercises would also be useful in a group context for the delivery of workshops supporting the course. There are two main uses of these documents in conjunction with the course slides themselves.

1. A participant who wants to download and self-learn from the materials provided.
2. A participant who wishes to deliver the materials in a group setting with stakeholders.

In phase 1, the actual MSDI and teaching material will be established, which could/should be based on the publication C-17 Spatial Data Infrastructures "The Marine Dimension", including Annex 1. Syllabus for Educational and Training Programs for Marine Spatial Data Infrastructures. There should be focus on the content specified in the two introductory teaching courses 1) MSDI orientation and 2) Fundamentals of Marine Spatial Data Infrastructure (MSDI). The result/deliverables in this phase will be the actual MSDI training material and the teaching material for use by e.g. internal "teachers" in the hydrographic offices. In phase 2, a MSDI e-learning program will be developed that should allow people to access MSDI teaching externally and even take the teaching on-line. The MSDI teaching materials will be available on the IHO's website for free and on the DGA's own website.

#### Draft Guidance for Data Licensing

It is widely recognized that significant creative and economic potential may lie dormant in data locked up and not released on terms allowing re-use. The concepts behind MSDI recognize the potential held in data. However, if data is to be re-used by third parties it needs to be licensed.

The Hydrographic Data Policy Best Practise Guidelines for Hydrographic Offices white paper states 'fit for purpose hydrographic data and information is essential in underpinning evidence based decision making and asset management enabling governments and the commercial sector to deliver their policy objectives for the marine environment and coastal zone'. The paper points out the 'use of this data outside of navigational products has been limited, but the requirement is growing very swiftly across the world'.

A data license provides users with legal clarity on how data can be used as well as defining user obligations. In most jurisdictions there are intellectual property rights that prevent third parties from using, reusing and redistributing data without explicit permission. Even if data is publically available, without a license a user may not have permission to access, use, or share it due to copyright laws. By applying an open license, you enable users the freedom to use your data to experiment, explore and innovate. Attached in Annex X there is a first Draft of Guidance for Data Licensing.

### Any Other Items of Note

#### Cooperation with the OGC Marine Domain Working Group (DWG)

The MSDIWG are now cooperating with the OGC DWG on a regular basis.

The IHO MSDIWG and OGC was invited to participate at the session on Review of the White Paper on Operational Domain Standards for Land Administration on Monday, March 19th 2018 at the World Bank in Washington DC. The session took place just before the opening of the 19th edition of the World Bank Land and Poverty Conference. The OGCDWG and the MSDIWG provided a joint input Information Paper: LADM from a Marine Domain Perspective. A MSDIWG member from NOAA gave a brief of the information paper that had been submitted on behalf of the International Hydrographic Organization's Marine Spatial Data Infrastructure Working Group and the Open Geospatial Consortium Marine Domain Working Group. The idea of the paper and presentation was to provide a look at Land Administration from a Marine Domain Perspective.

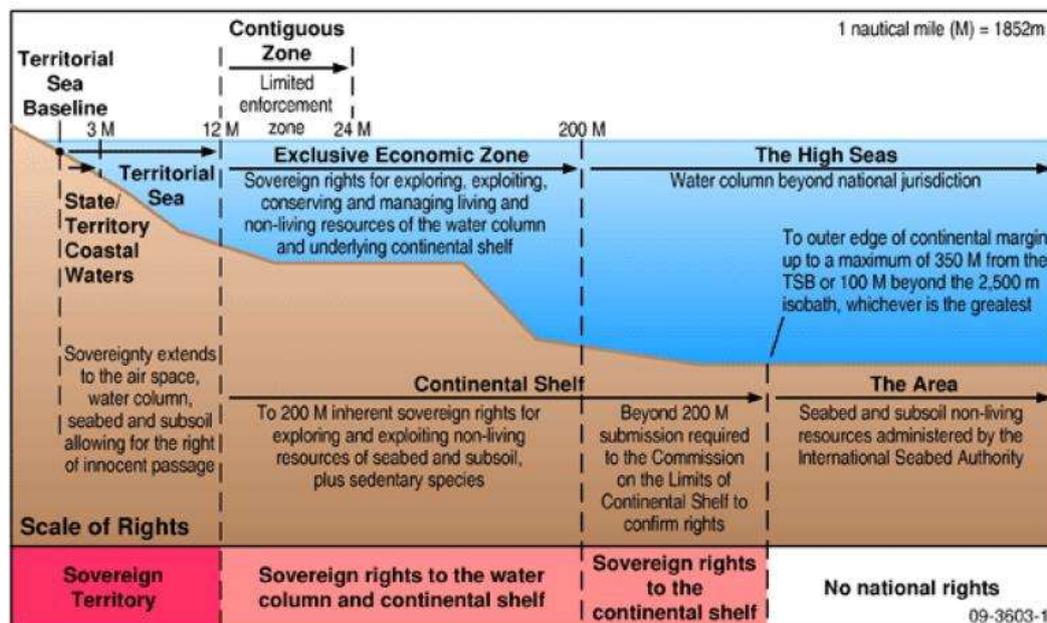


Figure 3. Slide from the presentation. Marine Domain Perspective.

### Data Centric Operations and Workflows

Data is the second most important asset in an organization after the people. Data therefore needs to be treated as an enterprise-wide, national and even global asset with tremendous intrinsic value, not only to the organization that captures and/or manages it, but to other potential users as well. In the maritime sector we have been promoting the term "collect once, use many times" for many years in respect of the wider value and utility of, for example, bathymetry data. However, there is other important data held by the HO that has additional or residual value once it has been used to support the business of charting. The terms "data centric" and "With a data centric approach" define operations and workflows that are managed as close to "source" as possible rather than as products. Enabling efficient data sharing, exchange and re-use across government, academia, and commerce thereby stimulates economic and socio-economic benefits, not only to the nation, but potentially across borders with neighboring HOs.

### UN-GGIM WORKING GROUP ON MARINE GEOSPATIAL INFORMATION

The first expert meeting of the Working Group was arranged as a back-to-back meeting with the IHO MSDIWG meeting. The meeting was participated by 42 expert representatives from Australia, Brazil, Denmark, Germany, Italy, Jamaica, Netherlands, Norway, Republic of Korea, Singapore, United Kingdom,

United States of America, International Hydrographic Organization, Open Geospatial Consortium and UNGGIM: Private Sector Network.

The meeting, among others, agreed that marine geospatial information must be made available, accessible and discoverable for a multiplicity of purposes within collaborative information systems nationally to deliver reliable, timely and quality information necessary for citizens, organizations and governments to build accountable actions, make informed and evidenced-based policies and decisions. For more information please visit the meeting web-page <http://ggim.un.org/meetings/2019/WG-MGI-Busan>. There is also a link to the meeting web-page from the Working Group's web-page <http://ggim.un.org/UNGGIM-wg8/>.

## **BS-NSMSDIWG**

### **Meetings held during reporting period**

The Baltic Sea Marine Spatial Data Infrastructure Working Group (BSMSDIWG) Workshop No 6 took place in Aalborg, Denmark July 3-4 2018. MS from the North Sea Hydrographic Commission and the Baltic Sea Hydrographic Commission was invited to participate in the workshop. Members from, Germany, Poland, Nederland, Norway and Denmark attended the workshop.

The overall aim of the workshop was to create a common MSDI framework and to evaluate the BS-NS MSDI work plan for the Baltic Sea which focus on how the BSHC and NSHC can benefit from a regional approach to MSDI and to have a status on the different action items and agree how to proceed.

Day 1 of the workshop included general presentation from the IHO MSDIWG and national presentation from BSHC and NSHC member states on SDI, MSDI, MSP and INSPIRE and other relevant issues.

Day 2 of the workshop the MS focused on reviewing the action plan and the way forward, updating the work program, and planed actions in order to address how the BSHC and NSHC can benefit from a regional approach to MSDI in the future.



*Figure 4. The BS-NSMSDIWG members attending the workshop.*

### **Next meetings planned**

The next meeting no 7. of the BS-NSMSDIWG is planned to take place in Poland at the Polish Hydrographic Offices in 2019 late August. All MS from BSHC and NSHC will be invited to participate in the meeting. It is planned to have a 2 day long MSDI work shop and the possibility to invite other relevant stakeholders and organizations e.g. North Sea, OSPAR, EURO GOOS, INSPIRE, HELCOM, VASAB to participate in a one day MSDI workshop will be investigated.

### **BS-NSMSDI Work Program**

At the 6th meeting of the Baltic Sea North Sea Marine Spatial Data Infrastructure Working Group, the work group went through the existing work program that was approved at the BSHC21 meeting. The work plan is divided in 6 work items and there are relevant milestones and coordinators for each item. The work program focuses on tasks that are foreseen to be important and challenging from a regional and a national perspective. It was agreed only to change the action list. For more information, see <http://www.bshc.pro/working-groups/msdiwg/>

## **Marine Spatial Planning**

At the 6th MSDI work shop the implementation of MSP in Baltic Sea and North Sea was discussed. EU has published a directive of the European Parliament and of the Council dealing with establishing a framework for maritime spatial planning and integrated coastal management. The main purpose of the directive is to promote the sustainable growth of maritime and coastal activities and the sustainable use of coastal and marine resources by establishing a framework for the effective implementation of maritime spatial planning in EU waters and integrated coastal management in the coastal areas of Member States. The proposal establishes a framework for maritime spatial planning and integrated coastal management in the form of a systematic, coordinated, inclusive and trans-boundary approach to integrated maritime governance. It obliges Member States to carry out maritime spatial planning and integrated coastal management in accordance with national and international law. The aim of the action is for Member States to establish a process or processes that cover the full cycle of problem identification, information collection, planning, decision-making, management, monitoring of implementation, and stakeholder participation. Implementing acts will ensure consistent implementation of the Directive throughout the EU and facilitate reporting from the Member States to the Commission and, where relevant, the exchange of data between Member States and with the Commission. Article 10 in the proposed directive especially focuses on data collection and exchange of information. Article 12 and 13 describes Cooperation with other Member States and third countries.

In order to achieve the goal of the Regional Baltic MSP Roadmap (to draw up and apply maritime spatial plans throughout the Baltic Sea Region by 2020 which are coherent across borders and apply the ecosystem approach), VASAB and HELCOM has established the Baltic Sea Region MSP Data Expert Sub-group (MSP Data Expert sub-group) as a sub-group to the joint HELCOM-VASAB MSP Working Group. The aim of BSR MSP Data Expert sub-group is to support data, information and evidence availability for MSP processes with regard to cross-border / trans-boundary planning issues to ensure comparability of maritime spatial plans in the Baltic Sea Region. The BSR MSP Data Expert sub-group facilitates the work of the HELCOM-VASAB MSP WG, as well as helps with implementation of the Regional Baltic MSP Roadmap 2013-2020. No similar initiatives seem to be established for the North Sea.

As seen from a HO perspective a MSDI could support such varied activities as coastal zone management planning and maritime spatial planning including the management of energy production at sea, fishing, marine environmental protection and nature conservation, planning charts, navigation, civil and military preparedness, tourism, and maritime spatial planning.

## **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 (such as the European Commission, UN-GGIM, IOC-IODE), globally, and through the IHO MSDI WG across the HO community. The IHO is a great advocate of MSDI and the need for change stating, along with other stakeholders, that unless MS acts others will provide the authoritative data and in doing so potentially weaken the status of HOs.

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 an international and regional approach for IHO MS in relation to MSDI are seen as:

- Ensuring that MS participate in the MSDI work
- The creation of new regional MSDI WGs will give the MS direct possibility to actively participate in the development of a well-functioning MSDI within the hydrographic domain and its surroundings, with the

possibility to benefit from a national and a regional approach and in that way take the lead in addressing regional MSDI matters for the countries in the region.

- 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 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 has been established. The Work Programme creates the framework for the WG, in order to cope with the challenges in a forward-looking perspective.

The creation of new regional MSDI WG will give the MS direct possibility to actively participate in the development of a well-functioning MSDI within the hydrographic domain and its surroundings with the possibility to benefit from a national and a regional approach and in that way take the lead in addressing regional MSDI matters for the countries in the region.

### **Action required of NHC63:**

The NHC63 is invited to:

- a. Note the report;
- b. Take any other action as appropriate.