MARINE SPATIAL DATA INFRASTRUCTURES WORKING GROUP

MSDIWG

Report to IRCC12
VTC, 6 - 7 October 2020

By Jens Peter Weiss Hartmann
MSDIWG Chair

IRCC12-07.1
MSDIWG11 - Rostock-Warnemünde, Germany. 24 to 26am February 2020
A joint IHO-OGC Marine DWG session took place in the morning of 26 February 2020
UN-GGIM WGMGI2 meeting was held from 26pm to 28 February 2020

Next planned meeting
MSDI Open Forum
12th IHO MSDI WG Meeting, Joint IHO-OGC Marine DWG Meeting
Third Expert Meeting of the UN-GGIM WG MGI
Dates in 2021
12 April (Mon)
13-14 April (Tues, Wed)
15, 16 and 17 April (Thurs-Sat)
11th IHO Marine Spatial Data Infrastructures Working Group Meeting (MSDIWG11)

At the meeting the MSDIWG11 focused on 8 topics seen as important from a HO and MSDI perspective:

1. MSDI training material, the need for adjustments and updates.
2. Development of use cases for the WGMGI
3. IHO-OGC MSDI Concept Development Study and how to proceed
4. Expectations of the “new” WENDWG from a MSDI perspective
5. Updating of C-17
6. UN Sustainable Development Goals (SDGs) and how a MSDI can support the SDGs
7. MSDI Governances, e.g. Data policies, funding/financial models
8. MSP with relation to MSDI and how to proceed with MSP from a IHO MSDIWG perspective
Figure 4. Extending fundamental geospatial data themes within the National Spatial Data Infrastructure (NSDI) to accommodate the SDGs and targets by means of the global indicator framework.

Potential contributions

- Sea Level Rise
- Sea Temperature
- Coastal zone mapping data (LiDAR, Earth Observation/Remote Sensing Data)
  - Change detection
  - Erosion
  - Infrastructure development
- …and many more
# Example: Sea Level Rise

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**Generating a comprehensive analysis of Sea Level Rise involves considering various datasets and addressing different aspects of coastal and environmental data.**
The Integrated Geospatial Information Framework (IGIF) provides a basis and guide for developing, integrating, strengthening and maximizing geospatial information management and related resources in all countries. It will assist countries in bridging the geospatial digital divide, secure socio-economic prosperity, and to leave no one behind.

Link: https://ggim.un.org/IGIF/

**UN-GGIM - Integrated Geospatial Information Framework (IGIF)**

**The Four pillars of MSDI**
Publication C-17
Data security and integrity:

From a MSDI perspective there is a common need for measures to protect both originating data producers and end users from the impacts of misuse and/or data corruption.

The MSDIWG has a focus on the “authoritative” nature of data and UN-GGIM’s IGIF recognizes this as an implicit “custodianship” concept.

From a MSDI perspective there is, a need within the IHO community for the ability to define "authoritative" in digital terms as an integral part of data itself rather than something which sits alongside it and which can (potentially) be separated from the data content.

Recent developments in the S-100WG further address the problem and could help by adding data integrity measures to realtime data supply and web services as well as standalone vector datasets. These measures do not wholly address the needs of the MSDI community though and the all-important area of data transformation requires further insights and work to come up with tangible, practical solutions.

The MSDIWG will continue to focus on data security and integrity from a MSDI perspective.

⇒ Main discussion on data, official data, authoritative data and legal binding data / maps
C 17 Recommendations

1. C-17 should be reviewed in depth but this is not urgent and should be aligned with other IHO communications

2. Review the content to reference other related (valuable) information e.g.
   - Training material
   - BoK
   - OGC Concept Study (e.g. Marine Data Themes)
   - UN-GGIM IGIF and IGIF Water
   - IHO Strategic Plan – C17
   - The role of an HO in MSDI

3. Update outdated content or refer to OGC CDS

4. Use IGIF structure - relate the 9 Strategic Pathways to the Marine Domain

5. Review the format to make it easy to update/maintain e.g. wiki
Support for a joint OGC/IHO Pilot.

As recommended by the successful OGC-IHO MSDI Concept Development Study (CDS), and as evidenced by the success of the OGC-IHO collaboration in the on-going OGC-IHO Maritime Limits and Boundaries pilot, we are seeking support to initiate a full-scale Pilot to demonstrate a multi-country, federated MSDI under a land/sea boundary use case.

This Pilot will show how the value of MSDI can unlock data and information for use beyond traditional providers and consumers of hydrographic data, across borders, and across domains inclusive of improved connections between the terrestrial and marine foundational communities.

1. **Demonstration** - The demonstration will show how using OGC, IHO and other open standards, enables the community's ability to find, obtain, utilize, share, interoperate and reuse data.

2. **Impact on OGC Standards** - Lessons learned, gaps, and the need for changes to the OGC standards baseline, will be summarized in an Engineering Report which informs the OGC standard program.

3. **Impact on IHO Standards** - Practical testing of relevant S-100 based IHO standards helps accelerate the process for adoption and implementation of IHO standards. The engineering report helps to inform the work of the IHO HSSCs Working Groups and will provide inputs to those groups to enhance the framework and its component standards.

**Sponsorship.** The rough order of magnitude for sponsorship is **USD 400,000**, shared across multiple supporting sponsors.

**When Would the Pilot Start?**
The current plan is for the kick-off of the pilot in the second quarter of 2021, with the full Pilot being completed in 2022, subject to change based on sponsor requirements.

**Contact for more Information.**
Trevor Taylor (ttaylor@ogc.org) or Scott Simmons (ssimmons@ogc.org)
CL56/2019

MARINE SPATIAL DATA INFRASTRUCTURES (MSDI) QUESTIONNAIRE

Reference:
1. IHO CL 562/15 dated 5 August - Marine Spatial Data Infrastructure (MSDI) Questionnaire
2. IHO CL 42/2016 dated 1 September – Outcome of the 6th Meeting of the Inter-Regional Coordination Committee (IRCC)
3. IHO CL 43/2019 dated 25 September – Outcome of the 7th Meeting of the Inter-Regional Coordination Committee (IRCC)
4. IHO CL 2020/15 dated 23 March, The IHO Online Form System for Responses to Circular Letters and Input to IHO Publications (P-9 and C-55)

Dear Hydrographer,

1. A survey, conducted in accordance with Reference A, was prepared by the Canadian Hydrographic Service (CHS) with the support from the Marine Spatial Data Infrastructures (MSDI) Working Group (MSDIWG) to inform the IHO on the worldwide status of MSDI. The results of the survey were presented to the International Regional Coordination Committee (IRCC) at its 6th meeting in May 2016 (Reference B). As reported in Reference C, the IRCC11 approved amendments to the MSDIWG Terms of Reference (ToR) and Rules of Procedures (RoP), making the Working Group (WG) to support the MSDI and Marine Spatial Planning (MSP) related activities of the IHO. In order to achieve this objective, the WGI is expected to monitor national SCI activities and trends, follow the development in MSP implementation work and establish a list of relevant contact points.

2. In order to implement these tasks through an update on the worldwide status, the MSDIWG has again prepared a questionnaire to survey the maturity level of Member States with respect to MSDI and MSP and to collect other relevant information.

3. Member States are invited to complete the questionnaire (Annex A) and return it to the IHO Secretariat at their earliest convenience and no later than 24 January 2020 by email (Annex A) or by fax (+377 93 12 21 41), but preferably using the IHO Online Form System (Reference D) by accessing the following link: https://ioh-forms.ihogroup.org/c/56/2019

4. The results of the survey will be reviewed by the MSDIWG at its 8th meeting in Rostock, Germany, to be held from 24 to 26 February 2020 and reported to the IRCC12 meeting in June 2020.

On behalf of the Secretary-General

[Signature]

Director

Annex: Status and update of MSDI and implementations related to MSP

IRCC12
VTC, 6 – 7 October, 2020
Identification of the Marine Spatial Data Infrastructures (MSDI)

- Question: Is there a MSDI established in your country? Yes/No

41 answers received
28 national MSDI established
12 national HO responsible for the MSDI
Identification of the Marine Spatial Data Infrastructures (MSDI)

Question: If a MSDI is established, please describe in which way it is established.

- By a dedicated law: 7
- Into the national SDI law: 9
- By the tasks of the organization: 6
- Other: 5

- Finnish MSDI is a part of national SDI
- Cabinet Decision (Basic Plan on Ocean Policy, May 2018)
- NHC as National MSDI mandated from Malaysia Centre of Geospatial Data Infrastructure
- An MSP coordinating Committee has been established by Cabinet and a Working Group under the committee is tasked to look at data management - MSDI is part of the NSDI, governed by a.o. the national implementation of the INSPIRE Directive.
- New Zealand agencies, led by LINZ, are working in partnership towards an Integrated Geospatial Information Framework (IGIF) for NZ which includes the marine dimension.
Identification of the Marine Spatial Data Infrastructures (MSDI)

Nature of the funding for the MSDI.

- Government (other than Defense): 18
- Government (Defense): 10
- Other: 4

• Government and through projects under IORA & UNDP
• Within existing Government agency and Research Organization baselines
• NAMRIA General Fund
• A self funding government agency
Question: Who are the target users of the MSDI?

- **Senior Management**: 43%
- **Operational Management**: 9%
- **Public Use**: 7%
- **Academia**: 5%
- **Private Sector**: 3%
- **Specific Users (such as mariners)**: 8%
- **All of the above**: 14%
- **Other**: 5%

- **National Governmental Organizations, Bodies and Institutions and Regional and Local Authorities**
- **Currently only access for agencies which co-fund the MSDI (both senior and operational management)**
- **Because MSDI has not been established, then also the targeted users have not been recognized. However, our understanding is that once MSDI is established, it should be usable for anyone to whom it generates value.**
- **Public Use, Academia, Private Sector, Specific Users (such as mariners)**
- **Restricted military used**
Support Usage

Question: What are the main applications of your MSDI?

- Portal, 21%
- Web map service, 21%
- Web feature service, 14%
- Web catalog service, 8%
- Web coverage service, 10%
- Other, 16%
- Portal, 25%
- Web map service, 25%
- Web feature service, 12%
- Web catalog service, 13%
- Web coverage service, 9%

- Web map tile service, Web processing service, Geoservices REST
- Geoserver and Geonetwork
- The applications for MSDI have not been identified
- A first edition of a geoportal is active, but contains no hydrographic data.
- Data are available for download in shapefile or Geotiff from a web portal which is currently accessible on the Government Intranet System. Documents such as PDF can also be tagged to the layers. However, the uploader can decide whether a dataset can be shared publicly or restricted to allow access to only specific users.
- Portal, 2D and 3D Marine Viewers (search catalogue, geoprocessing services and API, web services (e.g. WMS, WFS, WCS))
MSDIWG

MARINE SPATIAL DATA INFRASTRUCTURES WORKING GROUP (MSDIWG)

Chair: Mr. Jens Peter HARTMANN (Denmark)
Vice-Chair: Mr. Sebastian CARBIO (USA)
Secretary: Mr. Lionel MANTEGAS (IHO Secretariat)

Objectives
Assess the status of Spatial Data Infrastructures (SDI), Marine Spatial Data Infrastructures (MSDI) and Marine Spatial Planning (MSP) worldwide. Support and promote the activities of the IHO in these fields. The WG develops and maintains the IHO Publication C-17 Spatial Data Infrastructures: “The Marine Dimension” - Guidance for Hydrographic Offices. Members are representatives of Member States, Expert Contributors and Accredited NGO Observers.

Meeting Documents
Only documents for upcoming, current and previous years meetings are listed here. All earlier meeting documents are available from the IHO Document Archive.
Information from Body of Knowledge
Link: https://iho.int/en/body-of-knowledge

Body of Knowledge

MSDI Training material (in-kind contribution from Denmark) >>> NEW <<<
- Download from the IHO website
- Download via Dropbox
- Use the interactive material in Youtube

Marine SDI Documents:
- IHO-OGC Marine SDI Concept Development Study (CDS) >>> NEW <<<
- White Paper - Realizing the benefits of Spatial Data Infrastructures in the Hydrographic Community
- IHO-MSDI Rejected Standards
- Frequently Asked Questions on SDI
- IHO Stakeholders
- Hydrographic Data Policy for SDI (Best practices for Hydrographic Offices)
- White Paper - The Hydrographic and Oceanographic Dimension to Marine Spatial Data Infrastructure Development
- Developing the capability (A contribution from the MSDWG Experts Contributors)

Miscellaneous:
- Arctic SDI prepared by the Norwegian Hydrographic Service >>> NEW <<<
- IHO MSDWG Case Study Template
- Template for a license agreement embracing rights for the derivation of data
- Links to the MSDWG portals worldwide (access in the MSDWG basic documents)
- UN-GGIM: Future trends in geospatial information management: the five to ten year vision (July 2013)
- BLAST [Bringing Land and Sea Together] Project

Template for a license agreement
MSDI Training material

1. Download from the IHO website
2. Download via Dropbox
3. Use the interactive material in Youtube

Link https://iho.int/en/body-of-knowledge
Forward-looking focus points:

- The work in the MSDIWG is progressing well and a supporting Action Plan has been established.
- A MSDI e-learning program has now been established. Translation to French and Spanish is now investigated.
- The proposed joint OGC/IHO Pilot will promote the use of hydrographic S-100 data for non-navigation use.
- The MSDI and MSP questionnaire gives the basis for a IHO MSDI/MSP web based information platform.
- Focus on the United Nation’s Integrated Geospatial Information Framework (IGIF) and the United Nations Sustainable Development Goals.
- Update of C-17 to be aligned with OGC and IGIF from a HO perspective.

Action Required of IRCC

The IRCC is invited to:

a. note the report
b. take note of the proposed joint OGC/ IHO Pilot and give guidance on the way ahead
c. discuss any item with relevance to SDI/MSDI/MSP and to take appropriate actions.