

8th Arctic Regional Hydrographic Commission Meeting
 11-13 September 2018, Longyearbyen, Svalbard
 Norway

Status Report of the Arctic Regional Marine Spatial Data Infrastructures Working Group (ARMSDIWG)

Submitted by: Chair ARMSDIWG, United States

Executive Summary: This report contains the current status and planned actions of the ARMSDIWG. Additionally, relevant information on related projects and working groups (e.g., Arctic SDI) is provided.

Related Documents: User Survey Report: Better access to geographic data for Arctic marine and ocean areas

Related Projects: ARMSDIWG Terms Of Reference
https://www.iho.int/mtg_docs/rhc/ArHC/ArHC_Misc/ToR_ARMSDIWG.pdf

Arctic Spatial Data Infrastructure (Arctic SDI)
<http://arctic-sdi.org/>

Open Geospatial Consortium (OGC) MSDI Concept Development Study (MSDI-CDS)
<http://www.opengeospatial.org/projects/initiatives/msdi-cds-2018>

IHO Marine Spatial Data Infrastructures Working Group (MSDIWG)
https://www.iho.int/srv1/index.php?option=com_content&view=article&id=483&Itemid=370&lang=en

This report contains the current status and planned actions of the ARMSDIWG in its second full year of operation.

ARMSDIWG1.5 – ARMSDIWG Workshop No.1 Virtual Follow-up Meeting

ARMSDIWG1.5 was held as a follow-up on items from ARMSDIWG Workshop No.1. This meeting was held at two separate times throughout October 2017 in order to accommodate participants' schedules and address technical difficulties with virtual meeting technologies. Topics covered during ARMSDIWG1.5:

- Updates from ARHC7 (August) and Arctic SDI Meeting (September)
- Pan-Arctic Bathymetry/Arctic Voyage Planning Guide (AVPG)
 - *Highlighting IHO Data Centre for Digital Bathymetry as hydrographic reference data for use in Arctic SDI.*
 - *Possibility of serving AVPG data to Arctic SDI and displaying in a "custom-user view".*
- OGC MSDI Concept Development Study
 - *Update on support for project and clarity on scope of project (e.g. broader IHO MSDI participation).*
- "Better access to geographic data for Arctic marine and ocean areas"
 - *Presentation by Norway: early stages of project and discussion of future participation.*
- Projects Discussion
 - *Investigating an ARMSDIWG web presence for informative purposes.*
 - *Addressed the need to define major marine reference datasets for the region. Organizations like Arctic SDI, Atlantic Seabed Mapping Authority, and Arctic Council working groups are looking for these marine datasets.*
- Review of Actions from ARMSDIWG1
- Review of ARMSDIWG Work Plan
- Other Business
 - *Discussion of Arctic Corridors Initiative, Canadian Coast Guard.*
 - *Request for business/governance models showing the benefits of countries with open data policies.*

ARMSDIWG Workshop No. 2

The Arctic Regional Marine Spatial Data Infrastructures Working Group Workshop No. 2 (ARMSDIWG2) was held in Helsinki, Finland 17-19 April, 2018.

ARMSDIWG2 was attended by representatives from the following ARHC Member States and Associate Members: Canada, Denmark, Finland, Norway, and United States. The primary outcomes from this meeting were the following:

- ARMSDIWG Cooperation with Arctic SDI
 - *Objective*
- ARMSDIWG Terms of Reference
 - *Minor changes to more clearly articulate working group functions; to be reviewed and approved at ARHC8.*
- International Bathymetric Chart of the Arctic Ocean (IBCAO)
 - *Defined working group actions to investigate IBCAO update processes, outreach to IBCAO contacts, and offer to contribute MSDI approaches to the update process.*
 - *Requested ARHC endorsement of the IBCAO for use in Arctic SDI Geoportal basemap.*
- IHO MSDIWG
 - *Updates provided by Chair MSDIWG.*
- Open Geospatial Consortium (OGC) Marine Domain Working Group (DWG)
 - *Updates provided by Co-Chair OGC Marine DWG.*
- Arctic Voyage Planning Guide (AVPG)
 - *Approaching AVPG from a MSDI perspective as opposed to a paper chart perspective*
 - *Potential for AVPG to be a collaborative project with Arctic SDI (e.g. utilizing the Arctic SDI Circumpolar Gazetteer service).*
 - *Canada organized and presented previous AVPG work and its list of themes. Based on this work, Denmark incorporated AVPG themes within an ARHC MSDI questionnaire to collect and collate available data and services for use in a MSDI-enabled AVPG.*
 - **AVPG Implementation Plan: upon collation of member responses from the ARHC MSDI questionnaire, the high-level approach for implementation is as follows:**
 - 1. Agreed upon list of web services available from each member.**
 - 2. Common basemap/representation requirements will be established.**
 - 3. Pursue option for technical implementation with Arctic SDI.**
- Norwegian project: Better access to geospatial data for Arctic marine areas, User Survey Report
 - *ARMSDIWG assessed the availability of themed marine spatial datasets based on their importance and feedback, captured in User Survey Report, as defined by PAME, AMAP, CAFF and EPPR working groups in Arctic Council.*
 - *These themed marine spatial datasets were also incorporated in to the ARHC MSDI questionnaire to collect and collate available data and services to support the needs of Arctic Council's working groups.*
- Discussion: Member States/Associate Members pace of MSDI data contributions
 - *ARMSDIWG should accept that spatial data contributions from its members will occur in different amounts and at different rates, for example, just as they do in the Arctic SDI cooperation.*
 - *While gaps in data may exist, ARMSDIWG, in its early stages, should attempt to demonstrate capabilities with the data that currently exists.*
- ARMSDIWG and Arctic SDI Statement of Joint Intent
 - *Statement of Joint Intent will be presented at ARHC8.*
- Discussion: Ideas and Next Steps
 - *Understanding the best way to cooperate with Arctic SDI in terms of data sharing, providing standardized services, projection considerations, etc.*
 - *Potential for testing between ARMSDIWG member systems/portals to assess that data from each organization is displayed uniformly.*
 - *Task: draft an ARMSDIWG Vision using draft MSDIWG Vision as a reference.*

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Figure 1 Participants of ARMSDIWG2 - Helsinki, Finland

Joint Workshop of the Arctic SDI and the ARMSDIWG

Representatives from ARHC/ARMSDIWG met with the National Contact Points (NCPs) from the Arctic SDI cooperation on 16 April, 2018 for a Joint Workshop.

The Joint Workshop was attended by all ARMSDIWG2 participants, and the majority of Arctic SDI NCPs. The objective of this workshop was to address how to better serve the needs of the Arctic Council WG's related to Marine Geospatial Information within the Arctic SDI Framework. This objective was founded by the project "Better access to geospatial data for Arctic marine areas" and will contribute in the development of relevant geospatial information services within the Norwegian Arctic 2030 program: aimed to promote responsible and knowledge-based management of environmental and natural resources in the High North. The primary topics discussed:

- Status of Arctic SDI activities
- Status of ARMSDIWG activities
- General presentation of the project and status on main activities
- Presentation of main findings from the User Survey Report
- Presentation of the Marine Spatial Management Tool
 - *Governmental demands for a more coherent and efficient geospatial information platform within the marine spatial planning and marine management in Norway, initiated the ongoing development project Marine Spatial Management Tool.*
- Discussions in response to User Survey Report:
 - *Data and Information*
 - *Stakeholder involvement*
 - *Technological Aspects*
 - *Policy and framework conditions*
- Follow-up on Arctic 2030 project initiative
 - *Possibilities for activities demonstrating solutions based on user need and/or new approaches*

2nd Joint Meeting of the Arctic SDI and the ARMSDIWG

Building on the topics discussed during the Joint Workshop on 16 April 2018, representatives from ARHC/ARMSDIWG met with the NCPs from the Arctic SDI cooperation on 18 April 2018, for the 2nd (annual) Joint Meeting of the Arctic SDI and the ARMSDIWG.

This Joint Meeting of the Arctic SDI and the ARMSDIWG was attended by all eight Arctic SDI NCPs (representing the eight NMAs from Canada, Denmark, Finland, Iceland, Norway, Russian Federation, Sweden, and United States) and the HO representatives from Canada, Denmark, Finland, Norway, and United States. Like the 1st Joint Meeting, this was an extremely aligned and cooperative meeting of the two organizations, ultimately leading to the decision to collaboratively draft information communicating the aligned intent of the two organizations. The primary topics discussed:

- Avoid duplication of effort.
 - *Build on existing infrastructure, such as the Arctic SDI Geoportal and its services, communication tools such as the Arctic SDI Website, centralized document storage environment, and Guidelines whenever possible.*
 - *Efficiently use and expand on established communication channels and relationships with stakeholders and divide tasks with respect to established stakeholder “domains.”*
- Maximize influence across International organizations such as UN-GGIM, OGC and ISO.
 - *Participate in outreach activities that will influence and increase awareness with stakeholders, such as:*
 - *activities at UN-GGIM such as the Arctic SDI side event and the potential Marine side events,*
 - *a joint session with the IHO ARHC in September 2018,*
 - *a joint presentation to the CAFF Biodiversity Congress in October 2018,*
 - *collaboration on the Arctic2030 project activities, and*
 - *other joint responses to, for example, the OGC MSDI Concept Development Study.*
- Ensure communications with stakeholders have a “single voice”.
 - *Develop common talking points that reference our collaboration.*
- Deliver Marine data to meet user needs: Analyze stakeholder marine data needs identified from user surveys and other stakeholder engagement then identify the best source for establishing reference and thematic data to meet user needs (e.g., Arctic2030 & Joint Meeting of Arctic Council Working Groups, standardized geospatial data management and sharing).
 - *ARMSDIWG has communicated with the IHO ARHC to have the integration of the IBCAO Marine data layer sanctioned for use within the Arctic SDI basemap.*



Figure 2 Joint Meeting of the Arctic SDI and the ARMSDIWG participants - Helsinki, Finland

Upcoming ARMSDIWG Meetings

The next, half-year virtual meeting, ARMSDIWG2.5, will take place via Skype to continue progress of items from ARMSDIWG2. ARMSDIWG3 will be an in-person meeting with the intent to be combined with another Joint Meeting of the Arctic SDI and the ARMSDIWG, but the date and location is still to be decided.

UN-GGIM 8th Session - Arctic SDI Side Event

At the 8th Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), Arctic SDI Board organized a Side Event on the Arctic SDI on 31 July 2018. This was a moderated interactive session with short presentations, discussions and opportunities for questions/answers and clarifications. This side event was attended by Chair/ARMSDIWG and the Arctic SDI shared ongoing work within the community, including its cooperation with ARMSDIWG and the Arctic Council Working Groups. They also highlighted contributions to regional activities as foundations for the system of system approach to managing data for Sustainable Development Indicators, and presented the Arctic SDI Geoportal, Governance structure, infrastructure, services, tools, and partner commitment.

MSDI Concept Development Study (MSDI-CDS)

During the IHO MSDIWG8 meeting in Vancouver 2017, the idea was formed to create an OGC study that could establish the framework for future development of MSDI. The MSDI-CDS is being organized by OGC and is supported by the National Geospatial-Intelligence Agency (NGA) on behalf of the IHO and its MSDI focused work programs. The first workshop for this initiative is planned for 23 October 2018 in Washington, D.C. and marks the early stages of the MSDI-CDS, and will provide OGC with important guidance on what best to focus on during the Study. Additionally, the information gained in the Workshop and subsequent Study will shape future OGC activities regarding marine geospatial data and tools, and help inform the development of MSDI. The MSDI-CDS will provide a foundation and framework for MSDI development. This will assist content/data providers in the marine domain with future discoverability, accessibility and interoperability considerations when providing core data to a broader and growing user-base, in addition to those served by the products/services for which marine spatial data is traditionally collected.

As part of the Study, OGC will bring together key stakeholders across the diverse marine community in order to assess the current state of data and product exchange technologies, define the future of MSDIs, and develop the foundations for a potential follow-on pilot. Ultimately, the MSDI-CDS seeks to advance the state of Spatial Data Infrastructures (SDIs) that support marine geospatial data sharing across diverse activities.

Specifically, the purpose of the MSDI Workshop is to guide the Study as well as future OGC Innovation Program activities by:

1. Engaging different stakeholders from the marine domain, and finding out where best they could benefit from a MSDI
2. Helping participants better understand activities occurring at OGC and other key organizations
3. Engaging executive level participants to understand the most important challenges
4. Engaging operational and technical stakeholders to gather and share information on the current state for using geospatial data and services in marine activities, including:
 - a. Understanding what data, applications, tools and services stakeholders need
 - b. Understanding what data, applications, tools and services are available
 - c. Understanding the discoverability, accessibility, and usability of resources
 - d. Understanding interoperability challenges and integration opportunities
 - e. Identifying gaps in data, applications, tools and services

ARHC/ARMSDIWG members are strongly encouraged to participate in this first workshop (in-person or virtually) and throughout all stages of the MSDI-CDS (e.g. RFI and workshops). The findings from this initiative should benefit a number of tasks and items within the ARMSDIWG Work Plan, including AVPG implementation. This study will complete in February 2019 with the delivery of a final technical report; an optimal timeframe in advance of ARMSDIWG3 planned for April 2019.

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Invited Actions of ARHC

The ARHC members are invited to:

- Take note of the report.
- Take note of updated ARMSDIWG Work Plan provided under separate cover.
- Approve the updates to the ToR.
- Approve the high-level AVPG Implementation Plan, highlighted in this report, as appropriate approach to and MSDI-enabled AVPG.
- Confirm ARHC endorsement of the IBCAO for use in Arctic SDI Geoportal basemap.
- Review DRAFT “Arctic SDI and ARMSDIWG Joint Statement of Intent”, provided under separate cover, and provide comment as seen appropriate in advance of Joint Session with Arctic SDI.
- Vote on potential ARHC logos, provided under separate cover, and/or provide critique to modify logos. An ARHC logo will allow ARMSDIWG to be represented by the ARHC “brand” in conjunction with other partners (e.g. Arctic SDI, Arctic Council working groups).
- Take action as seen appropriate.