

# Arctic Regional Marine Spatial Data Infrastructures Working Group

International Hydrographic Organization – Arctic Regional Hydrographic Commission

## Enhancing the Arctic with marine geospatial data from the region's prime hydrographic authorities.

Increasing ocean accessibility in the Arctic yields a growth in maritime/marine activities for the region. Marine geospatial data is a valuable asset to enable those activities to advance the applicable sectors of society (e.g., academic/scientific research, natural resource exploration, fisheries management, emergency management, marine spatial planning). Hydrographic Offices (HOs) collect and store marine geospatial data for use on Safety of Navigation products. This source, marine geospatial data (e.g., bathymetry) maintained by the HOs, when made available, can benefit these Arctic activities for the greater advancement of society.

The Arctic Regional Marine Spatial Data Infrastructures Working Group (ARMSDIWG), under the Arctic Regional Hydrographic Commission (ARHC) of the International Hydrographic Organization (IHO), is the key coordinating body for the deliverability of marine geospatial data from Arctic HOs to a broader user base.

## Leveraging technology, standards, and governance for better data access and interoperability.

The ARMSDIWG analyzes how its participating HOs can contribute marine spatial data. In order to accomplish this, the working group investigates best practices for leveraging currently available technologies, identifies applicable open geospatial standards from the IHO and the Open Geospatial Consortium (OGC), and addresses policies & governance for the participating nations to provide users discoverable, accessible, and interoperable marine geospatial data for the Arctic.

## A champion for MSDI in the region.

The ARMSDIWG functions as a regional body in the following ways:

- Identify and assess the statuses of individual Member State MSDI implementation.
- Consider MSDI policies in related international projects.
- Analyze how maritime authorities can contribute their spatial data so information can be easily collated to form a current overall picture for the region.
- Focus on how the IHO ARHC can continue to benefit from a regional approach to MSDI.
- Monitor the development of SDI that could be relevant for the region.
- Monitor the development of OGC standards and activities.
- Seek areas for collaboration, sharing, and interoperability with other national mapping agencies in order to connect both topographic and hydrographic data in a larger and more complete regional infrastructure.
- Present a yearly report to the ARHC that describes the current status, recommendations on how to proceed with MSDI implementation, and an action plan for future Arctic Regional MSDI activities.

The ARMSDIWG is currently tasked to research two projects for the ARHC:

- Incorporate themes of the Arctic Voyage Planning Guide (AVPG) into a web-based, geospatial portal where information is linked and spatially represented in a unified, regional view.
- Investigate the possibility of a Pan-Arctic Bathymetry Database that could be used to support key, non-navigational activities in the region if made available in an efficient and formal infrastructure.

### What is MSDI?

Among the HO community, establishment of a Marine Spatial Data Infrastructure (MSDI) is generally regarded as the solution for discoverability, accessibility, and interoperability of marine geospatial data. A MSDI is the marine dimension to the broader Spatial Data Infrastructure (SDI). A MSDI is built from policies & governance, information systems, and technical standards working in harmony to provide marine geospatial data.



## Collaborating with other working groups for a stronger SDI in the Arctic.

The ARMSDIWG does not operate as an isolated body, but monitors the development of SDI in the region by other relevant bodies and cooperates with them. In particular, the ARMSDIWG coordinates with the Arctic SDI ([arctic-sdi.org](http://arctic-sdi.org)), an organization of eight National Mapping Agencies from the Arctic countries operating under a Memorandum of Understanding. The Arctic SDI works to provide stakeholders access to authoritative spatial data for the region. The ARMSDIWG, also works with other relevant Regional Hydrographic Commissions (RHCs) and groups within the IHO ([iho.int](http://iho.int)). Additionally, the ARMSDIWG works closely with the OGC through the Marine Domain Working Group ([opengeospatial.org/projects/groups/marinedwg](http://opengeospatial.org/projects/groups/marinedwg)) to monitor relevant open geospatial standards and activities to be applied to MSDI best practices.

## Established as the MSDI approach for the Arctic.

After a proposal by the United States and Denmark, the ARHC officially established the ARMSDIWG in October 2016 based on the benefits observed in other RHCs and their MSDI projects or working groups. Today, the Arctic has an active and organized working group comprised of representatives from almost all ARHC Members and Associate Members. Together, these represented HO's coordinate and monitor SDI and MSDI activities in the region and cooperate with other relevant projects and groups.

The major MSDI body within the IHO is the MSDI Working Group (MSDIWG). The MSDIWG is responsible for monitoring SDI activities and trends, and supplying information up the organizational structure of the IHO to the Inter-Regional Coordination Committee (IRCC). Since the initiation of the MSDIWG, there have been several multi-national efforts among RHCs, like the ARHC's ARMSDIWG, to address MSDI for their hydrographic regions.

### Who supports Arctic MSDI?

#### ARHC Members and Associate Members

##### Canada

- Canadian Hydrographic Service

##### Denmark

- Danish Geodata Agency

##### Finland

- Finnish Transport Agency

##### Iceland

- Icelandic Coast Guard

##### Norway

- Norwegian Mapping Authority

##### Russian Federation

- Department of Navigation and Oceanography

##### United States

- National Geospatial-Intelligence Agency
- National Oceanic and Atmospheric Administration

