Working Towards a Marine Spatial Data Infrastructure (MSDI) in the Arctic

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NATIONAL GEOSPATIAL NGA INTELLIGENCE AGENCY

Spatial Data Infrastructure (SDI)

SDI

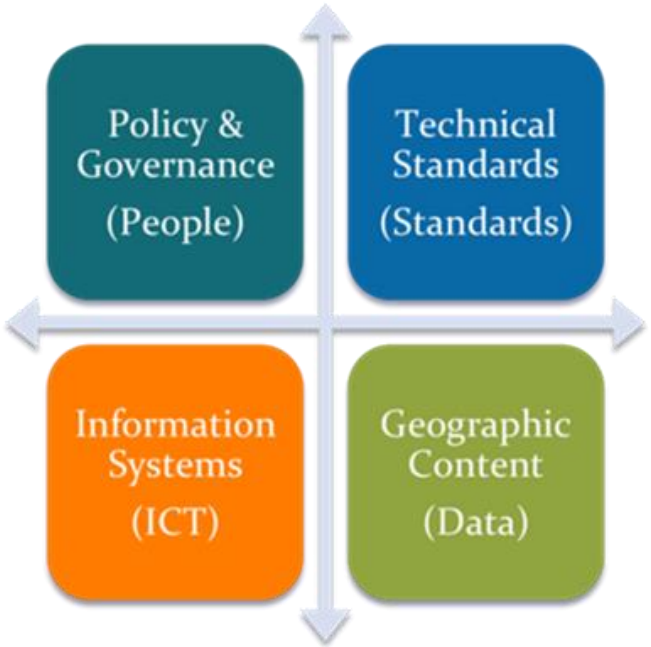
- "The relevant base collection of technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data."

  - The SDI Cookbook[1]

Four Pillars/Components of SDI[2]

- **Data and Metadata** - comprise the information to be made accessible
- **Information System/Technology** - which encompasses the hardware, software and system component.
- **Standards** - which emphasizes the "unlocking" of geospatial data.
- **Policy and Governance** - which dictates the structural relationships of all those involved.

SDI Pillars/Components



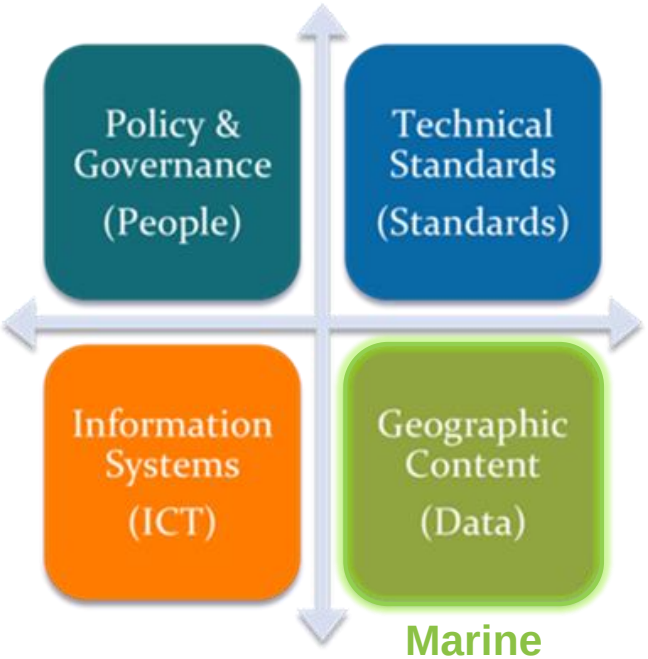
1 - *http://www.gsdiassociation.org/images/publications/cookbooks/SDI_Cookbook_from_Wiki_2012_update.pdf*
2 - *(Presentation) Canada's Marine Spatial Data Infrastructure, Canadian Hydrographic Conference May 2016, Fisheries and Oceans Canada*
Image Credit: *(DRAFT) IHO Publication C-17, Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices, Ed 2.0, April 2016*

Marine Spatial Data Infrastructure (MSDI)

MSDI

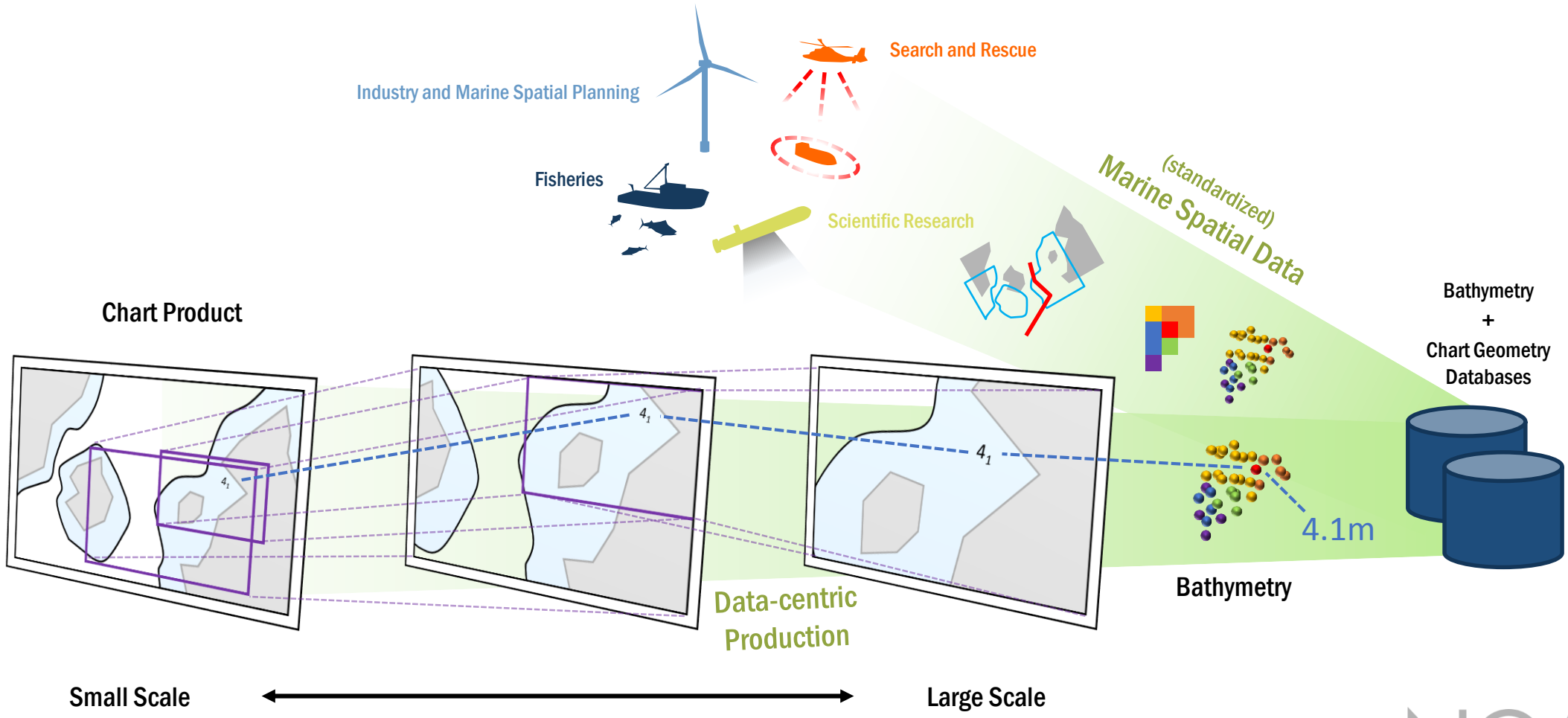
- Element of SDI focused on the marine input.
- A MSDI is not a collection of hydrographic products, but an infrastructure that promotes interoperability of data at all levels (e.g., national, regional, international).
  - Discoverability
  - Accessibility
  - Interoperability
  - Data-centricity (Hydrographic Offices)
- Supports wider, non-traditional user-base of marine data typically used for navigation.
- MSDI Working Group (MSDIWG)
  - International Hydrographic Organization (IHO) working group to deliver IHO MSDI-related policy objectives.[1]

MSDI Pillars/Components



1 - *https://www.iho.int/mtg_docs/com_wg/MSDIWG/MSDIWG8/MSDIWG8-01.4.4b-MSDIWG_white_paper.pdf*
Slide information and Image Credit *- (DRAFT) IHO Publication C-17, Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices, Ed 2.0, April 2016*

Data-Centric Production and MSDI



Arctic Regional Hydrographic Commission (ARHC)

Subsidiary of IHO IRCC

- Regional Hydrographic Commissions

ARHC Members

- Canada
- Denmark
- Norway
- Russian Federation
- United States

ARHC Associate Members

- Finland
- Iceland

Arctic Regional Marine Spatial Data Infrastructures Working Group (ARMSDIWG) established at 6th ARHC Meeting.

ARMSDIWG (ɑrmz - dē - wɪg)

ARHC 5th Meeting Action: Denmark and U.S. to propose a regional approach to MSDI.

- Arctic Regional MSDIWG
- Arctic Voyage Planning Guide (AVPG)

Established ARMSDIWG at ARHC 6th Meeting.

Currently represented nations:

- Canada
- Denmark
- Finland
- Iceland
- Norway
- United States (Chair)

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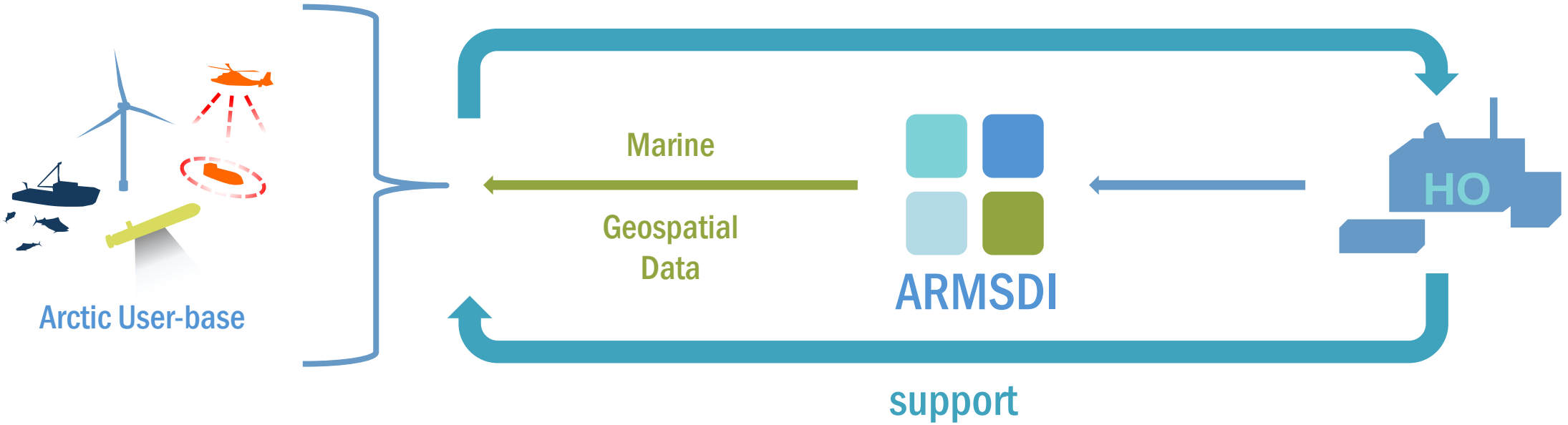
Arctic Regional MSDI

Support non-traditional users of Hydrographic Office (HO) data in the Arctic.
The HO assumes the role of a data provider.



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ARMSDIWG

Working Group Functions

- Identify and assess the statuses of individual MS MSDI implementation.
- Consider MSDI policies in related international projects and cooperate specifically with the Arctic SDI.
- Analyze 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 ARHC in the future can benefit from a regional approach.
- Monitor the development of SDI (specifically the Arctic SDI) that could be relevant for the region.
- Monitor the development of relevant and applicable OGC standards and activities through association with the OGC Marine DWG.
- To present a yearly report to the ARHC 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 ARMSDI actions (IHO ARHC ARMSDIWG).

ARMSDIWG Terms of Reference can be accessed from the IHO ARHC page or directly at:

- https://www.iho.int/mtg_docs/rhc/ArHC/ArHC_Misc/ToR_ARMSDIWG.pdf

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Arctic SDI

Memorandum of Understanding (MoU)

- "8 National Mapping Agencies of the Arctic countries"
  - Volunteer contributions

Utilizes open data and standards for interoperability

Expounds on previous SDI developments

Focuses on dependable geospatial data

- Assists variety of users, interests, activities for the Arctic.

Website

- http://arctic-sdi.org/

Arctic-SDI Geoportal

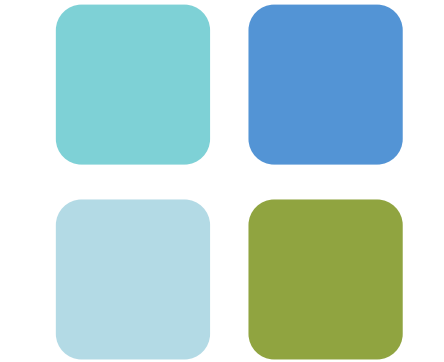
- http://geoportal.arctic-sdi.org/

Slide Information *- http://arctic-sdi.org/wp-content/uploads/2016/09/fact-sheet-copy-Sept-2016.pdf*
Image Credit *- http://arctic-sdi.org*

ARMSDIWG

Current Actions

- ARMSDIWG White Paper.
- Consolidated Work Plan.
- ARMSDIWG Workshop in Copenhagen, Denmark.
  - Combined Arctic SDI and ARMSDIWG meeting.
- ARMSDIWG investigating Pan-Arctic Bathymetric Database.
  - Open Geospatial Consortium Marine Domain Working Group (Marine DWG)



ARMSDI

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IHO MSDI and ARHC Resources

MSDIWG

- https://www.iho.int/srv1/index.php?option=com_content&view=article&id=483&Itemid=370&lang=en

ARHC

- https://www.iho.int/srv1/index.php?option=com_content&view=article&id=435&Itemid=690&lang=en

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