Future of MSDI

What's next for the IHO Marine Spatial Data Infrastructure (MSDI) Working Group?

March 7, 2024

Why Consider the Future?

- **Milestone achievement:** Completion of the update to the C-17 document presents an opportunity to assess the role and impact of the MSDIWG going forward.

- **Advancing Technology**: Rapid advancements in technology, data science, and geospatial tools necessitate a forward-looking approach. The MSDIWG must adapt to new methodologies, standards, and emerging trends.

- **Changing Needs**: The maritime community's requirements for spatial data are dynamic. From navigation safety to environmental monitoring, the demand for accurate, accessible, and interoperable data continues to grow.

- **Global Collaboration**: The MSDIWG collaborates with international organizations, hydrographic offices, and stakeholders. Understanding future needs ensures effective coordination and harmonization across borders.

- **Innovation and Efficiency**: By anticipating future challenges, the MSDIWG can drive innovation, streamline processes, and enhance the efficiency.
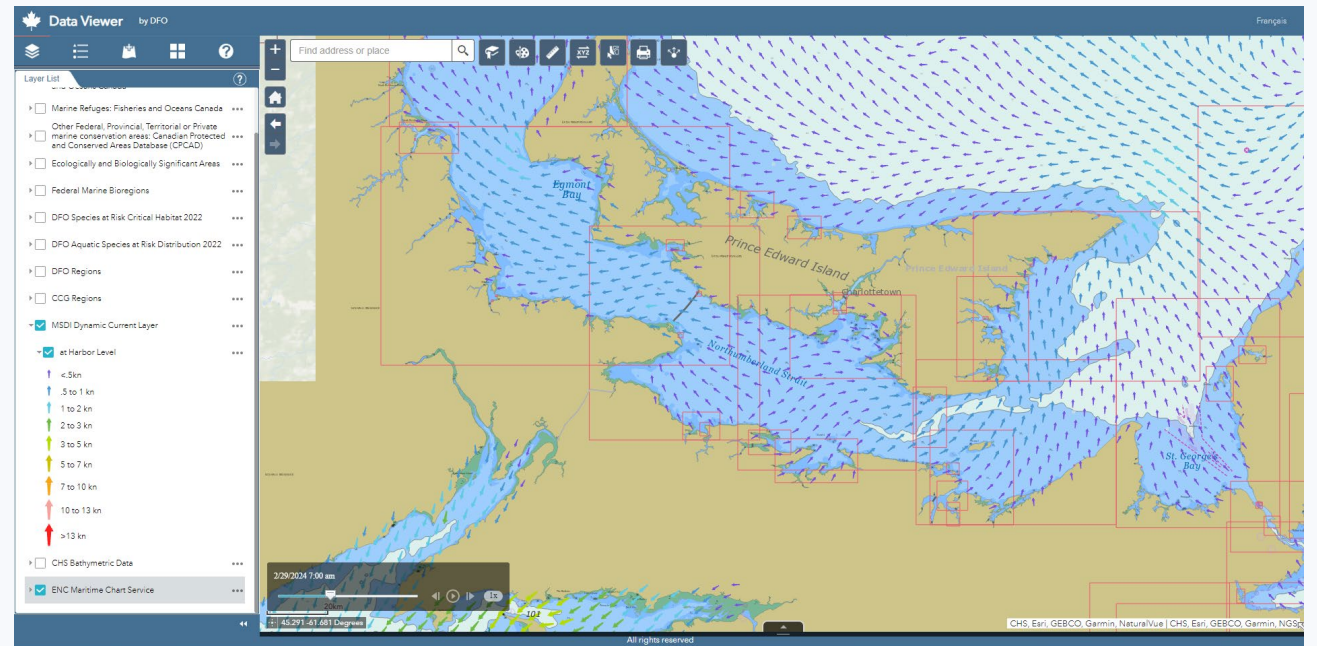
S-100 & MSDI

- Related to MSDIWG action 03/2023:
  - WG to continue to consider "What does S-100 mean for MSDI? What role can MSDI play in S-100?"

- Role in providing guidance to data producers and users?

- Data to support specific S-100 layers?

- Support non-navigation uses for S-100?

Non-navigation S-111-based surface current layer from Canada

Marine Protected Areas/S-122

- Related to Council Decision C/44:
  - Following on clarification on the objectives provided by the Secretary-General, including updates from the last NIPWG-10 meeting on S-122 development, the Council agreed on the strategic need to promote the S100 Concept with a quick-win through S-122.
  - The Council tasked the IHO Secretariat to establish liaison with relevant data providers of MPAs and tasked the IRCC through the MSDIWG to establish a pilot project for the High Sea and MPAs adopted by IMO, to demonstrate the benefits of S-122 for non-navigation purposes.

- MSDI initiatives in many countries already linked with Marine Spatial Planning and MPAs. Lessons learned to contribute?

- Can data needed to support S-122 could be useful for other purposes?

Digital Twins for Marine Spatial Data

- Digital Twins are useful for:
  - Exploring virtual replicas for decision-making
  - Enhancing planning and monitoring

- Related to MSDIWG action 18/2022:
  - MSDIWG to investigate the role of MSDI in Maritime Digital Twin, how to proceed and the possibility to establish a pilot project together with the IHO-Singapore Innovation and Technology Laboratory with Singapore as a pilot study area. Status Report to be provided at MSDIWG14.

- How can MSDI be "DT-ready"?
  - data/APIs/services?
  - (optimised) 3D and 4D data
  - Data infrastructure to support Big Data
  - (near)real-time
  - Land-sea-air interoperability and/or integration

- What are the gaps & opportunities?

Collaboration and Engagement with Partners and Stakeholders

- Engaging with IHO subcommittees and projects

- Sharing knowledge and expertise

- Spatial Data Sharing and Interoperability through establishment of common standards and protocols

- Guidelines for maintaining high-quality data?

- Guidance for FAIR data?

Emerging Technological Trends

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- Cloud-based solutions

- Artificial Intelligence, and machine learning

- Enhanced capabilities for big data and advanced analysis

Marine Science and Ocean Observation Data Governance

- Integrating scientific data into MSDIs

- Enhancing linkages with ocean observation networks

- Better use of data collected by hydrographic offices, like backscatter, temperature, salinity, density.

Continue to Promote Best Practices and Capacity Building

- Evergreen C-17

- Book of Knowledge

- Guidelines, workshops, and training materials

- Empowering hydrographic offices and users

Discussion

- What is our vision for the future?

- Are there concrete and achievable actions for MSDIWG?

- Are there other key groups/stakeholders/partners that we need to create better linkages with?