First expert meeting of the Working Group on Marine Geospatial Information
Busan, Republic of Korea
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IHO Marine Spatial Data Infrastructures Working Group (MSDIWG)
International Hydrographic Organization (IHO)
By Jens Peter Hartmann (MSDIWG Chair)
Objectives of the IHO MSDIWG:

Identify the Hydrographic Community inputs to National Spatial Data Infrastructures (NSDI).

Monitor national and international SDI activities

Promote the use of IHO standards and member state marine data in SDI activities.

Liaise, as appropriate, with other relevant technical bodies

Propose any Technical and/or Administrative Resolutions that may be required to reflect IHO involvement in the support of SDI.

Identify actions and procedures that the IHO might take to contribute to the development of Spatial Data Infrastructure (SDI) and/or MSDI in support of Member States.
Principal activities and achievements

MSDIWG10 topics:

- Information on MSDI implementation from MSDIWG members
- MSDI training and e-learning
- Marine Spatial Planning (MSP)
- Improving the availability of bathymetric data Worldwide Crowdsourced Bathymetry, IHO CDDB, Seabed 2030
- Guidance for Data Licensing
- UN Sustainable Development Goals from a MSDI perspective
- Outreach Strategy
- Maintenance and update of IHO Publication C-17
- Revision of the MSDIWG Work Plan

- Security and integrity,
- The IHO/OGC conceptual study
- S-100

- Cooperation with UN-GGIM
- Cooperation with OGC
- Cooperation with the International Cable Protection Committee

The four basic components of MSDI
The IHO - MARINE SPATIAL DATA INFRASTRUCTURE value chain

IHO → IRCC ← MSDIWG

RHC → ARHC, BSHC, EAHC, MACHC, NSHC.
Traditional approach to Hydrographic data - One primary user, the mariner

- The primary products:
  - Paper chart
  - ENC - S57 data
  - Publications
  - Updates of products

- SOLAS (ECDIS - ENC)

- IHO:  - standardisation
  - harmonisation
  - recommendations

Future approach - Multiple users and stakeholders

- SOLAS (ECDIS - ENC)

- IHO:  - standardisation
  - harmonisation
  - recommendations
  - Regional coordination

SOLAS:

Chapter V regulation 19 2.1.4
Nautical charts and nautical publications to plan and display the ship’s route for the intended voyage and to plot and monitor positions throughout the voyage; an Electronic Chart Display and Information System (ECDIS) may be accepted as meeting the chart carriage requirements of this subparagraph.

Chapter V regulation 27
Nautical charts and nautical publications, such as sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage, shall be adequate and up to date.
What is MSDI?

MSDI is the component of an SDI that encompasses marine geographic and business information in its widest sense. This would typically include seabed topography (bathymetry), geology, marine infrastructure (e.g., wrecks, offshore installations, pipelines and cables), administrative and legal boundaries, and areas of conservation, marine habitats and oceanography.

- **Stakeholders**
- **Benefits**
- **Funding**
- **Education**

**Policy & Governance (People)**

**Technical Standards (Standards)**

**Information Systems (ICT)**

**Geographic Content (Data)**

- **S-100 OGC ISO**
- **Data, not products**

GIS

Internet
The importance of authoritative data

Use Case - Marine Cables
The importance of authoritative data

Use Case - Marine Cables
International Cable Protection Committee

Deep Seabed Mining – Threat to Uncharted Cables

Nautilus Minerals Deep Sea Mining Equipment

17mm cable = No contest
Data-Centric Information on MSDI implementation from MSDIWG members
S-100. International Hydrographic Organization

S-101 Electronic Nautical Chart (ENC)
S-102 Bathymetric Surface
S-103 Sub-surface Navigation
S-104 Water Level Information for Surface Navigation
S-111 Surface Currents
S-112 Open - (See Decision HSSC9/38)
S-121 Maritime Limits and Boundaries
S-122 Marine Protected Areas
S-123 Radio Services
S-124 Navigational Warnings
S-125 Navigational Services
S-126 Physical Environment
S-127 Marine Traffic Management
S-128 Catalogues of Nautical Products
S-129 Under Keel Clearance Management (UKCM)
S-1xx Marine Services
S-1xx Digital Mariner Routeing Guide
S-1xx Harbour Infrastructure
S-1xx (Social/Political)
Hydrography in MSDI:

- Safety of navigation
- Protection of the marine environment
- National infrastructure development
- Coastal zone management
- Marine exploration
- Resource exploitation – minerals, fishing, energy
- Maritime boundary delimitation (UNCLOS, others)
- Maritime defence and security
- Disaster prevention and response
“Putting parts of the Marine data puzzle together … ”

The challenges:

Governance:
- Agree on the data-sets that should be exchanged, quality and standards
- Agree on the technical aspects, enabling the exchange of data-sets
- The organisation of regional MSDI, e.g. rules, and agreements
- Ensure coordination between, different regions and initiatives
- Economy and financial model
- Establishing Metadata