National Approach in Data Exchange - Danish Maritime Spatial Data Infrastructure

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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

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.
Expectations for development within the marine/maritime field:

- Increased activity with multiple uses
- Multiple stakeholders and users with demands for the same area
- Major external impact from “new” organisations:
  - INSPIRE Directive
  - Marine Strategy
  - Marine Spatial Planning
- Increased demands for coordination and planning within the maritime area
- Increased demands for coordination of activities on land
- Increased demands for coordination with neighbouring countries

Not doing anything will not be an option
Maritime spatial planning

Article 6
Minimum requirements for maritime spatial planning
Member States shall establish procedural steps to contribute to the objectives listed in Article 5, taking into account relevant activities and uses in marine waters:

(e) Organise the use of the best available data in accordance with Article 10.

(f) Ensure trans-boundary cooperation between Member States in accordance with Article 12.

(g) Promote cooperation with third countries in accordance with Article 13.
The Danish Maritime Spatial Data Infrastructure (MSDI)
Geo Data of the Sea

Components of an infrastructure:

**DATA** - metadata, datasets

**FUNCTIONALITY** - spatial data services, web services and other technology

**GOVERNANCE** - Agreements and Organisation – rights and access

Education
The Danish Components of an infrastructure:

Appendix:

1. **GOVERNANCE model** - Agreements and Organisation – rights and access

2. **Financial model**

3. **Technical description** – Functionality - spatial data services, web services and other technology, metadata

4. **Description of DATA** – datasets

5. **Implementation plan**

**WEB GIS solution** – “The Blue Danish sea map”
The MSDI-forum has amongst other tasks to:

- Approve cooperation agreements
- Approve the upcoming yearly budget
- Put forth new proposals to and initiate new developments for within the MSDI area, including to finance small analytical and developmental activities
- Hold meetings in the MSDI-forum based on demand, but at least once a year
### Presentations of data sets associated with MSDI and MSP

- **Gives an overview of dataset needed for MSP**
- **More than 70 datasets identified**

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<tr>
<th>NO</th>
<th>Description</th>
<th>Geo Package</th>
<th>Types of data</th>
<th>Broader of Data (Degraded)</th>
<th>Metadata</th>
<th>Apcovering</th>
<th>Apcovering 2</th>
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<tbody>
<tr>
<td>1</td>
<td>Presentations of data sets associated with MSDI and MSP</td>
<td>F-Poly</td>
<td>F-Polygon (Information)</td>
<td>Natural</td>
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DET BLÅ DANMARKSKORT

MSDI er Danmarks blå danmarks kort. Her kan du finde alt.

Gå til kortet ➔

Login for MSDI-medlemmer

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## Datasæt

<table>
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<th>Metadata</th>
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| Se metadata | Placer i grænsekort bundgøir indtægter i sektor (Bekendtgørelsen) | Ikke klagt 

| Se metadata | Skibserkmærker, område, førerstyrte, løb og nedarb som skibserne recht betyder i og uden for antifælske ruter inkludert forskellen i forhold til andre aktiviteter | Ikke klagt |
| Se metadata | Skibserer (antibalseren) og skibstrafløjstømmer indtægter på sektorn m.m. | Ikke klagt |
| Se metadata | Øvrige forudsætninger omkring sprængstoffer adsh. Ammunition og sprængstoffer | Ikke klagt |
| Se metadata | Antal af fællesmæssige områder indtægter i sektor, inklusive værket af ammunition og sprængstoffer | Ikke klagt |
| Se metadata | Ankerpladser indtægter i sektor | Ikke klagt |
| Se metadata | Loddopføringstæder indtægter i sektor | Ikke klagt |
| Se metadata | Bånd over og foert forbundet | Ikke klagt |
| Se metadata | Fyr linje, førerstyrkeførstyrke m.m., indtægter i sektor | Ikke klagt |
| Se metadata | Kaprejæslibres officiere indtægter i sektor | Ikke klagt |
Access to the Danish MSDI gives the different agencies many opportunities to visualize data and use data.
MSDI – seen from a Danish perspective
Planning across borders
MSP data set used for:
- Overview/Charting
- Planning
MSDI and MSP – seen from a Regional perspective
BSR MSP Data Expert group
The Baltic Sea – North Sea MSDI Working Group should:

- Identify and analyse the current status of individual MS MSDI implementation
- Consider MSDI policies within the related international project
- Analyse 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 BSHC in the future can benefit from a regional approach
- Monitoring MSDI and marine-related initiatives, as well as more general geospatial developments with relevance for the Baltic Sea.
IHO - MARINE SPATIAL DATA INFRASTRUCTURE WORKING GROUP (MSDIWG)

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.
Hydrography supports:

- 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
MSDI = accessible data picture that supports activity in the sea and coastal hinterland

- Land Use
- Tourism
- Oil & Gas
- Mariculture
- Coastal Defence
- Ports & Navigation
- Military Activities
- Culture
- Conservation
- Dredging & Disposal
- Submarine Cables
- Fishing
- Renewable Energy
- Marine Recreation
- Mineral Extraction

It is not only about collecting data – filtering will also be an issue in the future.