



## NHC 59th meeting

Agenda item  
NHC-59-11D  
April 14-15, 2015  
Reykjavik - Iceland



# The Danish Maritime Spatial Data Infrastructure (MSDI)

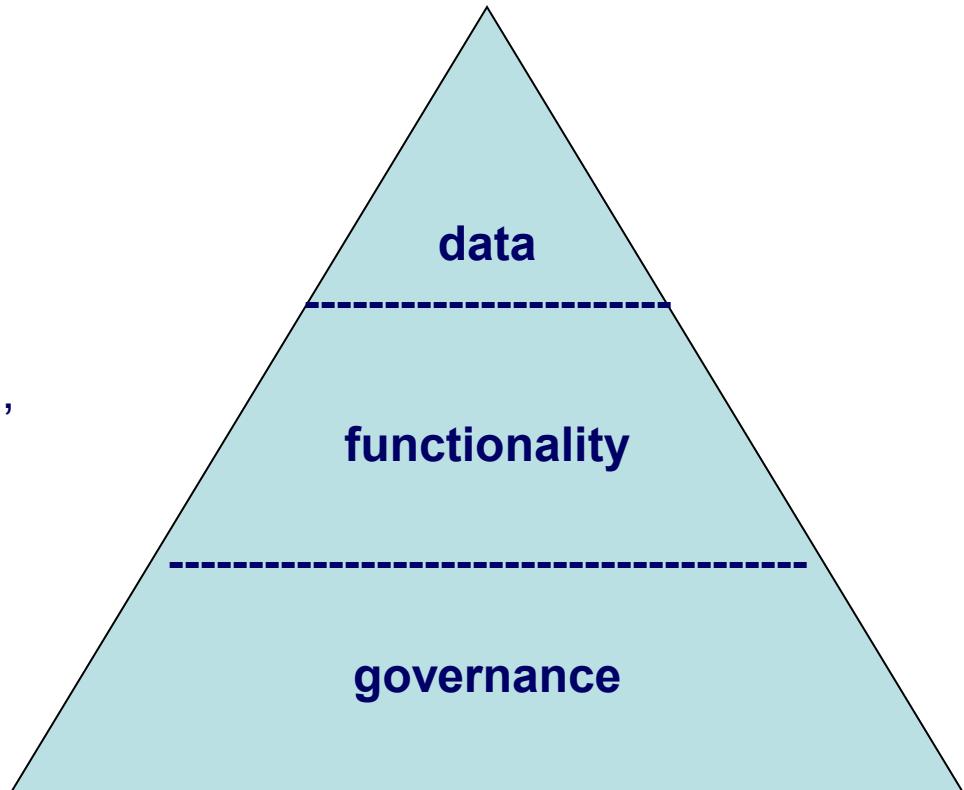
## Geo Data of the Sea

### Components of an infrastructure:

**DATA** - metadata, datasets

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

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



# 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”



# Draft responsibility in the Danish MSDI:

Agency responsibility:

Basis MSDI:

Output from MSDI:

**Governance:**

- Data and standards
- Technical aspects and Infrastructure
- Frames, rules and agreements
- Economy and financial model

Metadata



**Metadata:**

(Catalogue services)?

**Services:**

- WMS
- WFS?
- Download
- Upload?
- Updates?

**View services:**

- Common portal?
- Web GIS?
- Applications

**MSDI Forum**

**User Management**  
MSDI secretariat

**Metadata (Content)**

Dataset

WMS

WFS?

Download



**WEB platform/portal**  
Information, Agencies,  
Data layers, WMS,  
Download, status ...

**WEB GIS** "Blue Sea Map"



# Presentations of data sets associated with MSDI and MSP

- Gives an overview of dataset needed for MSP
- Almost 80 datasets identified

	<b>Oplæg vedr. datasæt i forbindelse med MSDSI og MSP</b>	<b>P = planlægning K = kortlægning</b>	<b>Type af data</b> (Punkt/Linje/Polygon/Tekst) - (Beskrivelse)	<b>Dataejer</b>	<b>Brugere af Data (begrundelse)</b>	<b>Mulighed for træk fra databaser</b>	<b>Metadata</b>	<b>Ajourfaring s højighed</b>	<b>Ajourfari ngs årsag</b>
5	<b>ID Interesser / Planlægningssæt (Nummeringen for planlægningaktivitet)</b>								
6	<b>Akvakultur (nr. 6) (Havbrug inkl. mustingebrug og tanganlæg)</b>	P	Polygon (information)	Naturerhverv	Bruges af FD m.fl.	Nej		Ja	
7	17 Havbrug	P	Polygon (information)	Naturerhverv	Bruges af FD m.fl.	Nej		Ja	
8	18 Muslingebrug	P	Polygon (information)	Naturerhverv	Bruges af FD m.fl.	Nej		Ja	
9	NY Tanganlæg	P							
10	<b>Anlæg på havet</b> Anlæg etableret på søterritoriet med Kystdirektoratets tilladelser herunder								
11	Ny (tanganlæg, Softilopladser, leddinger, vrag, bygninger, lystbådehavn, fortettingsanlæg etc.)	K	Polygoner	KDI					
12	Kystbeskyttelsesanlæg	K	Polygoner	KDI					
13	Kystbeskyttelseskonstruktioner herunder høfder, stenkastning, skråningsbeskyttelse,	K	Linjer/polygoner	KDI					
14	<b>Kystfordinstrækningen</b>								
15	<b>Anlæg til udvinding af energi og produktion af vedvarende energi (nr. 1)</b>								
16	15 Havvindmøller (anlægs og produktionsoplysninger) (indtegnet i søkort)	P	Linjer (information)	ENS	GST Skibs fart m.m.	DB internet			
17	Ny Havvindmøller (anlægs og produktionsoplysninger) i ENS GIS	P	Polygon (information)	ENS	GST Skibs fart m.m.	Energistyrelsens hjemmeside.			
18	Ny Tilladelser - forunder-søgelse, etablering og tilslutning.	P	Tekst (information)	ENS	GST Skibs fart m.m.	DB internet			
19	<b>Fiskeri (nr. 5)</b>								
20	Ny VMS data for fiskefartøjer over 12 m.	K		Naturerhverv					
21	16 Bundgarn	P	Linjer (information)	Naturerhverv	Bruges af FD m.fl.	Nej		Ja	
22	22 Fiskerigrænse bundgarn indtegnet i søkort	P	Linjer	Naturerhverv	GST, SFS, Skibs fart m.m.	Nej			
23	<b>Frituftslov (nr. 11)</b>								
24	Ny Lokale ordensreglementer og politivedtægter kan regulere forholdene i et område	P		Politiet					
25	<b>Fælles forvaltnings data</b>								
26	14 DTM	K	Punkter, linjer	GST	SFS, GST Skibs fart m.m.	Kortforsyningen WMS, WFS		Ja	
27	Ny DSM	K	Punkter, linjer	GST		Kortforsyningen WMS, WFS		Ja	
28	20 Nationale grænser (Normale rette basislinjer)	K	Linjer, polygoner	GST	Bruges af andre	Kortforsyningen WMS, WFS		Ja	
29	21, 3, 12 og 24 somilegrænse	K	Linjer, polygoner	GST	Bruges af andre	Kortforsyningen WMS, WFS		Ja	
30	25 KORT10	K	Punkter, linjer, polygoner, tekster, (informati	GST	Bruges af andre	Kortforsyningen WMS, WFS		Ja	
31	<b>Havne (nr. 12)</b>								
32	Ny Havnenes placering (fiskerihavn, erhvervshavn, lystbådehavn inden for samme havneområde)	K	Polygoner	KDI?					
33	Ny Havnegrænsen på søterritoriet	K	Polygoner	KDI?					
34	Ny Dybder i havnebassinerne	K		KDI?					
35	Ny Etudelokationer over havneområderne, bazorunder havneområderne	--	Dokumenter	---					



**MILJØMINISTERIET**

Miljøstyrelsen



Ministeriet for Fødevarer,  
Landbrug og Fiskeri  
NaturErhvervstyrelsen



**Soværnet**  
Soværnets Operative Kommando



Danish Ministry of the Environment  
Danish Geodata Agency

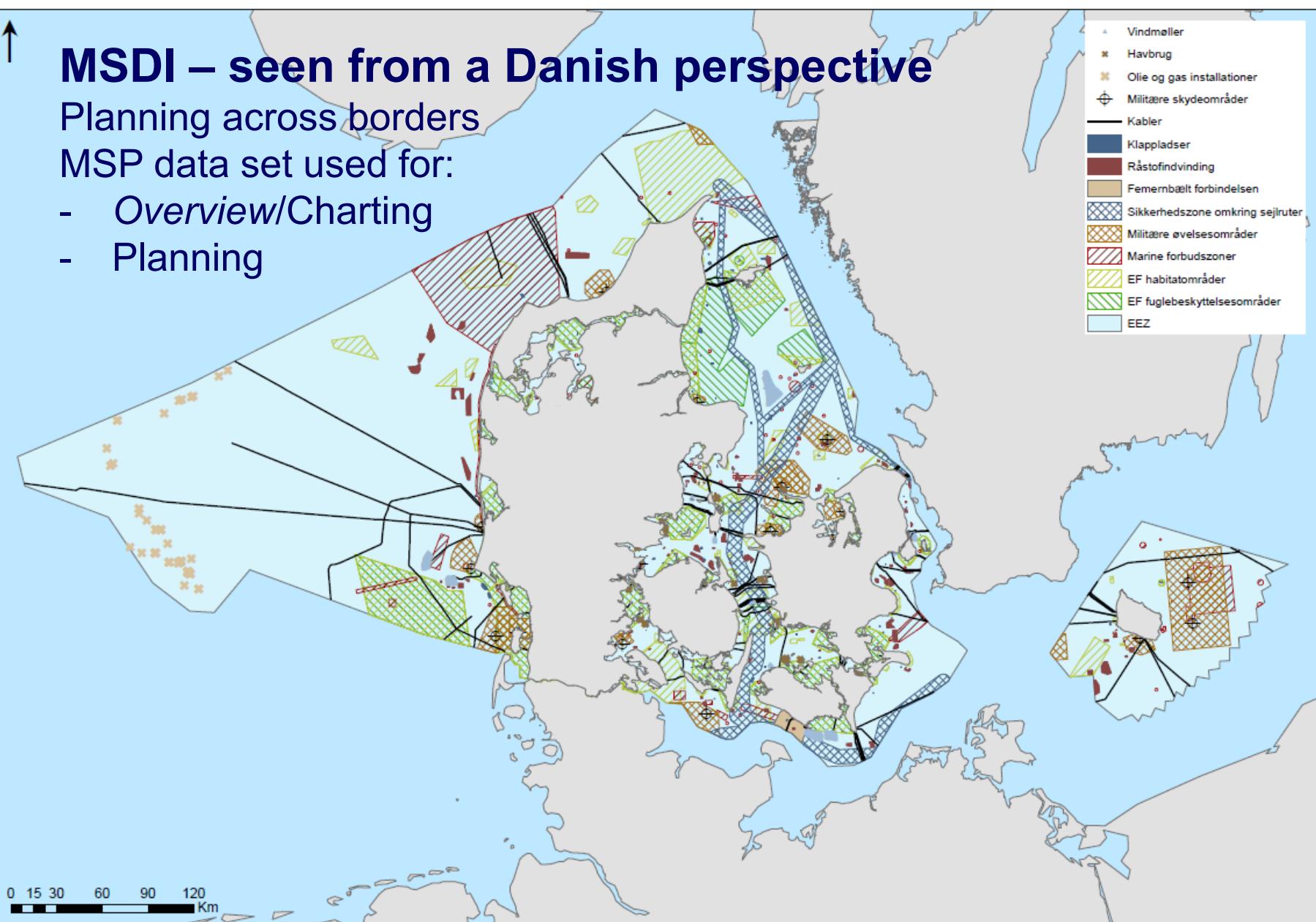


# MSDI – seen from a Danish perspective

Planning across borders

MSP data set used for:

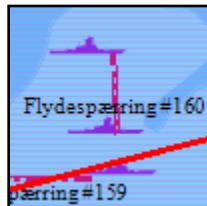
- Overview/Charting
- Planning



# MSDI - Creating a Common Operational Picture

MSP - SAR - ICM – Environmental protection - Surveillances - VTS - MAS

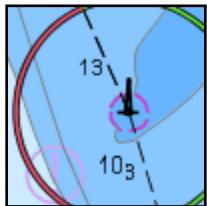
Environ-  
mental  
protection  
vessels



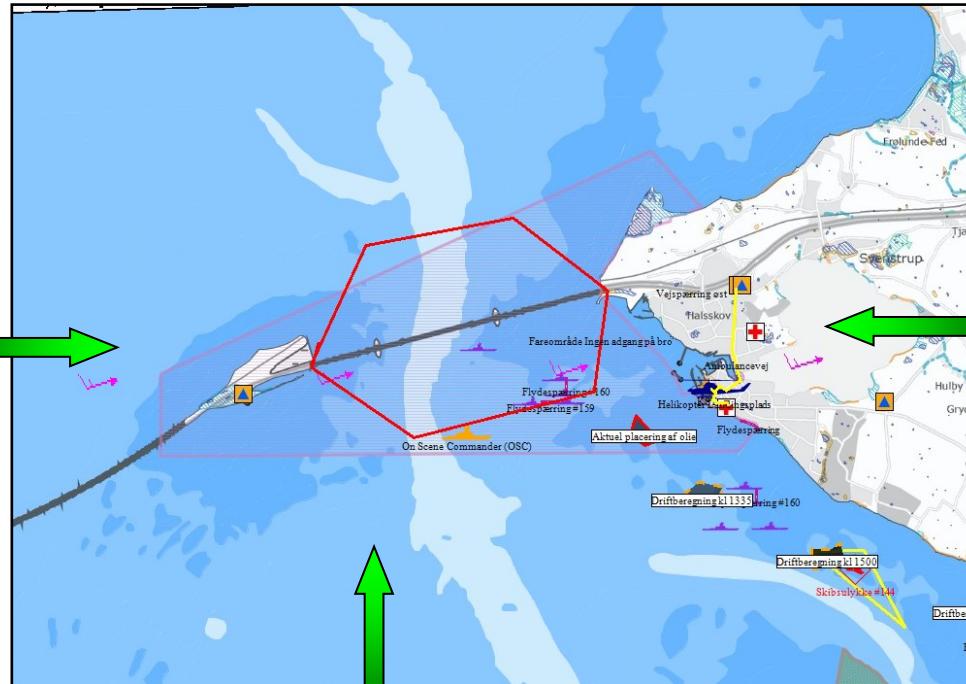
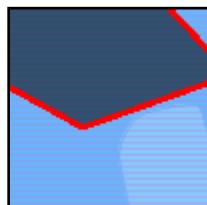
Orthophoto



Nautical  
maps



Oil spill



Weather  
data



Focus  
areas



Environ-  
mental data



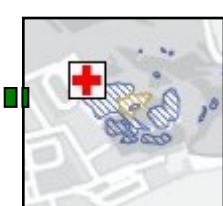
Maps



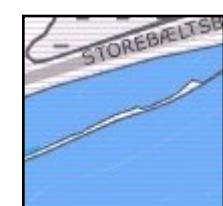
Fire station



Hospital



Bird  
Protection  
Area

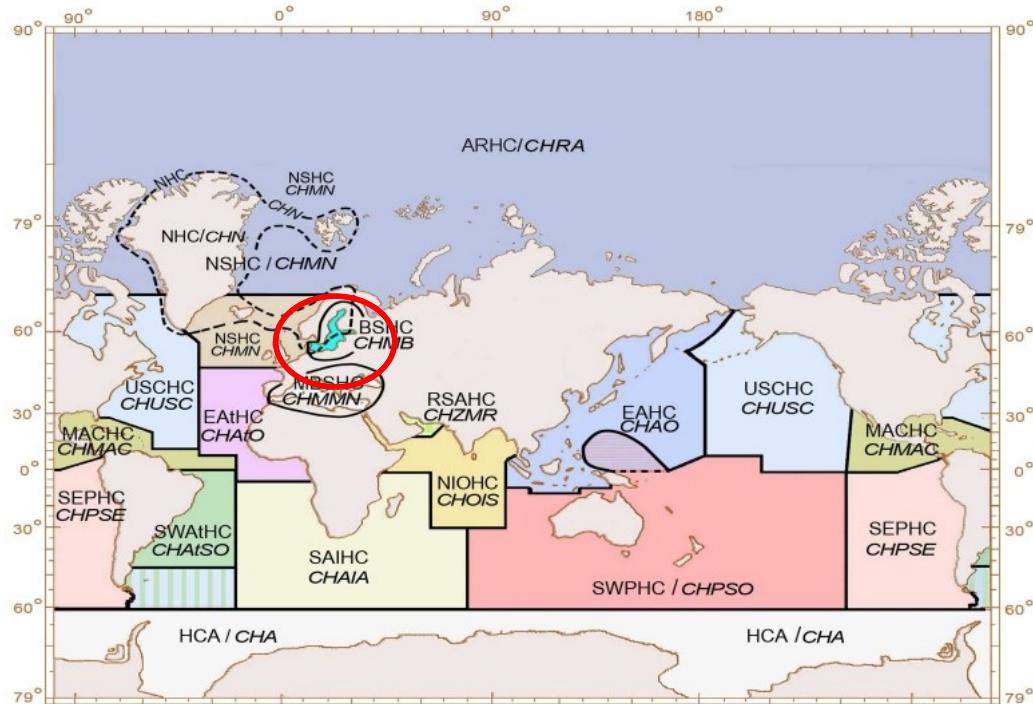


Emergency  
road



# MSDI from a regional approach

## Baltic Sea MSDI WORKING GROUP (BSMSDIWG)

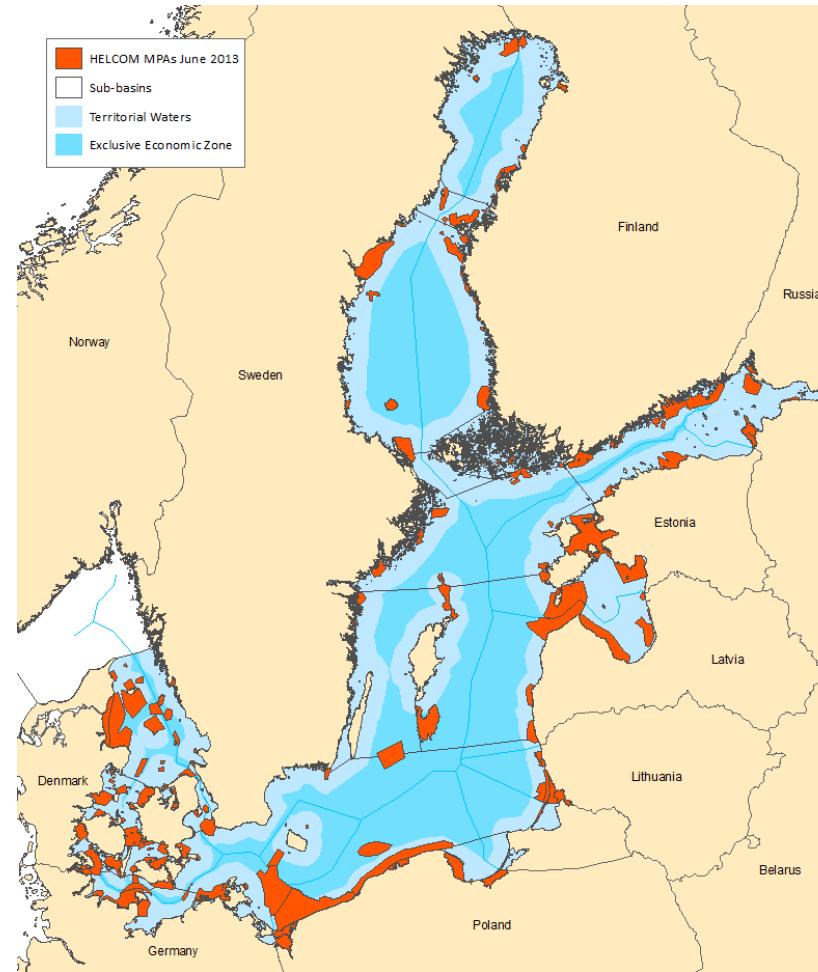


Regional Hydrographic Commissions



## The Baltic 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.



# 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.

28.8.2014

EN

Official Journal of the European Union

L 257/135

### DIRECTIVES

#### DIRECTIVE 2014/89/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 establishing a framework for maritime spatial planning

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Articles 43(2), 100(2), 192(1), and 194(2) thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee (1),

Having regard to the opinion of the Committee of the Regions (2),

Acting in accordance with the ordinary legislative procedure (3),

Whereas:

(1) The high and rapidly increasing demand for maritime space for different purposes, such as installations for the production of energy from renewable sources, oil and gas exploration and exploitation, maritime shipping and fishing activities, ecosystem and biodiversity conservation, the extraction of raw materials, tourism, aquaculture installations and underwater cultural heritage, as well as the multiple pressures on coastal resources, require an integrated planning and management approach.

(2) Such an approach to ocean management and maritime governance has been developed in the Integrated Maritime Policy for the European Union (IMP), including, as its environmental pillar, Directive 2008/56/EC of the European Parliament and of the Council (4). The objective of the IMP is to support the sustainable development of seas and oceans and to develop coordinated, coherent and transparent decision-making in relation to the Union's sectoral policies affecting the oceans, seas, islands, coastal and outermost regions and maritime sectors, including through sea-based strategies or macro-regional strategies, whilst achieving good environmental status as set out in Directive 2008/56/EC.

(3) The IMP identifies maritime spatial planning as a cross-cutting policy tool enabling public authorities and stakeholders to apply a coordinated, integrated and trans-boundary approach. The application of an ecosystem-based approach will contribute to promoting the sustainable development and growth of the maritime and coastal economies and the sustainable use of marine and coastal resources.

(1) OJ C 341, 21.11.2013, p. 67.

(2) OJ C 356, 5.12.2013, p. 124.

(3) Position of the European Parliament of 17 April 2014 (not yet published in the Official Journal) and decision of the Council of 23 July 2014.

(4) Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for Community action in the field of marine environmental policy (Marine Strategy Framework Directive) (OJ L 164, 25.6.2008, p. 19).



## *Article 8 (new)*

### **Set-up of maritime spatial plans**

1. When establishing and implementing maritime spatial planning, Member States shall set up maritime spatial plans which identify the spatial and temporal distribution of relevant existing and future activities, uses in the marine waters in order to contribute to the objectives set out in Article 5.

2. In doing so and in accordance with Article 2(3), Member States shall take into consideration relevant interactions of activities and uses. Without prejudice to Member States' competences, possible activities and uses and interests may include:

- **aquaculture areas;**
- **fishing areas;**
- **installations and infrastructures for the exploration, exploitation and extraction of oil, gas, mineral and aggregates, and other energy resources and the production of renewable energy;**
- **maritime transport routes and traffic flows;**
- **military training areas;**
- **nature and species conservation sites and protected areas;**
- **raw material extraction areas;**
- **scientific research;**
- **submarine cable and pipeline routes;**
- **tourism;**
- **underwater cultural heritage.**

**What are the data-sets needed for maritime spatial plans?**

- Planning
- Overview/Charting





# The BSMSDI new Work plan 2015 - 2020:

Theme	Subject	Responsible
<b>Task 1.</b> Work item: Hydrographic data and legal aspects	- Definition of HO role in MSDI - Study on status on implementation and responsibility with relevance to MSDI in the Baltic countries	Denmark
<b>Task 2.</b> Work item: Liaison with external projects	- Scanning of projects relevant for BSMSDI	Germany
<b>Task 3.</b> Work item: S 100	- Conduct S 100 pilot project - Evaluate on how to promote S 100 in the Baltic	Germany
<b>Task 4.</b> Work item INSPIRE	<b>- Study on IHO standard S 57 in relation to INSPIRE</b> <b>- The difference between S 57 and S 100</b>	Netherland/ France
<b>Task 5.</b> Work item: Common understanding	- Establish a framework for common understanding of MSDI	Denmark/ Finland
<b>Task 6.</b> Work item: Pilot projects/demonstration	-Study on the possibility to establish a BSMSDI WEB page - Demonstration project S100 - WEB GIS demonstrator with BS HO datasets	Denmark Germany Denmark



# MSDI and MSP – seen from a Regional perspective



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## MARITIME SPATIAL PLANNING



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CO-LEADER WITH VASAB



EUSBSR  
EU STRATEGY FOR THE BALTIC SEA REGION

HORIZONTAL ACTION 'SPATIAL PLANNING'

## HIGHLIGHTS

HELCOM statement in 2014 VASAB Ministerial Conference,  
26 September 2014

The key to governing the fragile Baltic Sea - Maritime Spatial Planning in the Baltic Sea Region and the way forward, by Jacek Zaucha

# 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.

 International Hydrographic Organization  
Organisation Hydrographique Internationale

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**English** **Français**

**MARINE SPATIAL DATA INFRASTRUCTURE WORKING GROUP (MSDIWG)** **GROUPE DE TRAVAIL SUR L'INFRASTRUCTURE DES DONNÉES SPATIALES NATIONALES (MSDIWG)**

**Chair:** Mr. Jens Peter HARTMAN (Denmark)  
**Vice-Chair:** Vacant  
**Secretary:** Vacant

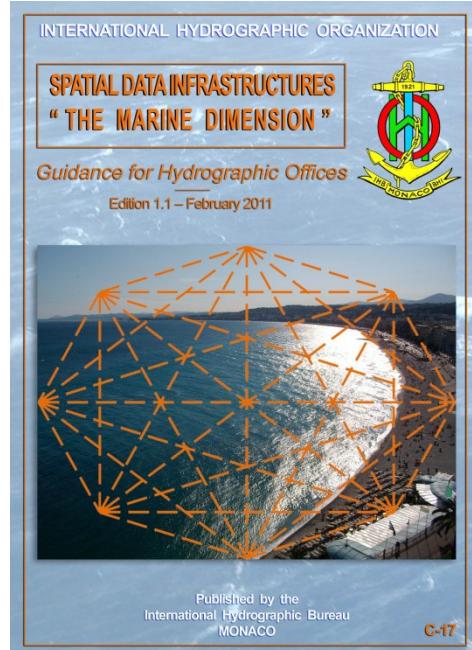
**President:** M. Jens Peter HARTMAN (Danemark)  
**Vice-Président:** A pourvoir  
**Secrétaire:** A pourvoir

**Objectives:**  
Identify the Hydrographic Community inputs to National Spatial Data Infrastructures (NSDI). More details can be found in the full Terms of Reference for MSDIWG.

**Members:**  
The WG works primarily by correspondence and aims to meet at least once every two years, normally in connection with another convenient IHO forum. See current [Work Plan](#).

**Meetings:**  
Le GT travaille essentiellement par correspondance et a pour objectif de se réunir au moins une fois tous les deux ans, normalement en liaison avec d'autres réunions appropriées de l'IHO. Voir le [programme de travail](#) en cours.

**Réunions:**  
Le GT est composé de représentants des Etats membres de l'IHO et d'experts collaborateurs et d'observateurs d'organisations internationales non gouvernementales accréditées. Les experts collaborateurs, principalement du secteur industriel, participent aux travaux à l'invitation du Président. Une liste complète des membres du GT est tenue à jour.



# The MSDIWG Work programme

The following work programme has been developed with a view towards a five-year horizon. It includes four proposed initiatives for the MSDIW.

- **Identify and promote national and regional best practices:**
  - for land-sea integration
  - for cross-border integration
- **Review the appropriateness of existing standards for the provision of the maritime components of spatial data infrastructures**
- **Develop content for an MSDI training course**
- **Maintain MSDI reference documentation on the IHO website**
- **Maintain and extend Publication IHO MSDI C-17**
- **Ensure that MSDI is a standing agenda item for RHCs' meetings**



## **S-102 and INSPIRE**

The Marine Spatial Data Infrastructure Working Group (MSDIWG) would like the HSSC S-100 Working Group to consider looking at the relationship between S-102 and the INSPIRE Elevation theme as it pertains to bathymetry data.

The reason for this request is to attempt to avoid a possible format conflict and to help ensure that hydrographic offices are not in a position where they need to maintain two separate bathymetry layers.

One for primary charting activities and another to serve the regional or national spatial data infrastructure initiatives for purposes that go beyond charting e.g. marine spatial planning or oil spill response.

The MSDIWG understands that the S-100 work group will be undertaking a revision of S-102 in its work plan (item D.8.) so perhaps this would present an opportunity for this investigation.



## INSPIRE

Although INSPIRE is a primarily European Union activity it is perhaps the best example of a Spatial Data Infrastructure and therefore is recognized well beyond the borders of Europe.

Many European hydrographic offices have requirements under INSPIRE so it would be beneficial to adopt a policy of collect once and use many times as it relates to one of the most important data assets held by hydrographic offices i.e. bathymetry.

Under INSPIRE there are maintenance groups that drive the direction and scope of the various themes including Elevation. The MSDIWG suggests that it may be worthwhile for the IHO group responsible for data standards such as S-102 also to attend the maintenance group responsible for this related theme. This way hydrography has a louder voice within INSPIRE and the work done under INSPIRE can be considered in the development of S-100 which should allow these two bathymetry related standards to be developed more harmoniously.

