BALTIC 2nd FORUM MSP

W 2/7 Towards joint understanding of data exchange

National Approach in Data Exchange - Danish Maritime Spatial Data Infrastructure

Jens Peter W. Hartmann

Danish Geodata Agency

Danish Geodata Agency

VASAB VISION & STRATEGIES AROUND THE BALTIC SEA

Baltic SCOPE Towards coherence and cross-border solutions in Baltic Maritime Spatial Plans

EUROPEAN UNION European Maritime and Fisheries Fund

ICES CIEM

#BalticMSP

Traditional approach to Hydrographic data

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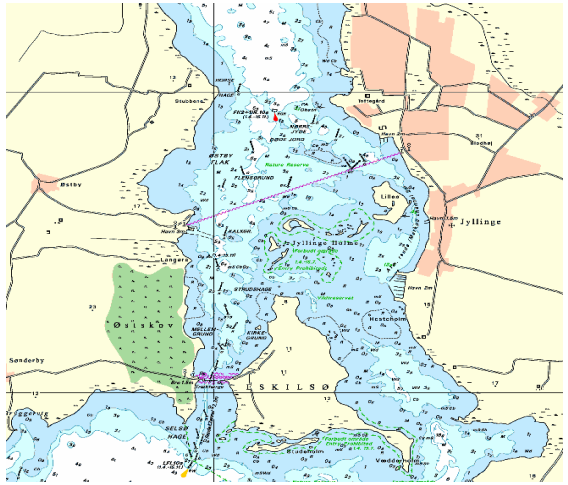
- One primary user, the mariner
- The primary products:
  - Paper chart
  - ENC - S57 data
  - Publications
  - Updates of products
- SOLAS (ECDIS - ENC)
- IHO:
  - standardisation
  - harmonisation
  - recommendations



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:

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- 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

MSDI

Geo Data of the Sea

Danish Geodata Agency

Maritime spatial planning

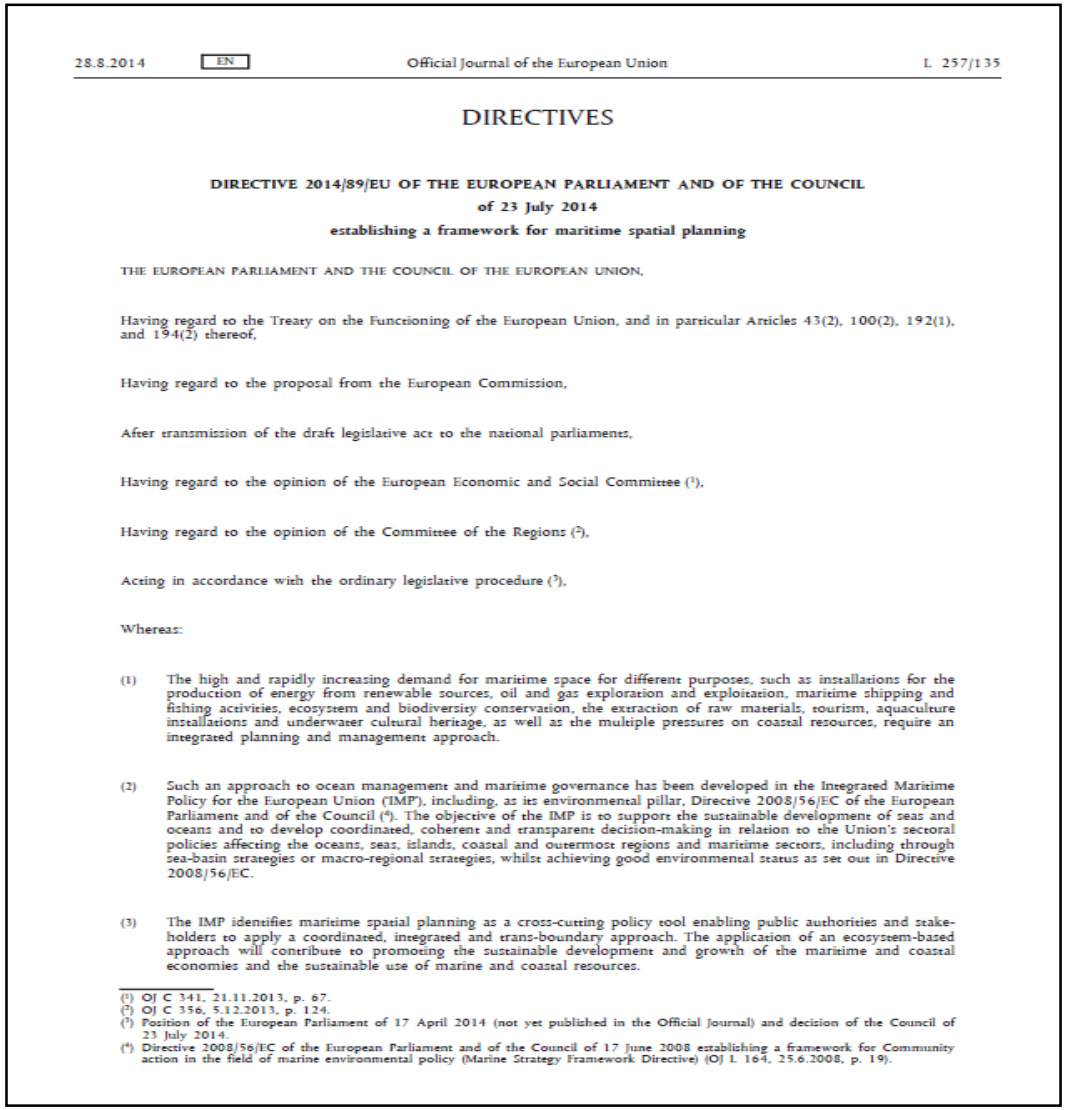
Article 6
Minimum requirements for maritime spatial planning

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-basin 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).

The Danish Maritime Spatial Data Infrastructure (MSDI)

Geo Data of the Sea

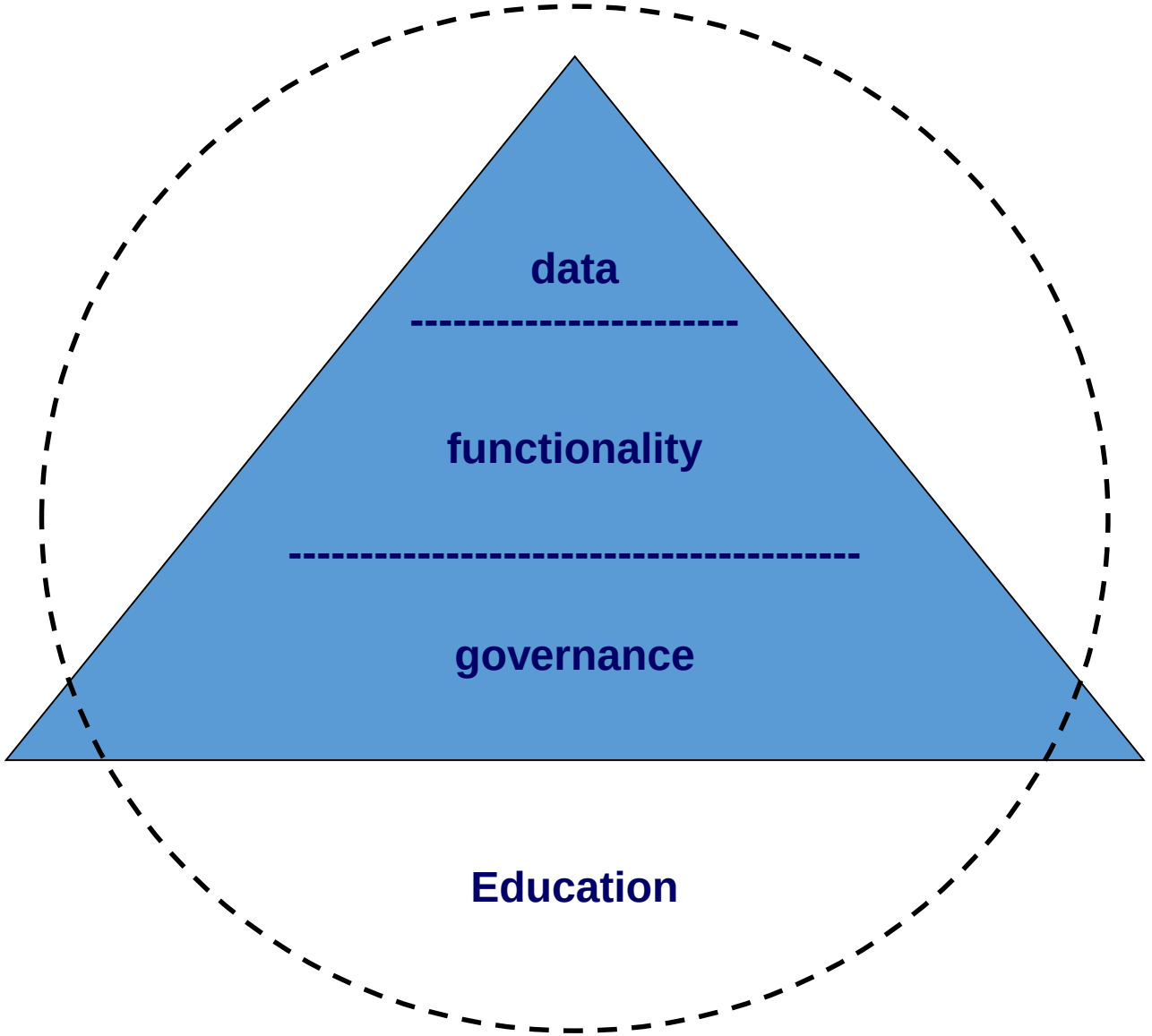
Components of an infrastructure:

DATA - metadata, datasets

FUNCTIONALITY - spatial data services, web services and other technology

GOVERNANCE - Agreements and Organisation – rights and access

Education

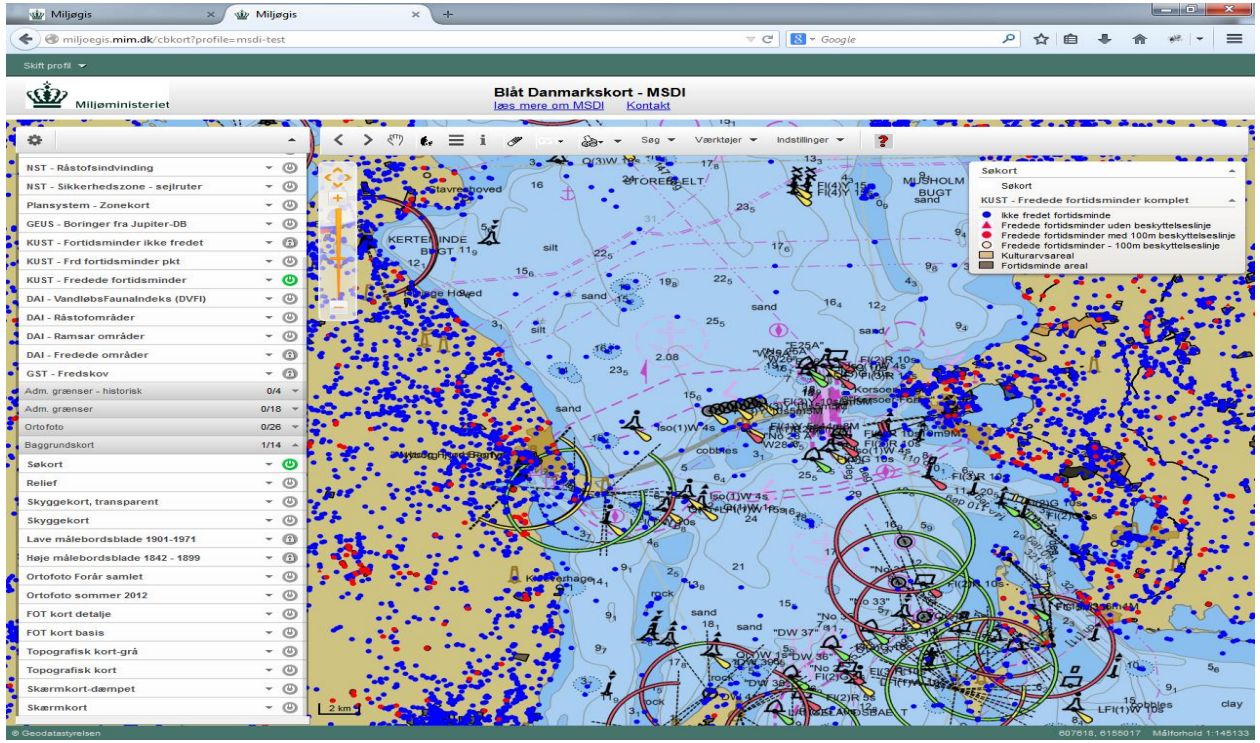


The Danish Components of an infrastructure:

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"



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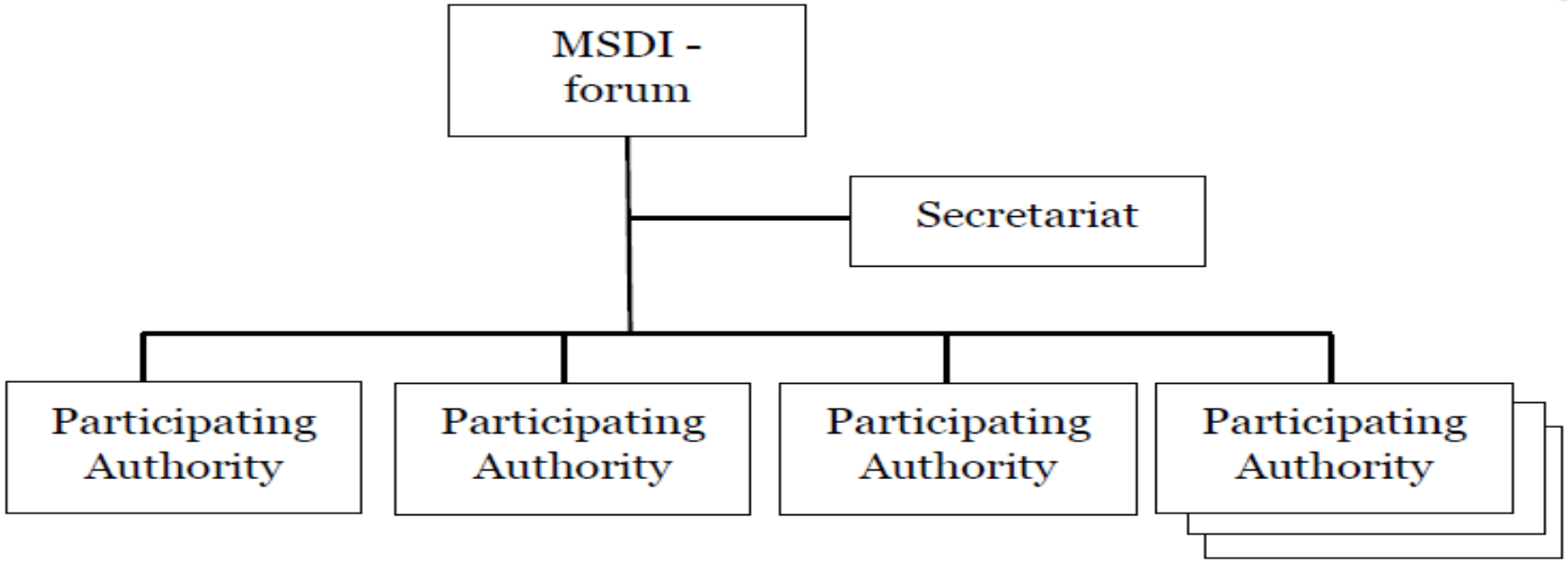

The MSDI-forum has amongst other tasks to:

- 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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ID	Oplæg vedr. datasæt i forbindelse med MSDSI og MSP Interesser / Planlægningsemne (Nummeringen for planlægningsaktivitet)	P = planlægning K = kortlægning	Type af data (Punkt/Linje/Polygon/Tekst) - (Beskrivelse)	Dataejer	Brugere af Data (begrundelse)	Mulighed for træk fra databaser	Metadata	Ajourførings hyppighed	Ajourførings årsag
	Akvakultur (nr. 6) (Havbrug inkl. muslingebrug og tanganlæg)								
17	Havbrug	P	Polygon (information)	Naturerhverv	Bruges af FD m.fl.	Nej	Ja		
18	Muslingebrug	P	Polygon (information)	Naturerhverv	Bruges af FD m.fl.	Nej	Ja		
NY	Tanganlæg	P							
	Anlæg på havet								
Ny	Anlæg etableret på søterritoriet med Kystdirektoratets tilladelser herunder (tanganlæg, Søfly-pladser, ledninger, vrag, bygninger, lystbådehavn, fortøjningsanlæg etc.)	K	Polygoner	KDI					
Ny	Kystbeskyttelsesanlæg (Kystbeskyttelseskonstruktioner herunder høfder, stenkastning, skråningsbeskyttelse,	K	Polygoner	KDI					
Ny	Kystfodringsstrækninger	K	Linjer/polygoner	KDI					
	Anlæg til udvinding af energi og produktion af vedvarende energi (nr. 1)								
15	Havvindmøller (anlægs og produktionsoplysninger) (indtegnet i søkort)	P	Linjer (information)	ENS	GST Skibsfart m.m.	DB internet			
Ny	Havvindmøller (anlægs og produktionsoplysninger) I ENS GIS	P	Polygon (information)	ENS	GST Skibsfart m.m.	Energistyrelsens hjemmeside.			
Ny	Tilladelser - forunder-søgelse, etablering og tilslutning.	P	Tekst (information)	ENS	GST Skibsfart m.m.	DB internet			
	Fiskeri (nr. 5)								
Ny	VMS data for fiskefartøjer over 12 m.	K		Naturerhverv					
16	Bundgarn	P	Linjer (information)	Naturerhverv	Bruges af FD m.fl.	Nej	Ja		
22	Fiskerigrænse bundgarn indtegnet i søkort	P	Linjer	Naturerhverv	GST, SFS, Skibsfart m.m.	Nej			
	Friluftsliv (nr. 11)								
Ny	Lokale ordensreglementer og politivedtægter kan regulere forholdene i et område	P		Politi					
	Fælles forvaltnings data								
14	DTM	K	Punkter, linjer	GST	SFS, GST Skibsfart m.m.	Kortforsyningen WMS, WFS	Ja		
Ny	DSM	K	Punkter, linjer	GST		Kortforsyningen WMS, WFS	Ja		
20	Nationale grænser (Normale rette basislinjer)	K	Linjer, polygoner	GST	Bruges af andre	Kortforsyningen WMS, WFS	Ja		
21	3, 12 og 24 sømilegrænse	K	Linjer, polygoner	GST	Bruges af andre	Kortforsyningen WMS, WFS	Ja		
25	KORT10	K	Punkter,linjer,polygoner,tekst, (informatic	GST	Bruges af andre	Kortforsyningen WMS, WFS	Ja		
	Havne (nr. 12)								
Ny	Havnenes placering (fiskerihavn, erhvervshavn, lystbådehavne inden for samme havneområde)	K	Polygoner	KDI ?					
Ny	Havnegrænserne på søterritoriet	K	Polygoner	KDI ?					
Ny	Dybder i havnebassinerne	K		KDI ?					
Ny	Udviklingsplaner for havnene, herunder forventet arealbehov	K	Polygoner	KDI ?					

Miljø- og Fødevareministeriet
Kystdirektoratet

Ministry of Environment and Food of Denmark
Agency for Water and Nature Management

Danish Geodata Agency

Danish Energy Agency

FORSVARET FOR DANMARK

Danish Meteorological Institute

Kulturministeriet
AGENCY FOR CULTURE AND PALACES

Ministry of Environment and Food of Denmark
Environmental Protection Agency

Ministry of Environment and Food of Denmark
The Danish Agrifish Agency

RIGSPOLITIET
POLITI

DANISH MARITIME AUTHORITY

Agency for Data Supply and Efficiency

MSDI
DET BLÅ DANMARKSKORT

Nyheder Kontakt English

Om os MSDI medlemmer Kort

Danish Geodata Agency

DET BLÅ DANMARKSKORT

MSDI er Danmarks blå danmarkskort. Her kan du finde alt.

Gå til kortet >

#dkpol

Elisabeth A. Heslund @N
Thorning: "Den person, FN har valgt, har en markant anderledes profil, end jeg kommer med." #dkpol
Expand

Niels Chr. Bastholm @ncbast 54s
Thorning: NU koncentrer jeg mig om Folketinget
Show Summary

drunksigningdeals @drunksigning 1m
Er de ryske flygtninge i sidste ende et resultat af klimaforandringer? #dkpol #klimadier

JP Politik @jppolitik 1m
Thorning takker regeringen for støtte og er stadig kandidat for @Spolitik på Østerbro #dkpol pic.twitter.com/7vQamLzNHA

Tweet #dkpol

Login for MSDI-medlemmer

Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Morbi leo risus, porta ac consectetur ac, vestibulum at eros. Cras justo odio, dapibus ac facilisis in, egestas eget quam. Sed posuere consectetur est at lobortis.

Gå til login

SØFARTSSTYRELSEN

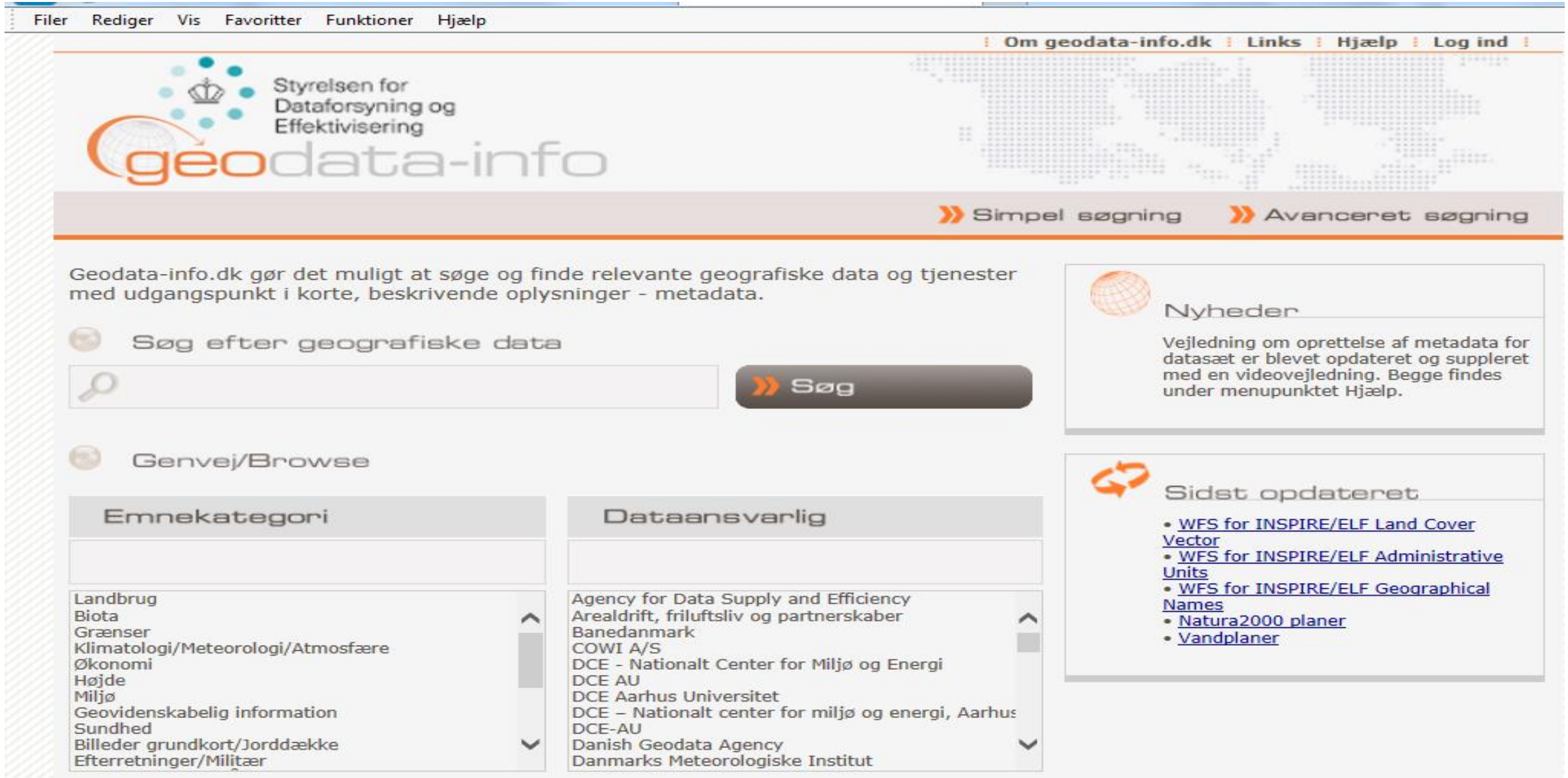
Link til Søfartsstyrelsens hjemmeside

KONTAKTOPLYSNINGER

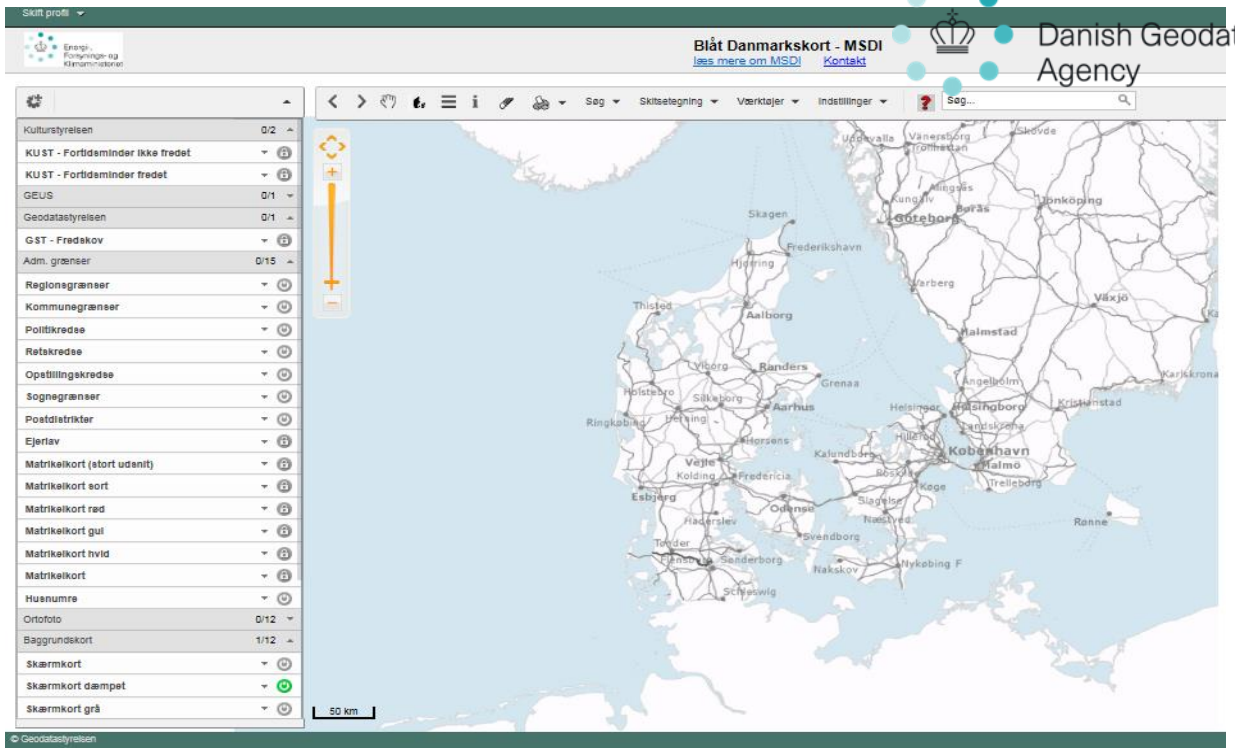
Peter Dam
Titel: Teknisk konsulent
PED@dma.dk

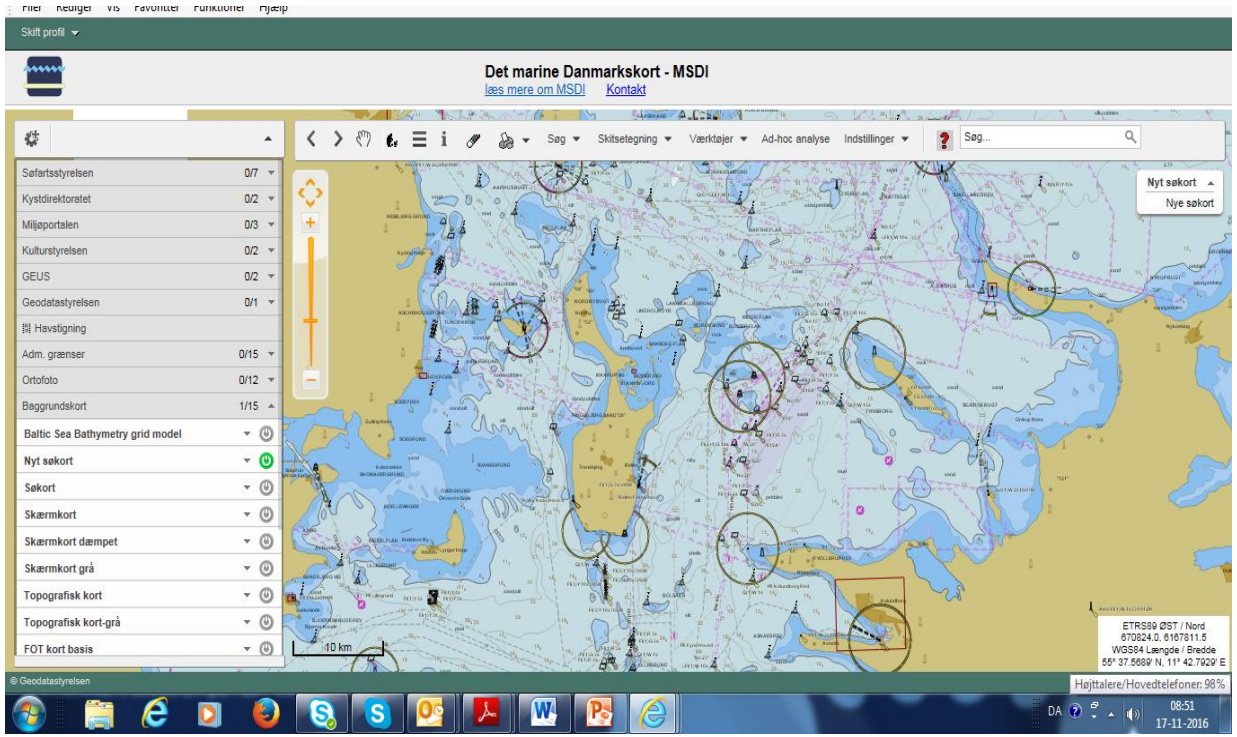
DATASÆT

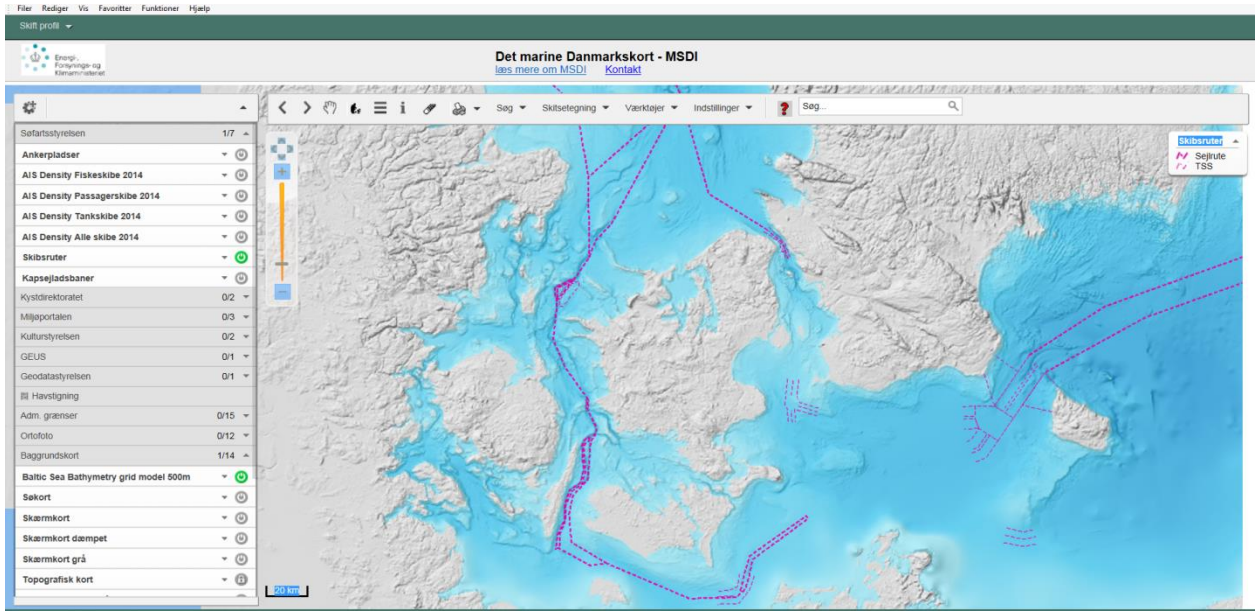
METADATA	DATA	STATUS
Se metadata	Fiskeri (grænse-bundgarn indtegnet i søkort (Bekendtgørelsen))	Ikke klargjort
Se metadata	Skibsrutelokaliseringer; områder, farvande, løb og render som skibene reelt benytter i og uden for anbefalede ruter inklusiv bufferzoner i forhold til andre aktiviteter	Ikke klargjort
Se metadata	Skibsruter (anbefalede) og skibstrafiksystemer indtegnet på søkort m.m.	Ikke klargjort
Se metadata	Øvrige forbudsområder sprængstoffer excl. Ammunition og sprængstoffer	Ikke klargjort
Se metadata	Aduersellitraadtingsområder indtegnet i søkort; tilstedeværelse af ammunition og sprængstoffer	Ikke klargjort
Se metadata	Ankerpladser indtegnet i søkort	Ikke klargjort
Se metadata	Lodsbåsamlingssteder indtegnet i søkort	Ikke klargjort
Se metadata	Broer over sejlbart farvand	Ikke klargjort
Se metadata	Fyrlinje, farvandsafmærkning m.m. indtegnet i søkort	Ikke klargjort
Se metadata	Kapsejladsbaner officielle indtegnet i søkort	Ikke klargjort

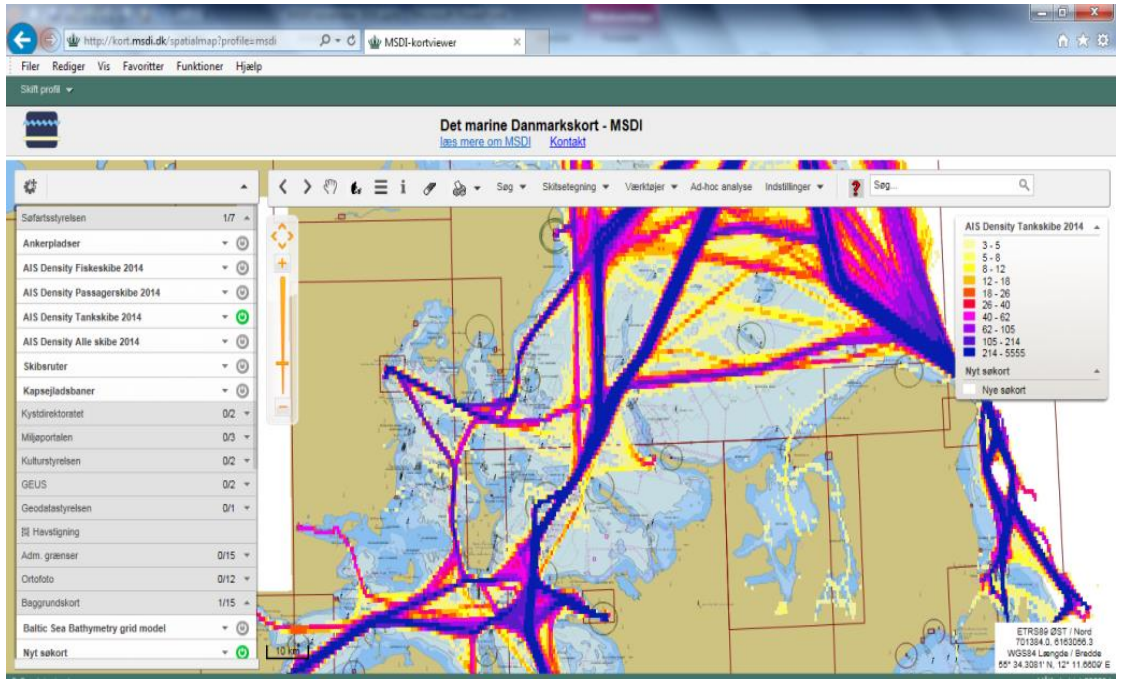

Filer Rediger Vis Favoritter Funktioner Hjælp
Om geodata-info.dk | Links | Hjælp | Log ind
Styrelsen for Dataforsyning og Effektivisering
geodata-info
Simpel søgning
Avanceret søgning
Geodata-info.dk gør det muligt at søge og finde relevante geografiske data og tjenester med udgangspunkt i korte, beskrivende oplysninger - metadata.
Søg efter geografiske data
Søg
Genvej/Browse
Emnekategori
Landbrug
Biota
Grænser
Klimatologi/Meteorologi/Atmosfære
Økonomi
Højde
Miljø
Geovidenskabelig information
Sundhed
Billeder grundkort/Jorddække
Efterretninger/Militær
Dataansvarlig
Agency for Data Supply and Efficiency
Arealdrift, friluftsliv og partnerskaber
Banedanmark
COWI A/S
DCE - Nationalt Center for Miljø og Energi
DCE AU
DCE Aarhus Universitet
DCE – Nationalt center for miljø og energi, Aarhus
DCE-AU
Danish Geodata Agency
Danmarks Meteorologiske Institut
Nyheder
Vejledning om oprettelse af metadata for datasæt er blevet opdateret og suppleret med en videovejledning. Begge findes under menupunktet Hjælp.
Sidst opdateret
• WFS for INSPIRE/ELF Land Cover Vector
• WFS for INSPIRE/ELF Administrative Units
• WFS for INSPIRE/ELF Geographical Names
• Natura2000 planer
• Vandplaner

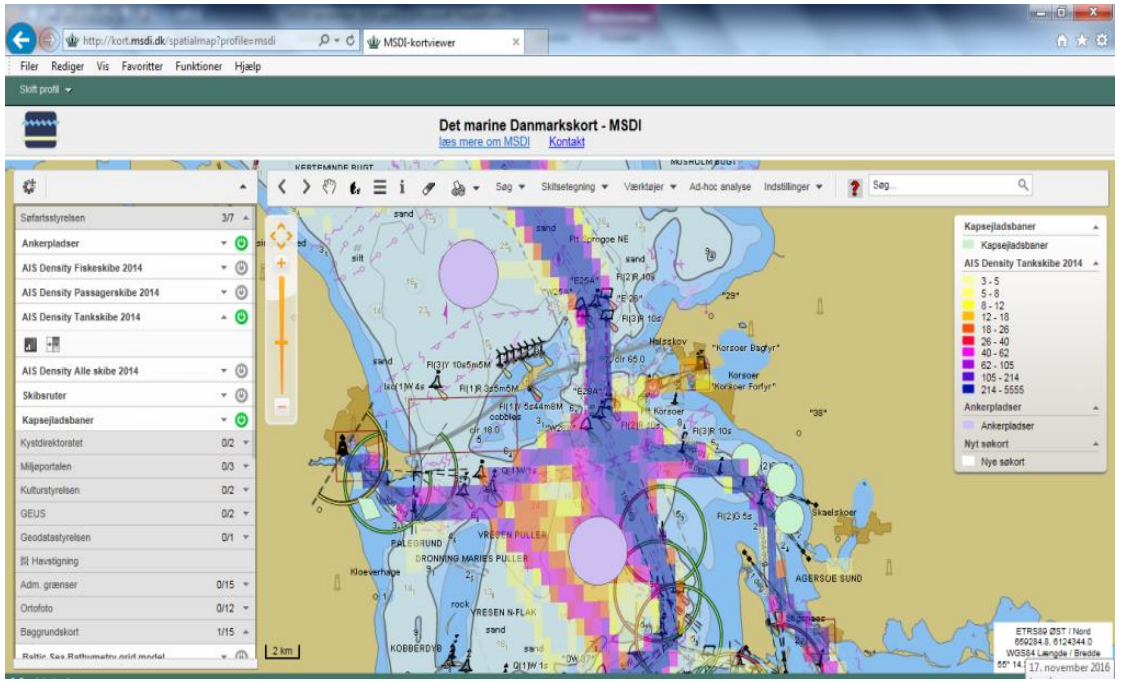
Access to the Danish MSDI gives the different agencies many opportunities to visualize data and use data








MSDI-kortviewer
Filer Rediger Vis Favoritter Funktioner Hjælp
Det marine Danmarkskort - MSDI
læs mere om MSDI Kontakt
Søfartsstyrelsen
Ankerpladser
AIS Density Fiskeskibe 2014
AIS Density Passagerskibe 2014
AIS Density Tankskibe 2014
AIS Density Alle skibe 2014
Skibsruter
Kapsejladsbaner
Kystdirektoratet
Miljøportalen
Kulturstyrelsen
GEUS
Geodatastyrelsen
Havstigning
Adm. grænser
Ortofoto
Baggrundskort
Baltic Sea Bathymetry grid model
Nyt søkort
AIS Density Tankskibe 2014
3 - 5
5 - 8
8 - 12
12 - 18
18 - 26
26 - 40
40 - 62
62 - 105
105 - 214
214 - 5555
Nye søkort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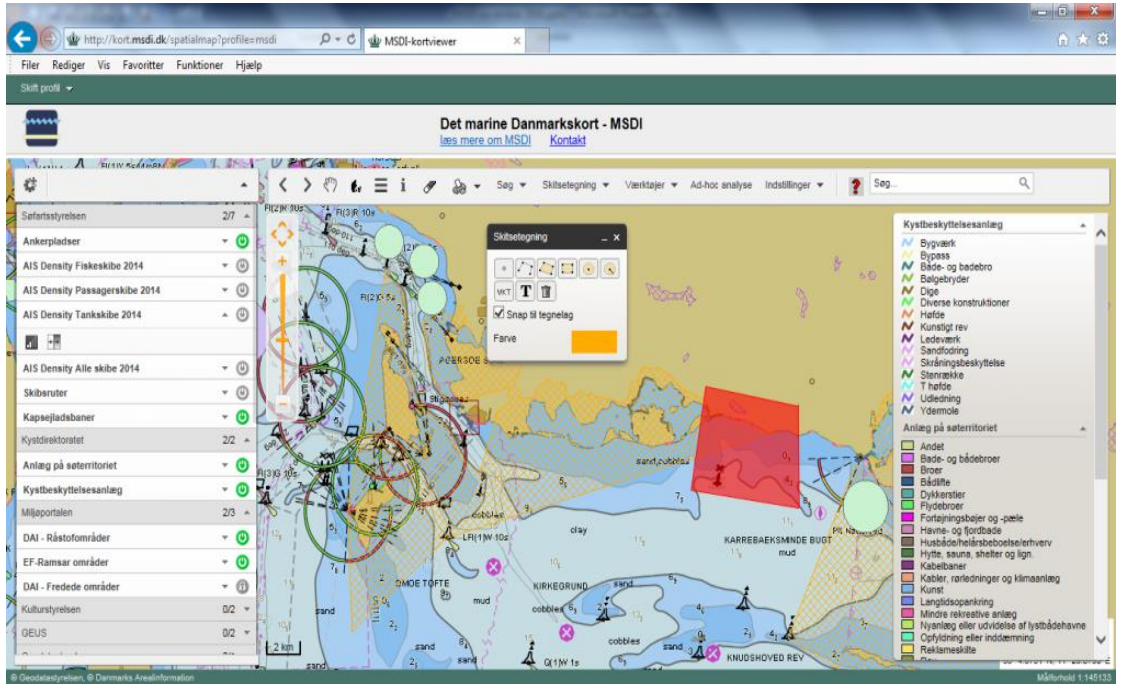
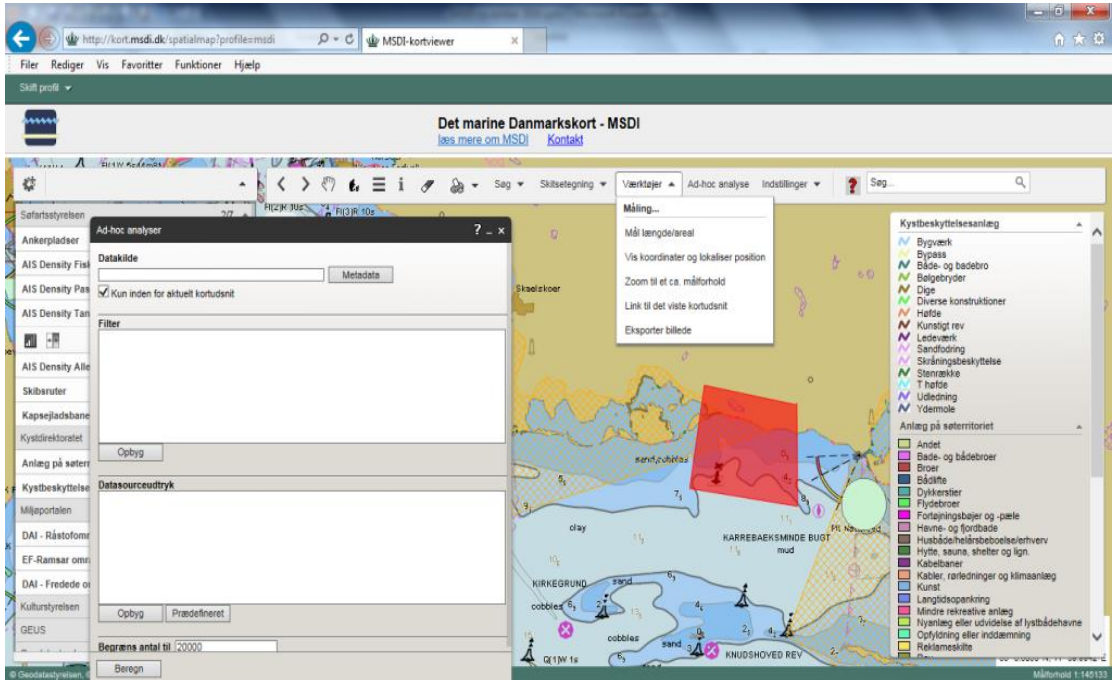
læs mere om MSDI Kontakt
Kapsejladsbaner
AIS Density Tankskibe 2014
Ankerpladser
Nyt søkort
Nye søkort
Skaelskoer
AGERSOE SUND
KOBBERDYB
VRESEN N-FLAK
17. november 2016


MSDI-kortviewer
Filer Rediger Vis Favoritter Funktioner Hjælp
Det marine Danmarkskort - MSDI
læs mere om MSDI Kontakt
Skitsetegning
Snap til tegnelag
Farve
Kystbeskyttelsesanlæg
Anlæg på søterritoriet
KARREBAEKSMINDE BUGT
KNUDSHOVED REV
KIRKEGRUND
DMOE TOFTE

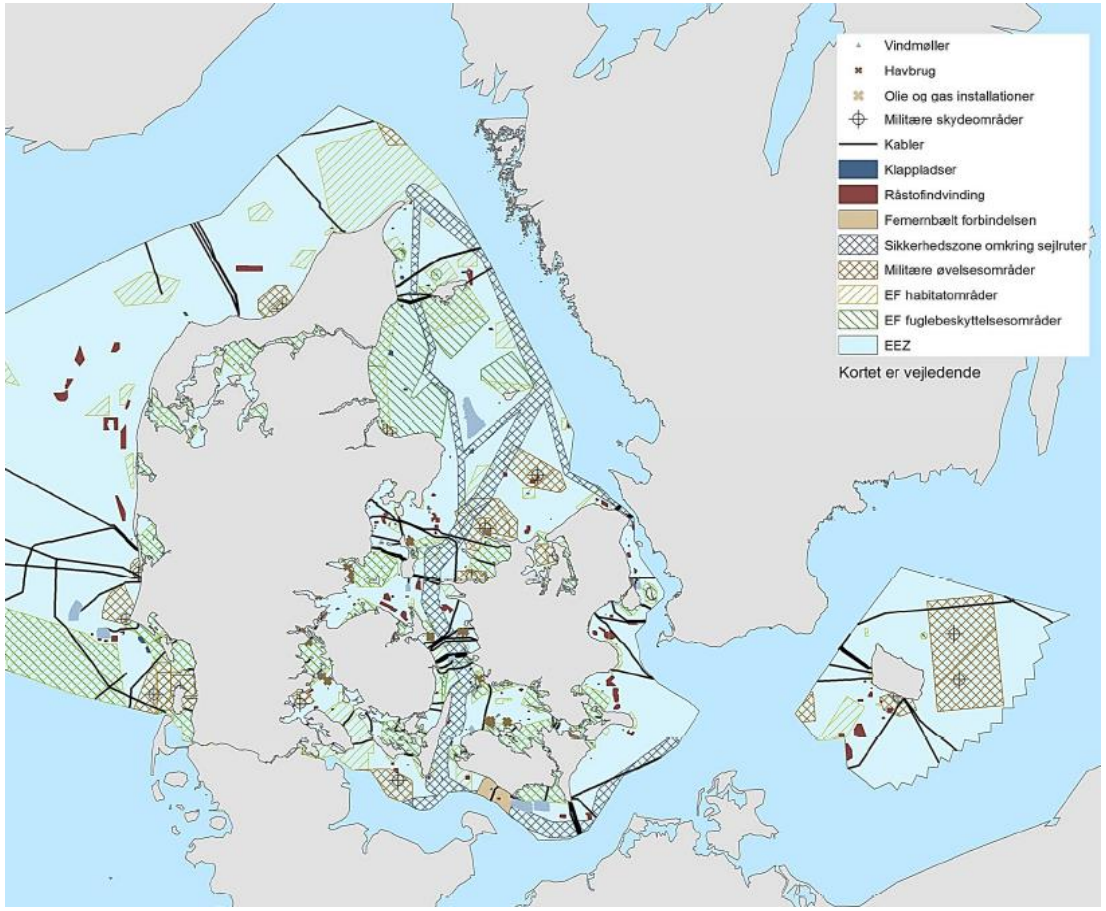

MSDI-kortviewer
Filer Rediger Vis Favoritter Funktioner Hjælp
Det marine Danmarkskort - MSDI
læs mere om MSDI Kontakt
Værktøjer
Ad-hoc analyse
Indstillinger
Ad-hoc analyser
Datakilde
Metadata
Kun inden for aktuelt kortudsnit
Filter
Opbyg
Datasourceudtryk
Prædefineret
Begræns antal til
Beregn
Måling...
Mål længde/areal
Vis koordinater og lokaliser position
Zoom til et ca. målforhold
Link til det viste kortudsnit
Eksporter billede
Kystbeskyttelsesanlæg
Anlæg på søterritoriet
KARREBAEKSMINDE BUGT
KNUDSHOVED REV
KIRKEGRUND

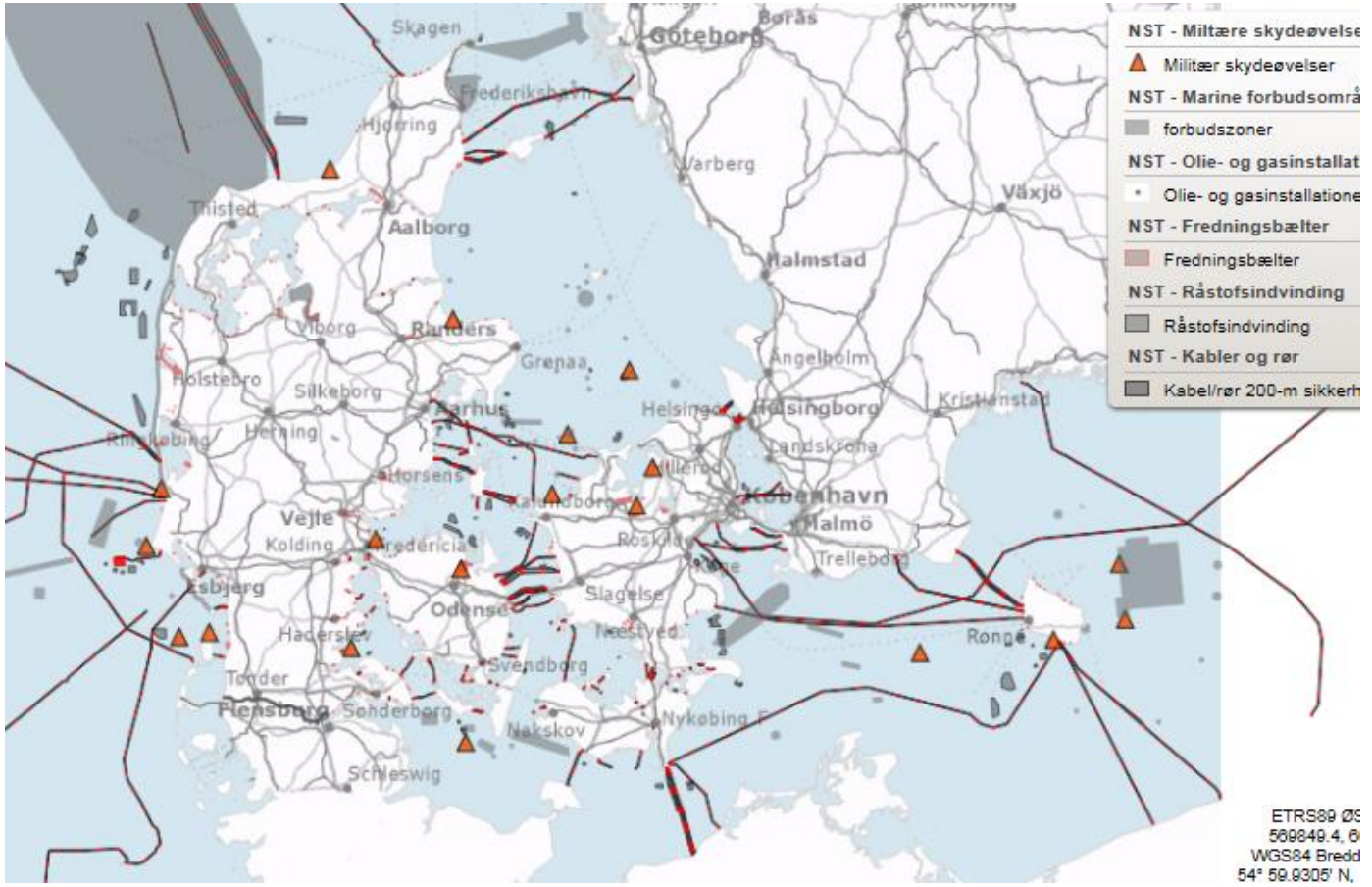
MSDI – seen from a Danish perspective

Planning across borders

MSP data set used for:

- *Overview*/Charting
- Planning

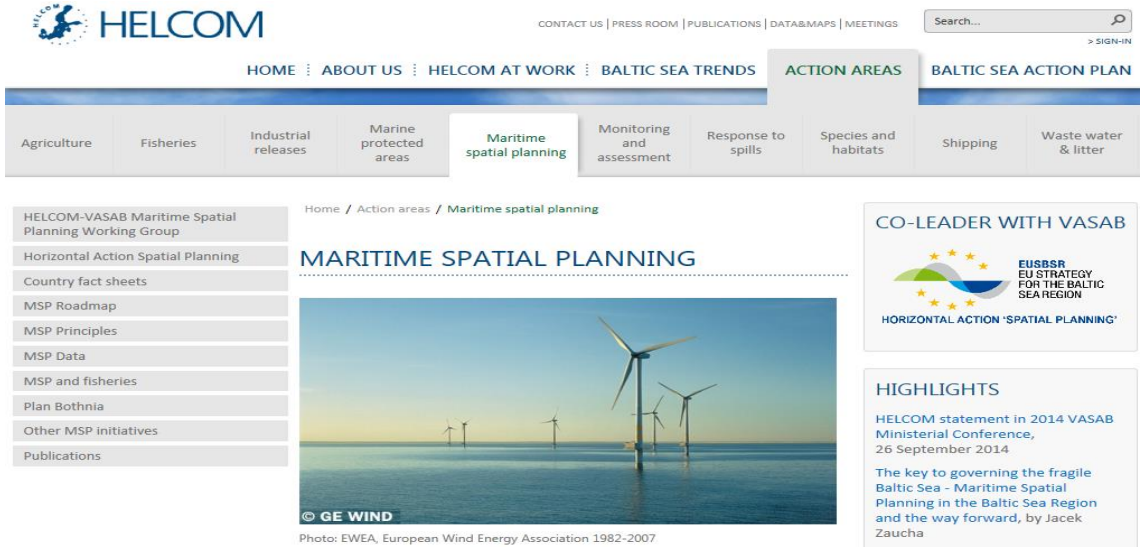


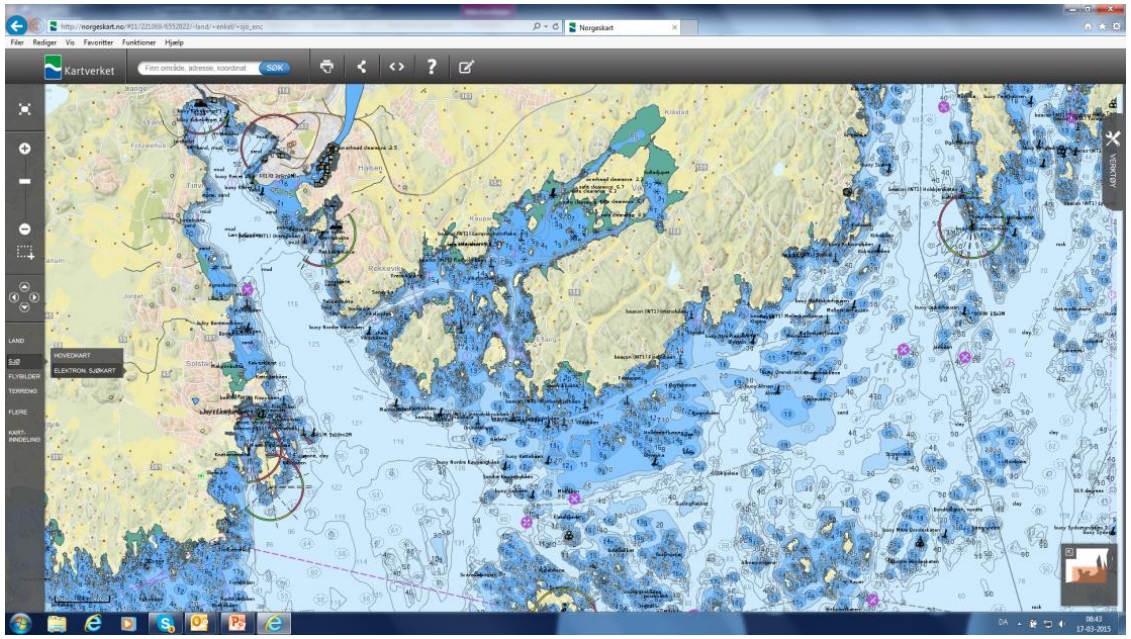


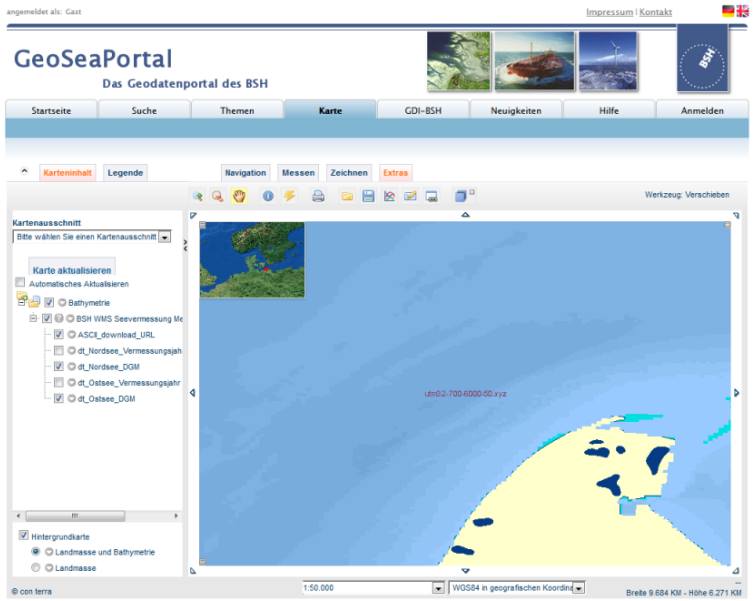
MSDI and MSP – seen from a Regional perspective

BSR MSP Data Expert group

Danish Geodata Agency







MSDI and MSP – seen from a Regional perspective

The Baltic Sea – North Sea MSDI Working Group

Danish Geodata Agency

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.

BALTIC SEA HYDROGRAPHIC COMMISSION

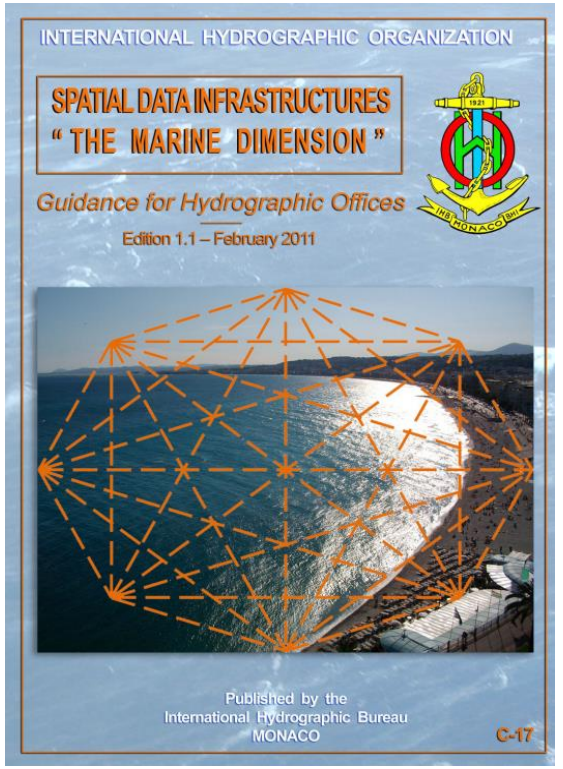
NS HC NORTH SEA HYDROGRAPHIC COMMISSION

Regional Hydrographic Commissions

IHO - MARINE SPATIAL DATA INFRASTRUCTURE WORKING GROUP (MSDIWG)

Objectives of the IHO MSDIWG:

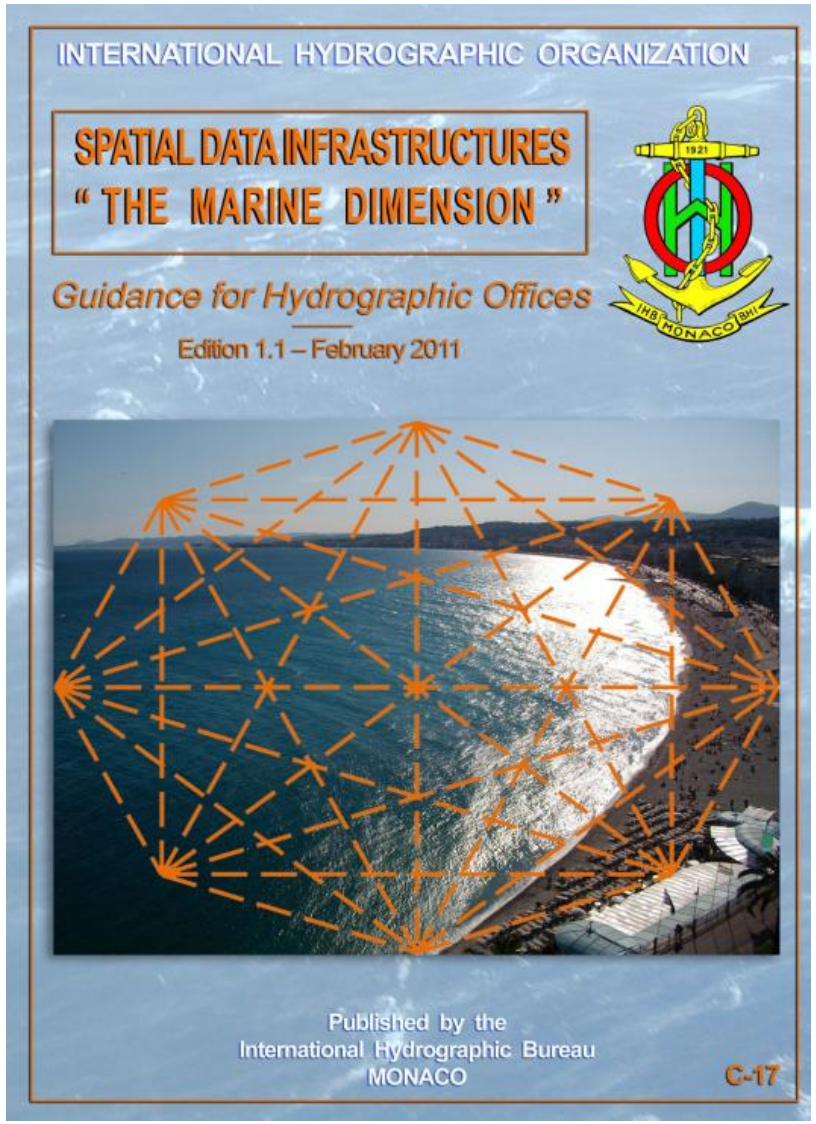
- Identify the Hydrographic Community inputs to National Spatial Data Infrastructures (NSDI).
- Monitor national and international SDI activities
- Promote the use of IHO standards and member state marine data in SDI activities.
- Liaise, as appropriate, with other relevant technical bodies
- Propose 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.



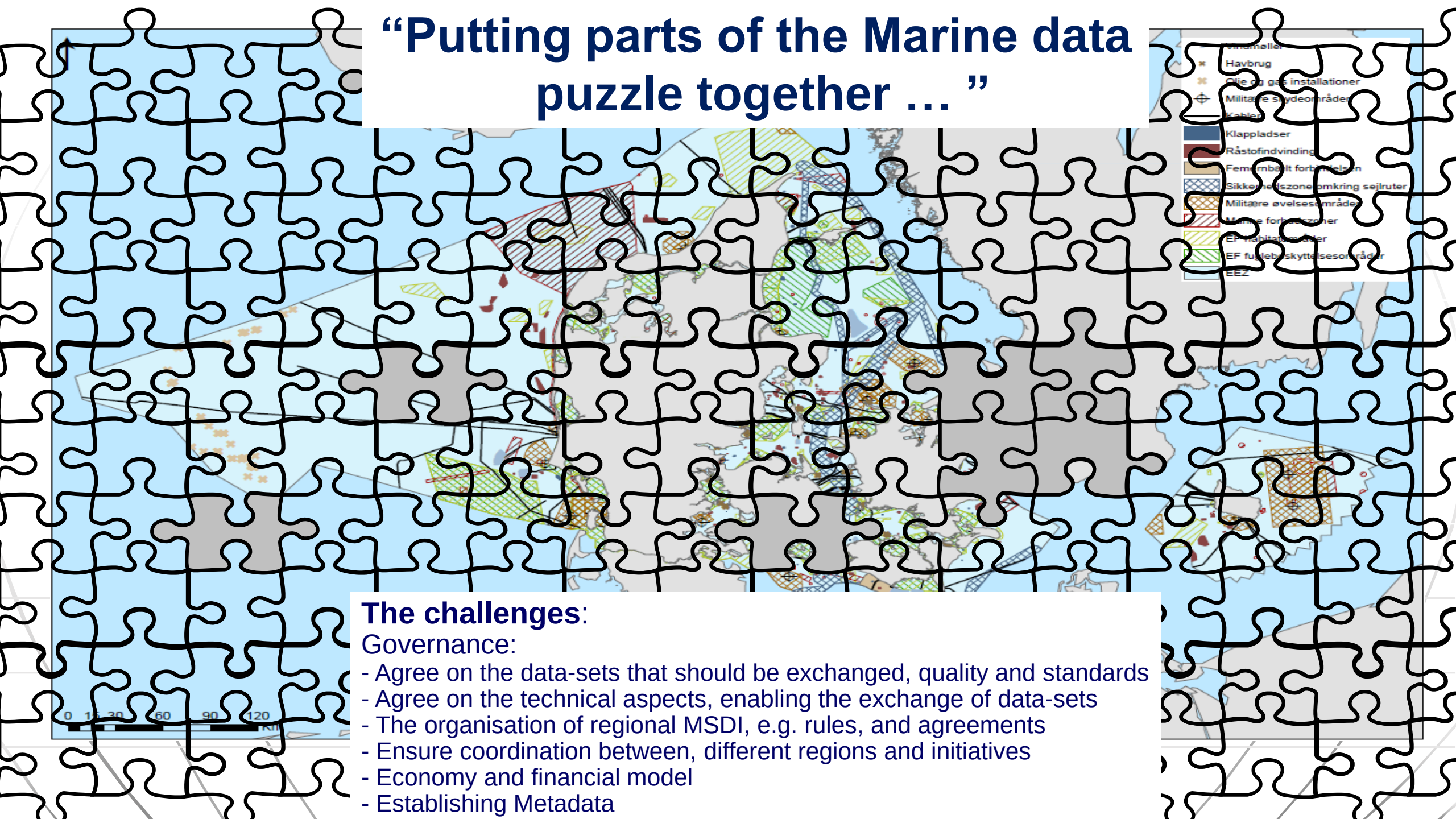
Danish Geodata Agency

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:

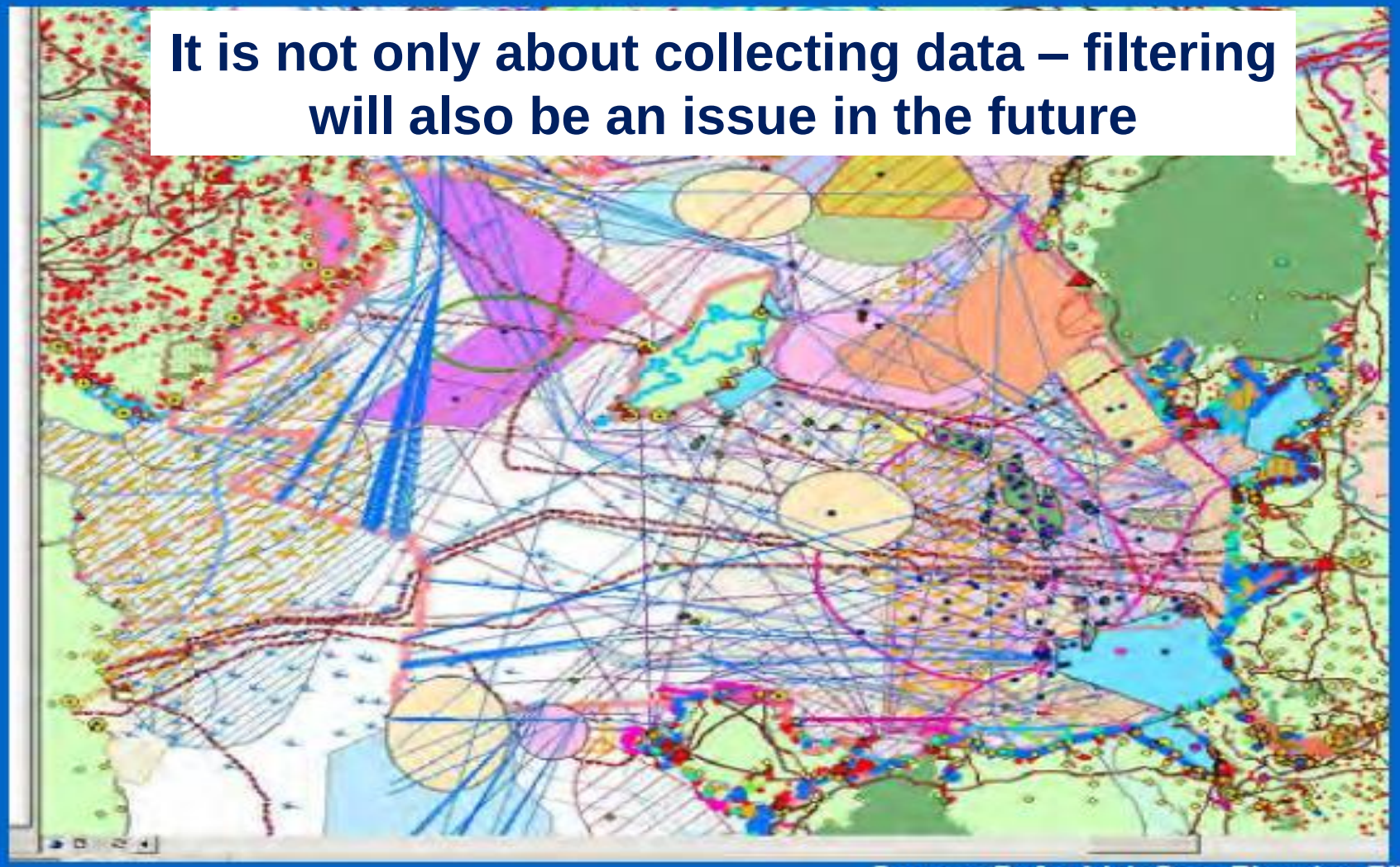
Governance:

- 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

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



Source: Defra Irish Sea Planning Pilot - 2006

- Fishing
- Renewable Energy
- Marine Recreation
- Mineral Extraction