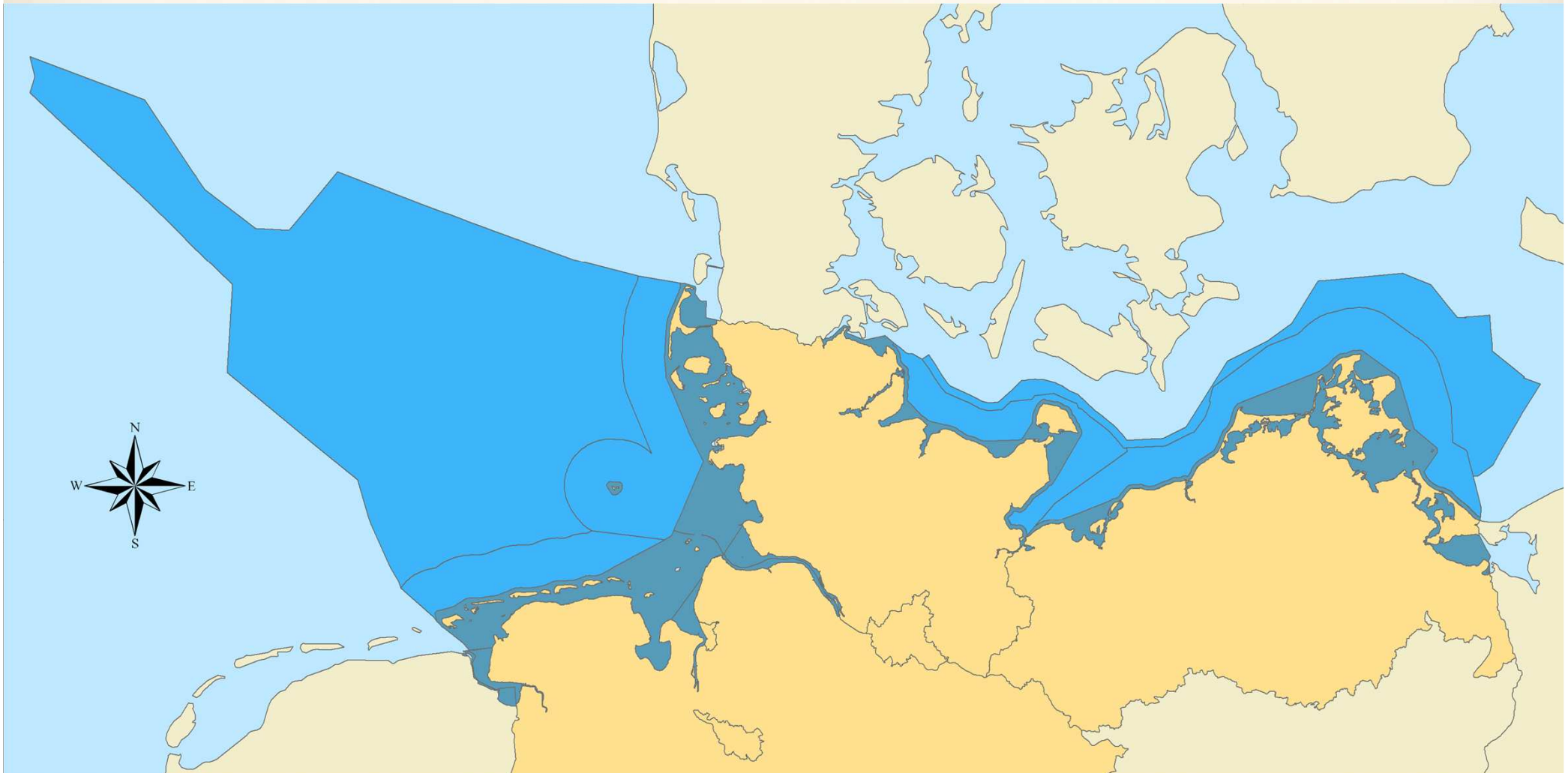




The German Marine Data Infrastructure (MDI-DE)

German EEZ



Data Originators

18 Agencies and Institutions in the EEZ and 12 Mile Zone



For which Systems do we need Data



MDI-DE Project

- MDI-DE = Marine Data Infrastructure - Germany
- Supra-institutional network for the integration of marine data from all relevant data sources
 - National Institutions
 - Federal Institutions
 - Research Organizations
- National marine and coastal information system
 - Central geoportal
 - Central metadata catalogue
 - Local infrastructure nodes providing data
- Funded by the German Ministry of Education and Research



Subprojects

Joint Project with 4 Subprojects

Subproject 1: Coastal Engineering and Protection of Coastal Waters
Lead: Federal Waterways Engineering and Research Institute (BAW)

Subproject 2: Marine Environmental Protection
Lead: Federal Maritime and Hydrographic Agency (BSH)

Subproject 3: Marine Nature Conservation
Lead: Federal Agency for Nature Conservation (BfN)

Subproject 4: Scientific and Technical Accompanying Research
Lead: Institute for Geodesy and Geoinformatics (University of Rostock)

Project duration: 42 months (projected: 01.07.2010 until 31.12.2013)

Funding period: 30 months

Funded by the Federal Ministry of Education and Research



Team Members



- **Federal Waterways Engineering and Research Institute (Coastal Engineering)**
BAW Hamburg
- Schleswig-Holstein's Government-Owned Company for Coastal Protection, National Parks and Ocean Protection, **LKN** Husum and Tönning
- Lower Saxony agency for water management, coastal and nature conservation
NLWKN Branches Norden-Norderney and Brake-Oldenburg
- Lower Saxony Wadden Sea National Park Administration, **NLPV** Wilhelmshaven
- Directorates of Water and Navigation, **WSD** Northwest, Aurich / North, Kiel

- **Federal Maritime and Hydrographic Agency (Marine Environment)**
BSH Hamburg
- State Agency for Agriculture, Environment and Rural Areas
Schleswig-Holstein, **LLUR** Flintbek
- State Agency for Environment, Nature Conservation and Geology
Mecklenburg-West Pommern, **LUNG** Güstrow

- **Federal Agency for Nature Conservation (Marine Nature Conservation)**
BfN, Bonn

Project Partners



- **AWI** Alfred-Wegener-Institut
- **BfG** Bundesanstalt für Gewässerkunde
- **BKG** Bundesamt für Kartographie und Geodäsie
- **CWSS** Common Wadden Sea Secretariat
- **HZG** Helmholtz-Zentrum Geesthacht
- **ICBM** Institut für Chemie und Biologie des Meeres an der Uni Oldenburg
- **GEOMAR,** Helmholtz-Zentrum für Ozeanforschung Kiel
- **IOW** Institut für Ostseeforschung Warnemünde
- **MARUM** Zentrum für Marine Umweltwissenschaften der Universität Bremen
- **PortalU** Geschäftsstelle Umweltportal Deutschland
- **Senckenberg** Institut Senckenberg am Meer in Wilhelmshaven
- **SH-MIS** Schleswig-Holsteinisches Metainformationssystem
- **UBA** Umweltbundesamt – Dessau
- **vTI-SF** Johann Heinrich von Thünen-Institut, Institut für Seefischerei
- **ZfG** Zentrum für Geoinformation an der Uni Kiel

Project Goals

Development of

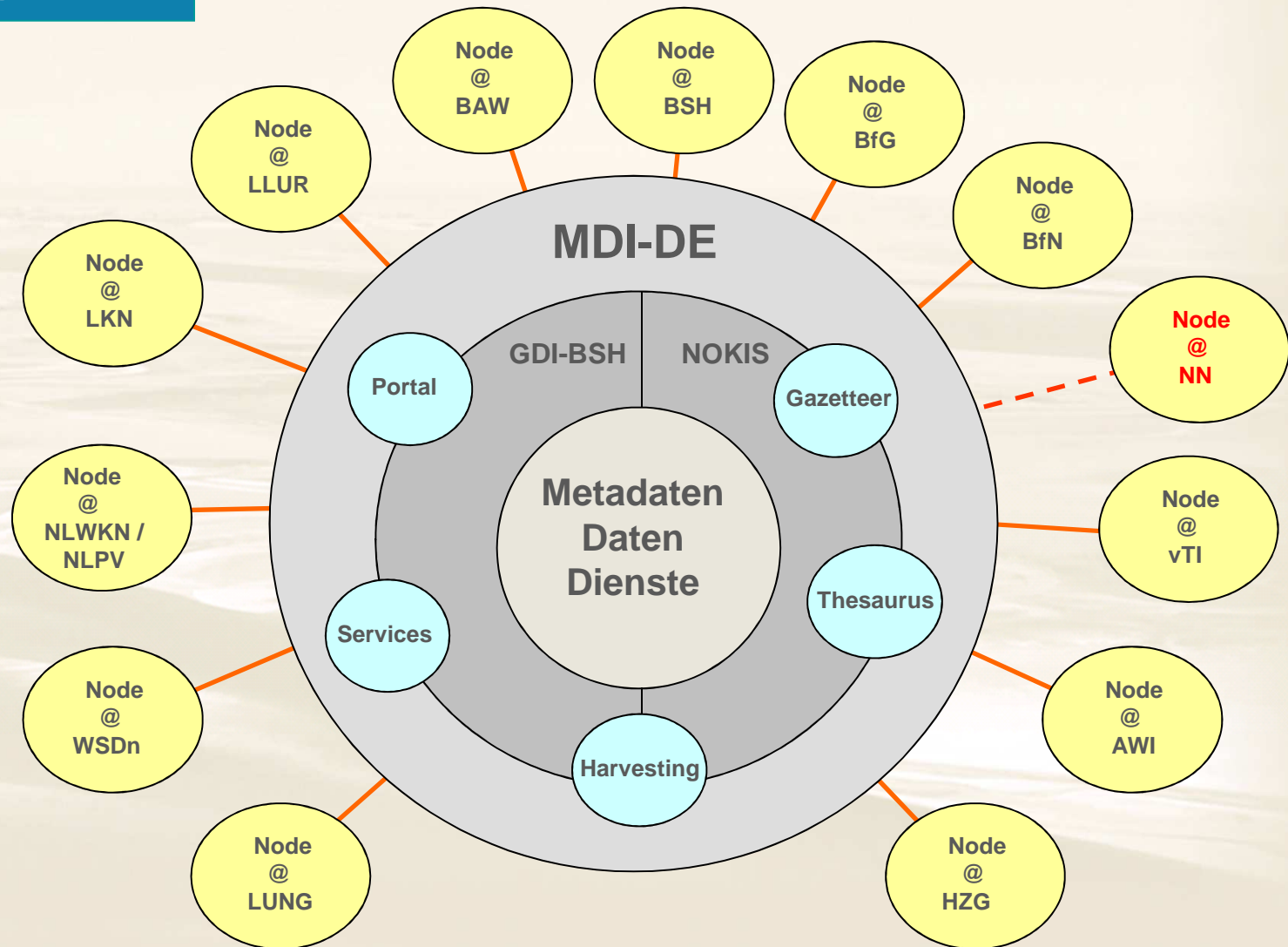
- a multidisciplinary **network** for integrating the major coastal data sources located at Federal and State public authorities and research centers,
- a new Web portal for Ocean and Coast, **MDI-DE**,
- a comprehensive national **Ocean and Coastal Information System** and
- a coordinated **working environment** relying on metadata and Web services.

Benefits

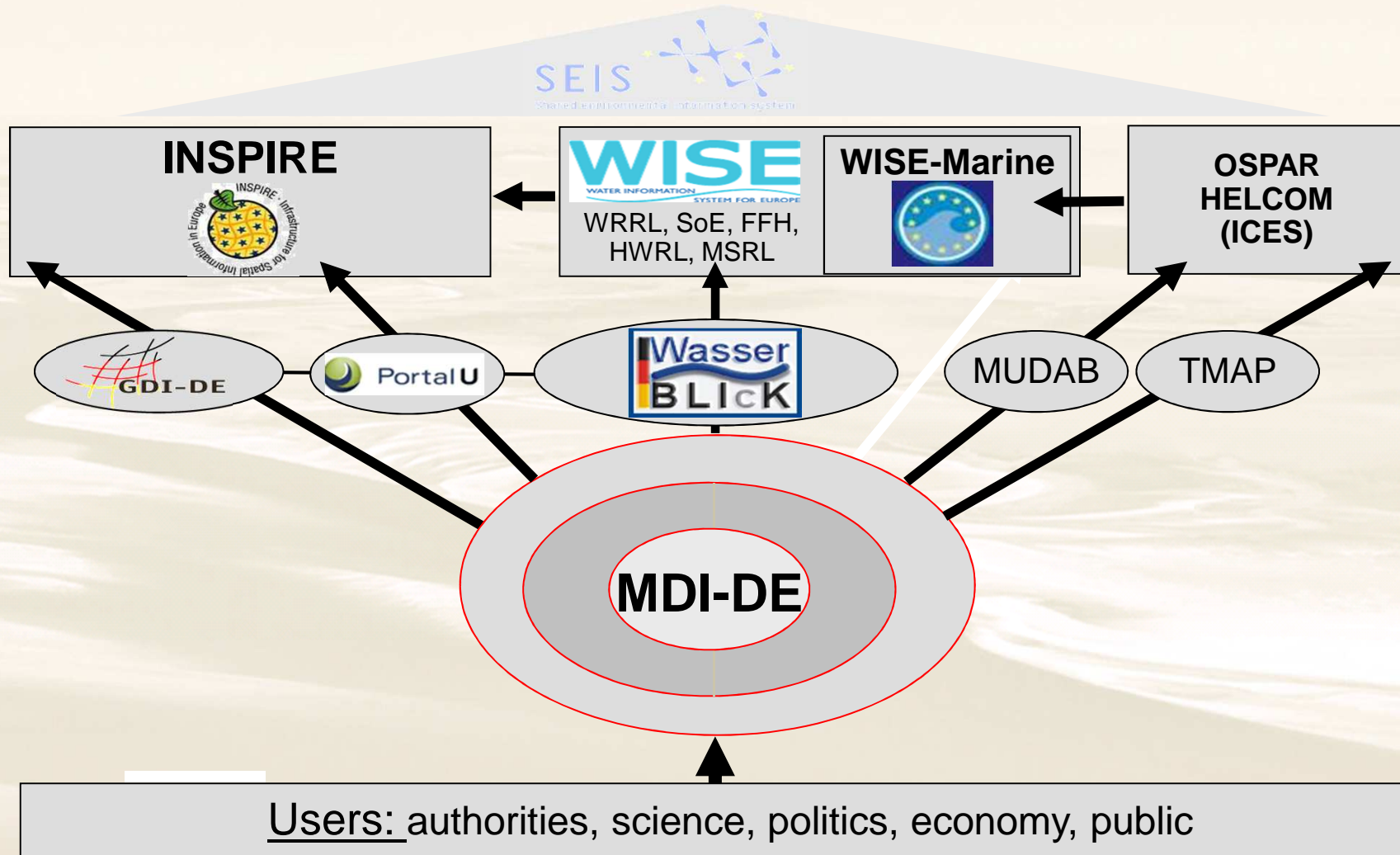
- comprehensive provision of distributed **marine data**,
- improvement of **workflows** with data from heterogeneous coastal sources to produce data products to support political and economic decisions as well as for reporting and presentation in different target systems.

Future Network

- Service Oriented Architecture
- Decentralized network of data providing services
- Data and Services documented with metadata
- Focus on interoperability
 - open standards (ISO, OGC).

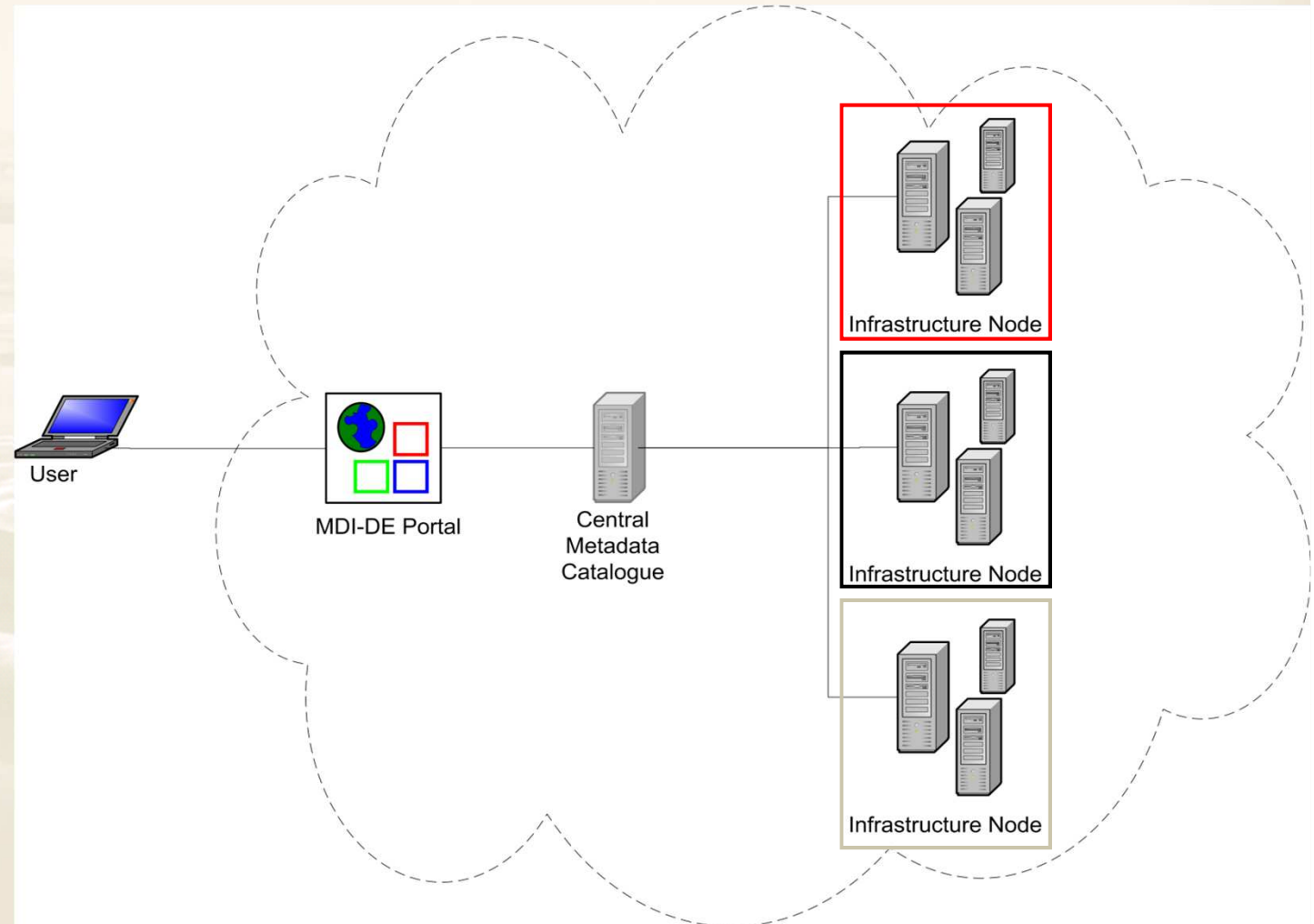


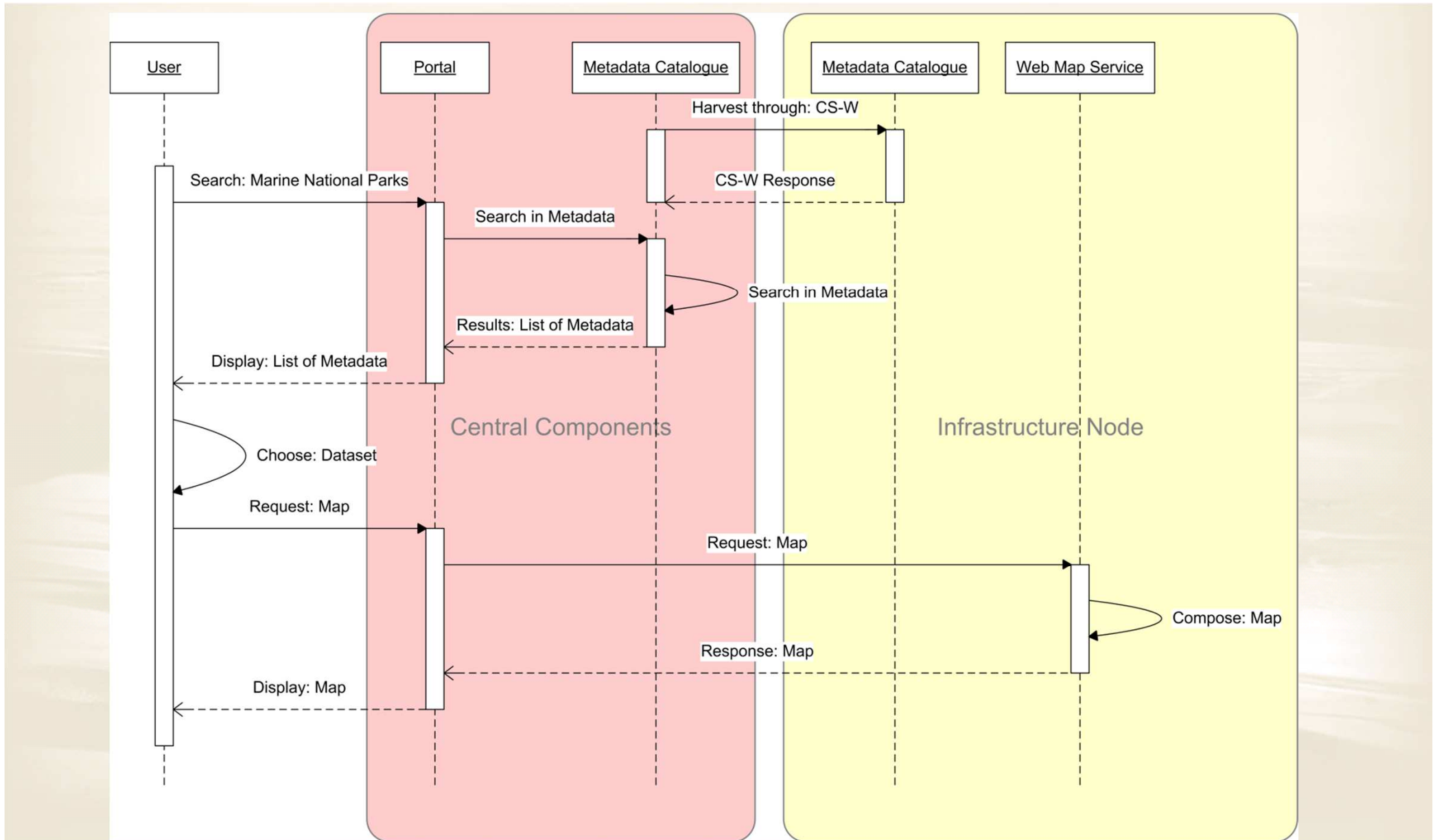
Marine Data Infrastructure-Germany (MDI-DE)

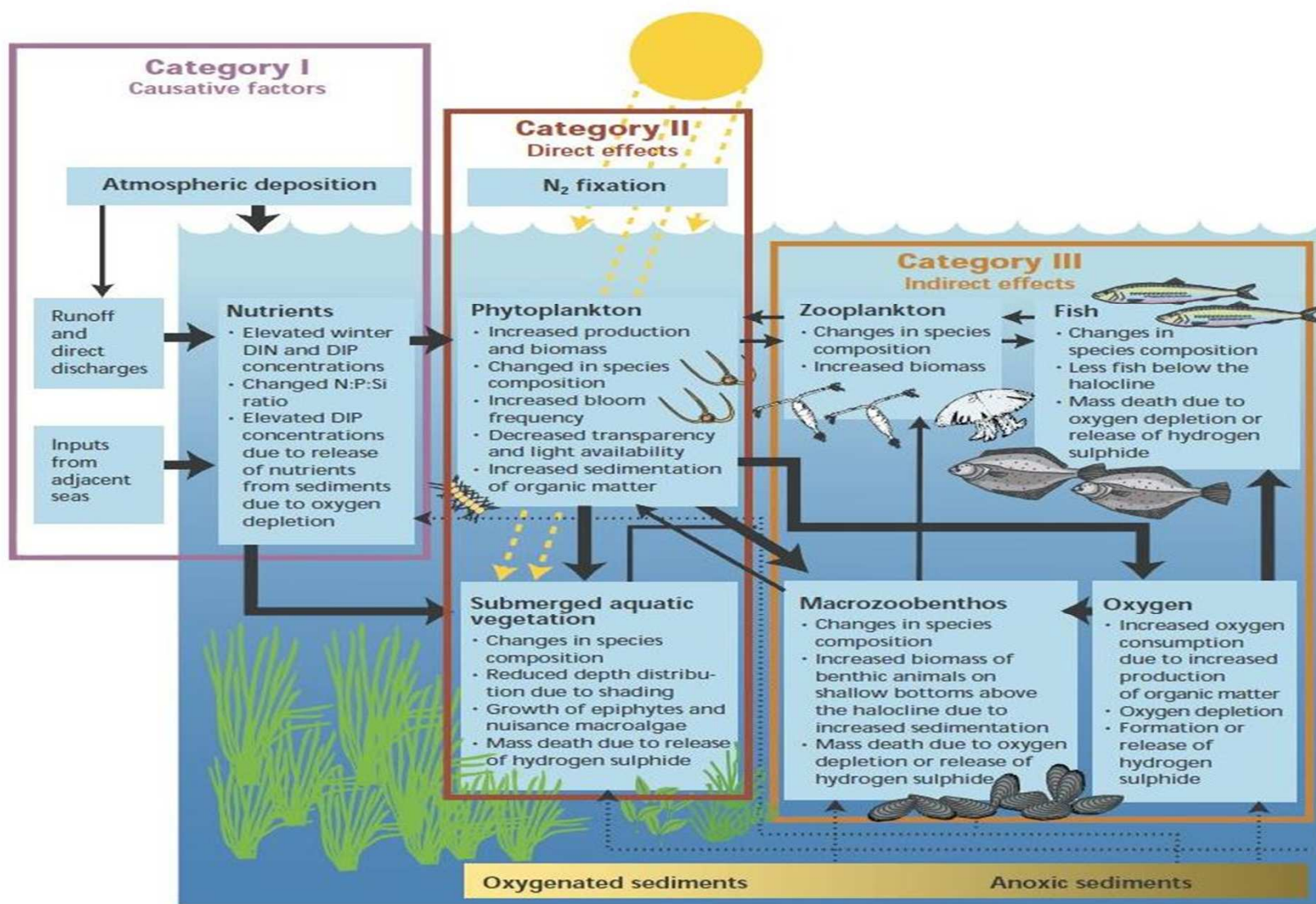


Basic Architecture

- Central Geoportal
- Central Metadata Catalogue
- Infrastructure Nodes providing marine data

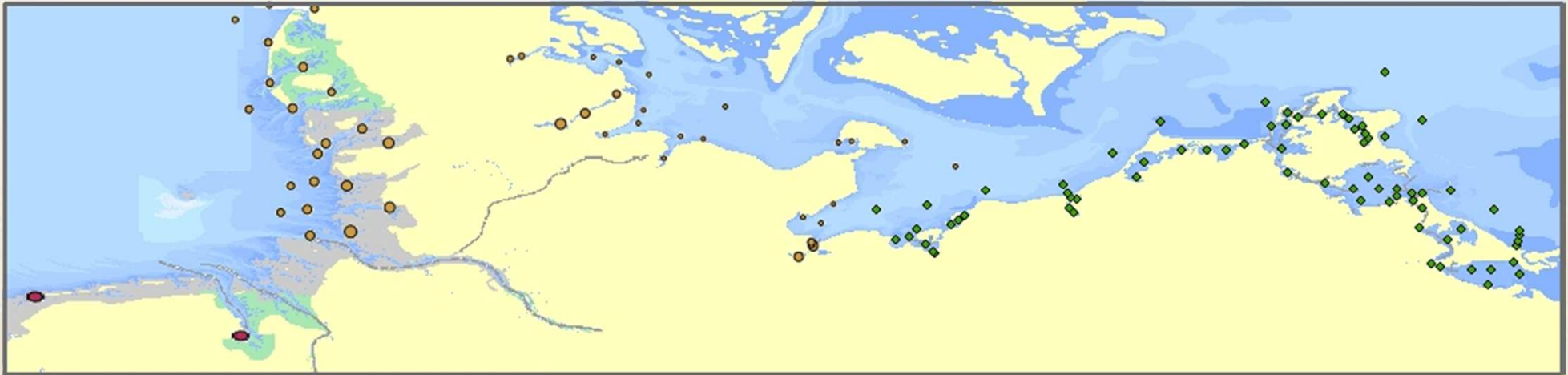




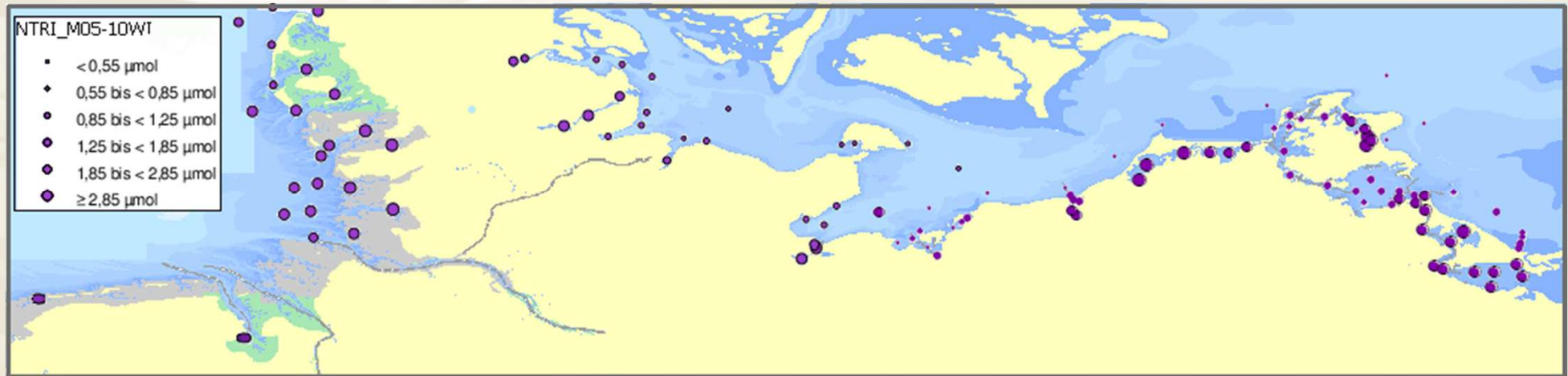


HELCOM, 2006: Development of tools for assessment of eutrophication in the Baltic Sea, Baltic Sea Environmental Proceedings No. 104

Harmonization: Example Eutrophication

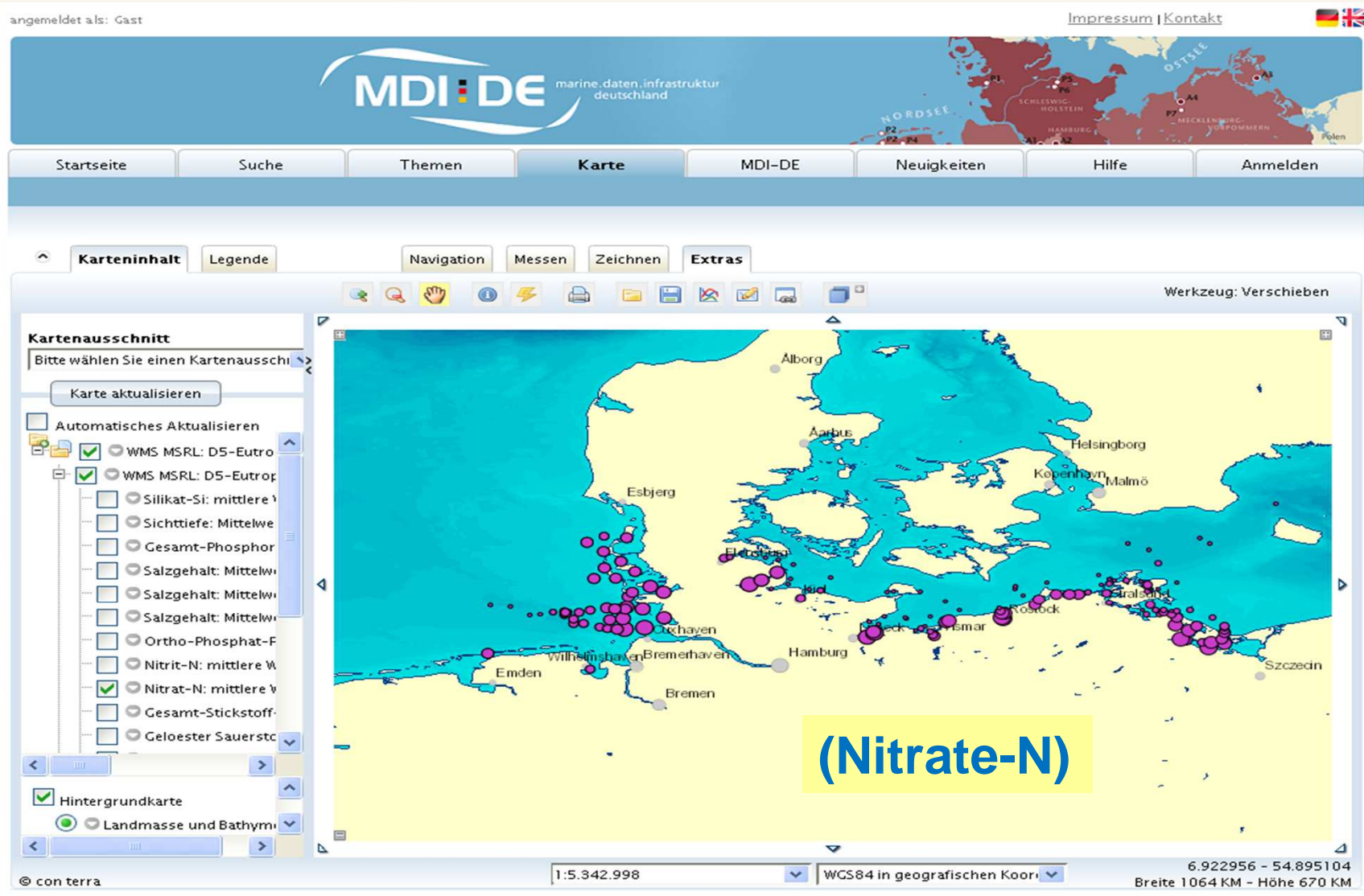


The Nitrite-N-Layer of different agencies with their own styles



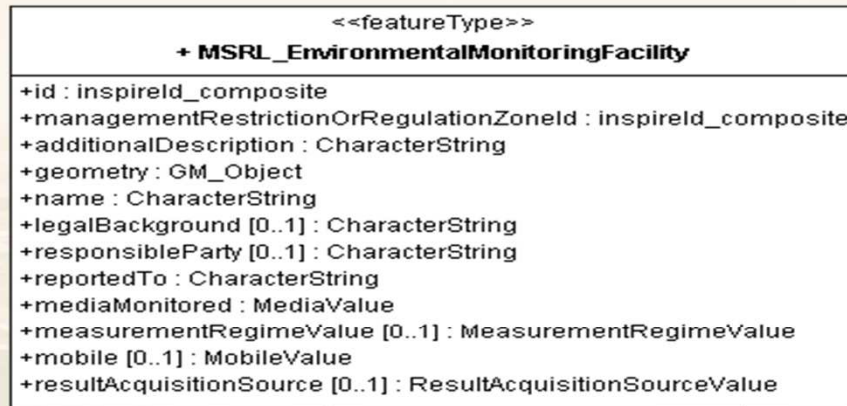
The harmonized Nitrite-N-Layer with unified symbols and legend

MSRL D5: Eutrophication



MSRL D5: INSPIRE compliant WFS

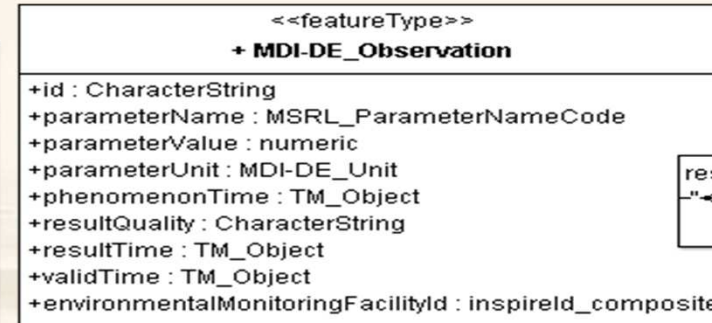
FeatureTypes



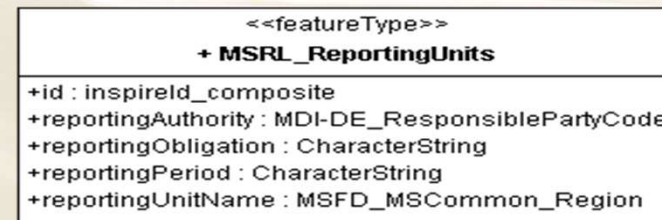
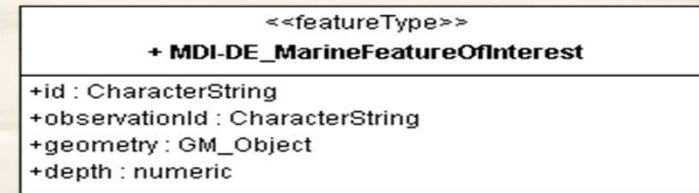
responsibleParty
Werte aus MDI-DE_ResponsiblePartyCode
getrennt durch Komma

legalBackground: z.B. WRRL, OSPAR usw.
getrennt durch Komma

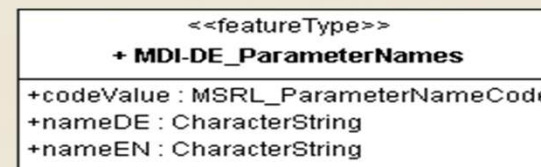
reportedTo:
const: "MSFD"



resultQuality
"-<"- oder null



reportingObligation:
const: "MSFD"
reportingPeriod:
Berichtszeitraum



MDI-DE Portal

angemeldet als: Gast [Impressum](#) | [Kontakt](#)

marine daten infrastruktur deutschland

Startseite Suche Themen Karte MDI-DE Neuigkeiten Hilfe Anmelden

Geodatenuche

suchen
[erweiterte Suche](#)

Themeneinstieg [weitere Themen](#)

 <small>Leere Karte</small>	 <small>Eutrophierung</small>	 <small>marine Fauna</small>	 <small>WRRL-Bewertung</small>
 <small>Schutzgebiete</small>	 <small>Windparks</small>	 <small>Leitungen</small>	 <small>Seevermessung WSV</small>
 <small>AufMod</small>	 <small>Bundeswasserstraßen</small>	 <small>PEGELONLINE</small>	 <small>Remote Sensing</small>

Neuigkeiten

03.05.2013
Präsentationen des Abschluss-Workshops verfügbar
[mehr](#)

29.04.2013
Metadatenleitfaden erschienen
[mehr](#)

25.04.2013
Neuer MDI-DE Flyer
[mehr](#)

22.04.2013
Neu erschienen
Anforderung
Bereitstellung
Thema MSRL
[mehr](#)

10.04.2013
Download von MSRL Daten
[mehr](#)

Data Search

Data Visualisation

Data Access

<https://www.mdi-de.org>

Benutzername: -

Karteninhalt Legende

Navigation Messen Zeichnen Extras

CONTIS (Continental Shelf Information System)

Background

Land Area and Bathymetry Grid

Land Area

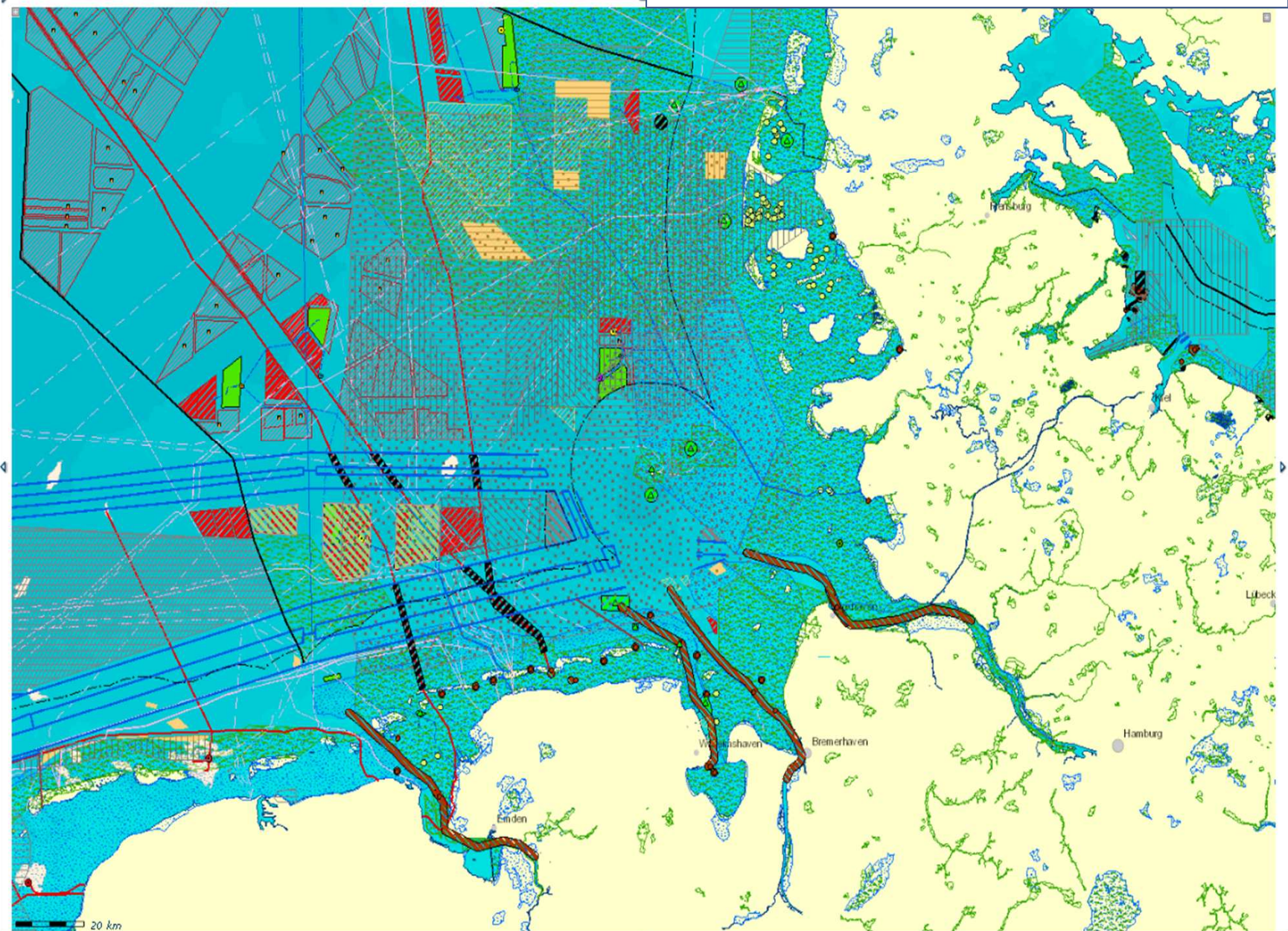
Karte aktualisieren

Themen:

Raumplanung

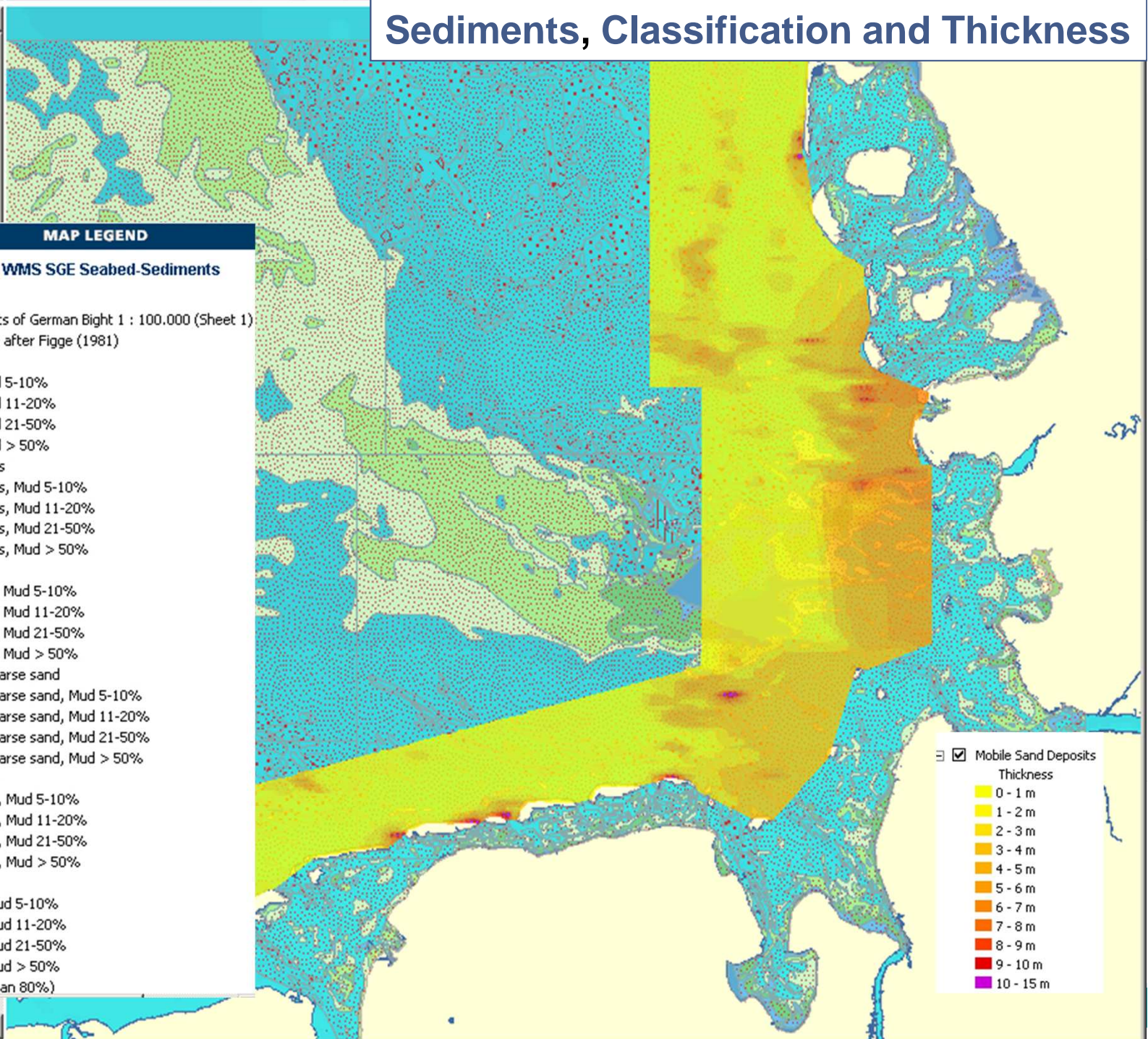
- Raumplanung
- CONTIS Administration
 - Boundaries
 - Maritime Features (Shipping R)
 - Maritime Features (Areas)
 - Preferred Areas
 - Sediment Extraction
 - Military Practice Area
 - Dumping Grounds
 - Contis Area
- CONTIS Facilities
 - Platforms
 - Data Cables
 - Cathode/Electrode
 - High Voltage Cables
 - Pipelines
 - Offshore Windfarms
- CONTIS Resources
 - Mariculture
 - Mariculture
 - Deposits
 - Nature Conservation
- Seabird Density 3x5
- Seabird Density 6x10
- Harbour Porpoise Density 6x10
- Chemical Munitions Dump Site
- Chemical Munitions Survey

Automatisches Aktualisieren



Sediments, Classification and Thickness

- BSH WMS SGE Subsurface-...
- Mobile Sand Deposits
- BSH WMS SGE Seabed-Sedi
- Shelf Geology Explorer
- Seabed Sediments of German Shelf
- Seabed Sediment...
- Seabed Sediment...
- Seabed sediments: Seabed Sediments of German Bight 1 : 100.000 (Sheet 1)
- Seabed Sediment: Classification after Figge (1981)
- Seabed Sediment: Bedrock
- Seabed Sediment: Bedrock, Mud 5-10%
- Seabed Sediment: Bedrock, Mud 11-20%
- Seabed Sediment: Bedrock, Mud 21-50%
- Seabed Sediment: Bedrock, Mud > 50%
- Seabed Sediment: Gravel/Stones
- Seabed Sediment: Gravel/Stones, Mud 5-10%
- Seabed Sediment: Gravel/Stones, Mud 11-20%
- Seabed Sediment: Gravel/Stones, Mud 21-50%
- Seabed Sediment: Gravel/Stones, Mud > 50%
- Seabed Sediment: Coarse sand
- Seabed Sediment: Coarse sand, Mud 5-10%
- Seabed Sediment: Coarse sand, Mud 11-20%
- Seabed Sediment: Coarse sand, Mud 21-50%
- Seabed Sediment: Coarse sand, Mud > 50%
- Seabed Sediment: Medium to coarse sand
- Seabed Sediment: Medium to coarse sand, Mud 5-10%
- Seabed Sediment: Medium to coarse sand, Mud 11-20%
- Seabed Sediment: Medium to coarse sand, Mud 21-50%
- Seabed Sediment: Medium to coarse sand, Mud > 50%
- Seabed Sediment: Medium sand
- Seabed Sediment: Medium sand, Mud 5-10%
- Seabed Sediment: Medium sand, Mud 11-20%
- Seabed Sediment: Medium sand, Mud 21-50%
- Seabed Sediment: Medium sand, Mud > 50%
- Seabed Sediment: Fine sand
- Seabed Sediment: Fine sand, Mud 5-10%
- Seabed Sediment: Fine sand, Mud 11-20%
- Seabed Sediment: Fine sand, Mud 21-50%
- Seabed Sediment: Fine sand, Mud > 50%
- Seabed Sediment: Mud (more than 80%)
- BSH WMS
- Background



Spatial Subject Data: ... & Profile-Lines / Boreholes

BSH WMS SGE Survey

Shelf Geology Explorer

Cone Penetration Tests (CPT)

Corings

Hydroacoustic Lines

Single Beam Echosound

Multi Beam Echosoundir

Side Scan Sonar

Chirp Sonar

Boomer

Subbottom Profiler

Parasound

Sparker

Air gun

BSH WMS SGE
Subsurface-Sediments

BSH WMS SGE
Seabed-Sediments

Background

Cone Penetration Tests (CPT)

Penetration Depth

< 6 m

6 - 35 m

35 - 50 m

50 - 100 m

> 100 m

Corings

Core length

< 6 m

6 - 35 m

35 - 50 m

50 - 100 m

> 100 m

Single Beam Echosounding

Multi Beam Echosounding

Side Scan Sonar

Chirp Sonar

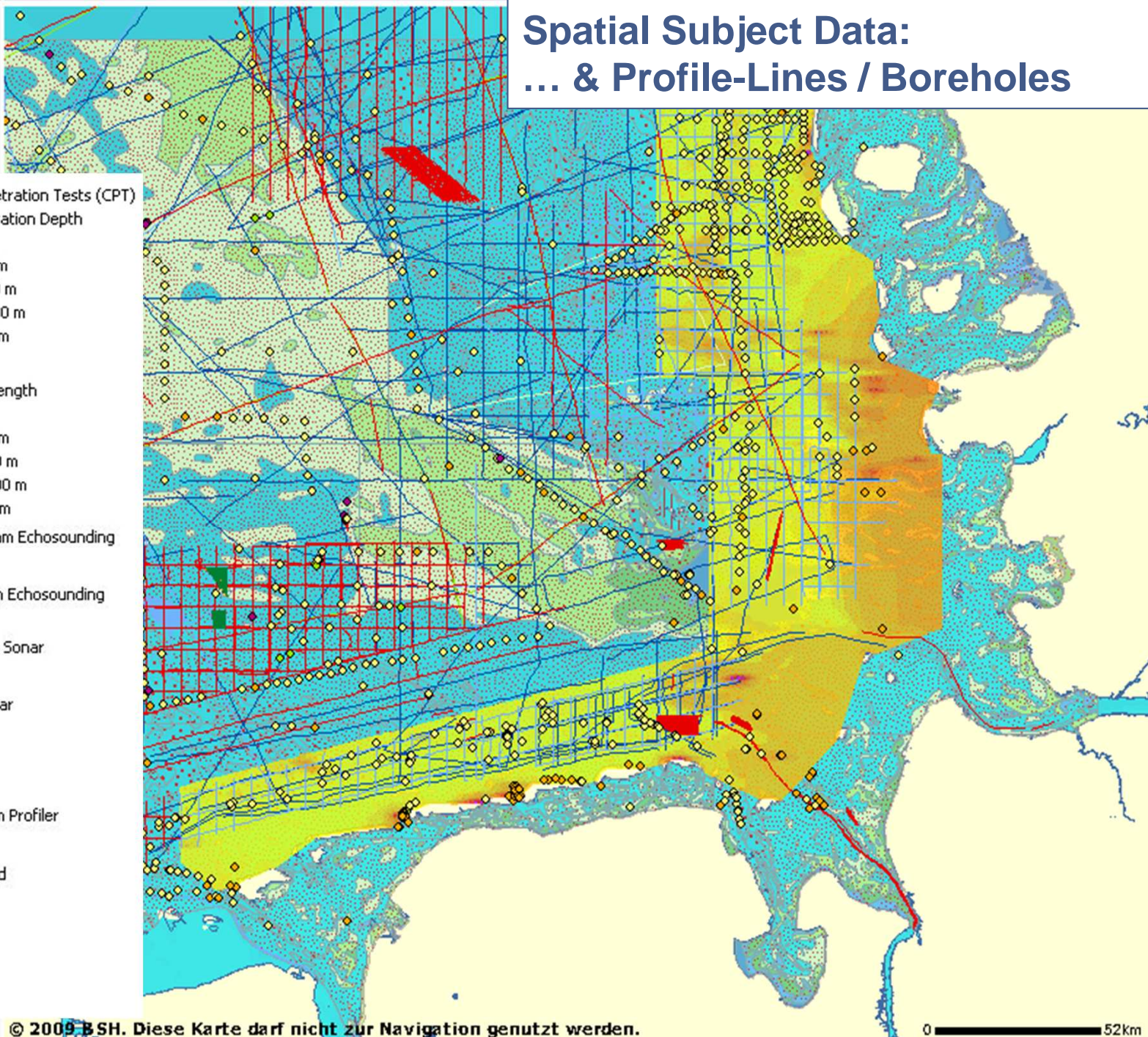
Boomer

Subbottom Profiler

Parasound

Sparker

Air gun



Density of Harbour Porpoise

BSH_IMS_BIO_HarbourPorpoise_Den

- Schweinswale Frühling 01.03.-31.
- Schweinswale Sommer 01.06.-31
- Schweinswale Herbst 01.09.-30.1
- Schweinswale Winter 01.12.-29.0
- Schweinswale Frühling 2002
- Schweinswale Sommer 2002
- Schweinswale Herbst 2002
- Schweinswale Winter 2002/03
- Schweinswale Frühling 2003
- Schweinswale Sommer 2003
- Schweinswale Herbst 2003
- Schweinswale Winter 2003/04
- Schweinswale Frühling 2004
- Schweinswale Sommer 2004
- Schweinswale Herbst 2004
- Schweinswale Winter 2004/05
- Schweinswale Frühling 2005
- Schweinswale Sommer 2005
- Schweinswale Herbst 2005
- Schweinswale Winter 2005/06
- Schweinswale Frühling 2006
- Schweinswale Sommer 2006
- Schweinswale Herbst 2006
- Schweinswale Winter 2006/07

Background

- Depth Contour (GEBCO)
- Graticule
- Full Resolution
 - Coastline
 - FeatureArea
- Bathymetry (6x10 Sec Raster)
- Bathymetry (617m Raster), copy
- Bathymetry (2 Minute Raster)
- WorldRelief2Minute

BSH GDI MapViewer - Legend - Mozill...

http://gdimsdv/arcexplorer/legend.html






MAP LEGEND

BSH_IMS_BIO_HarbourPorpoise_Density_6x10

Legend

Schweinswale Frühling 01.03.-31.05.

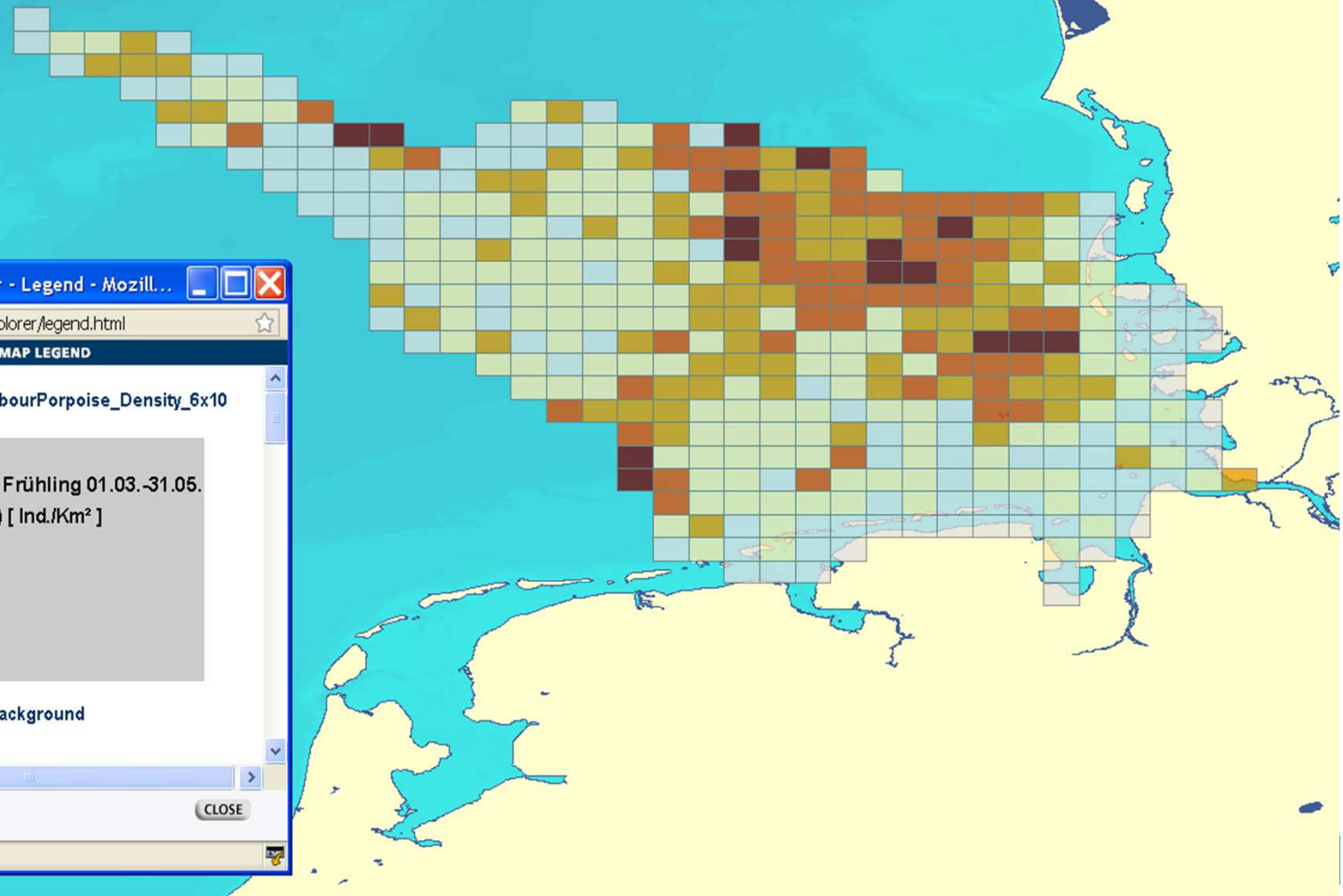
Dichte (Density) [Ind./Km²]

	0,00
	0,01 - 1,03
	1,04 - 2,07
	2,08 - 4,00
	> 4,00

Background

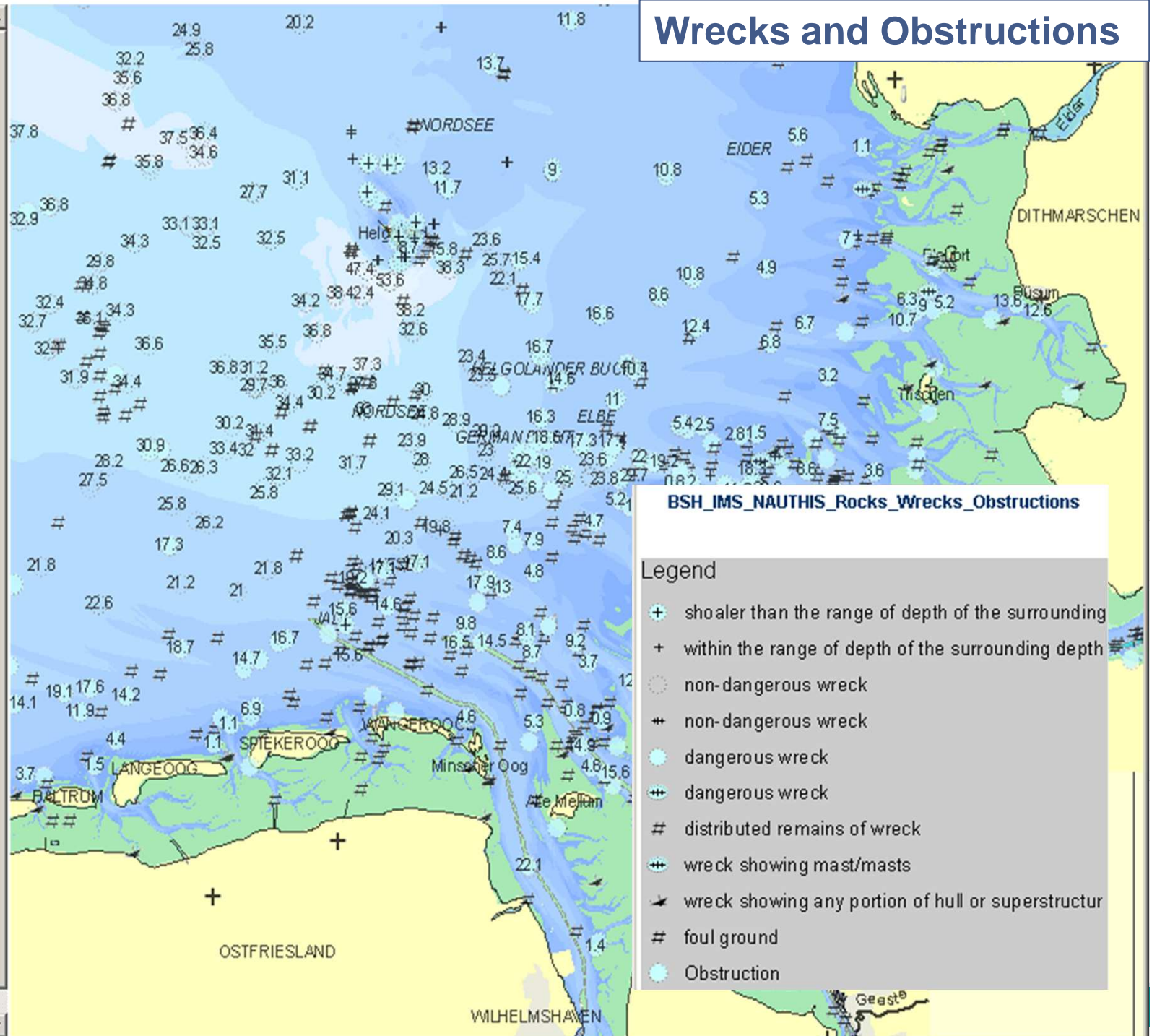
CLOSE

Fertig



Wrecks and Obstructions

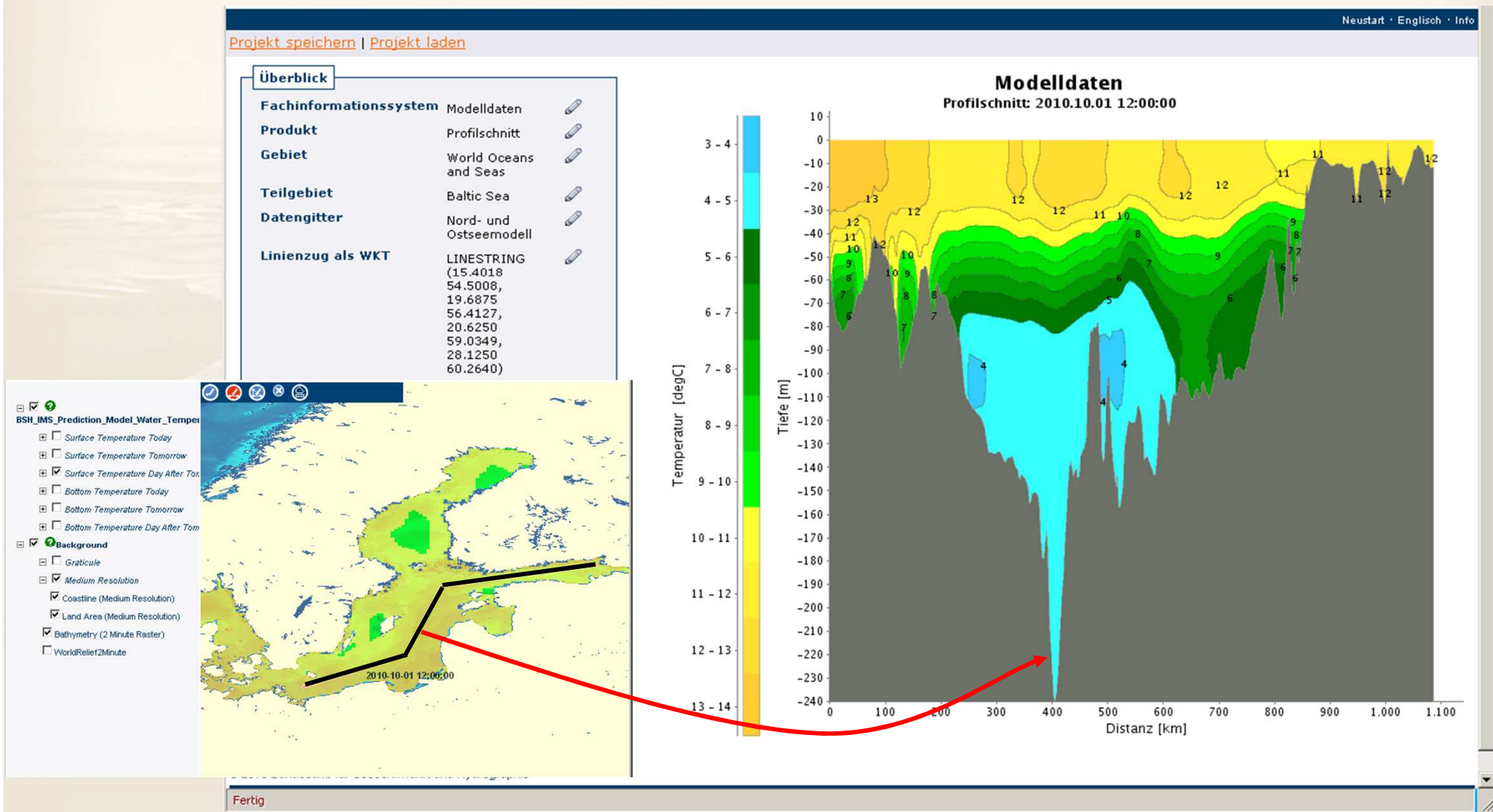
- BSH_IMS_NAUTHIS_Rocks_Wrecks_Obst
- Rocks Wrecks Obstructions
 - Berthing
 - Harbour
 - Approach
 - Coastal
 - Rocks
 - Wrecks Depth known
 - Wrecks Depth unknown
 - Dangerous Wrecks Depth known
 - Dangerous Wrecks Depth unknown
 - Wrecks other
 - Foul Ground
 - Obstruction
 - Wreck and Obstruction Area
- General
- Overview
- BSH_IMS_NAUTHIS_Topography
- BSH_IMS_NAUTHIS_Skin_Of_Th
- Background



BSH_IMS_NAUTHIS_Rocks_Wrecks_Obstructions

- Legend
- + shoaler than the range of depth of the surrounding
 - + within the range of depth of the surrounding depth
 - non-dangerous wreck
 - + non-dangerous wreck
 - dangerous wreck
 - + dangerous wreck
 - # distributed remains of wreck
 - + wreck showing mast/masts
 - ▲ wreck showing any portion of hull or superstructure
 - # foul ground
 - Obstruction

dataDIVER



Summary and Outlook

- Use of a SDI can simplify the processes of providing data to different systems
- Data remains with its originators
- Minimal alteration to existing data structures
- Datasets could be provided for multiple uses
- Processing Services and SOS
- Thesaurus and Gazetteer
- dataDIVER will be integrated into the portal





www.mdi-de.org

Thank you for your attention.

Questions?

johannes.melles@bsh.de, +49 40 3190 - 3440