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 Pommerania, **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

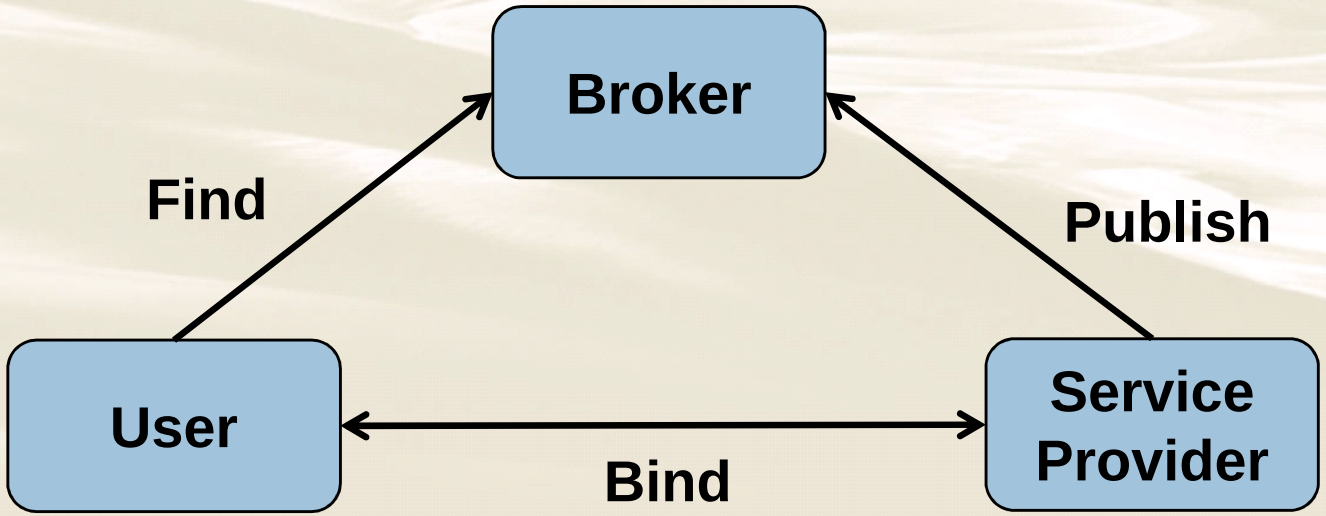
- a multidisciplinary **network** for integrating the major coastal data sources located at Federal and State public authorities and research centers,
- a new Web portal for Ocean and Coast, **MDI-DE,**
- a comprehensive national **Ocean and Coastal Information System** and
- a coordinated **working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

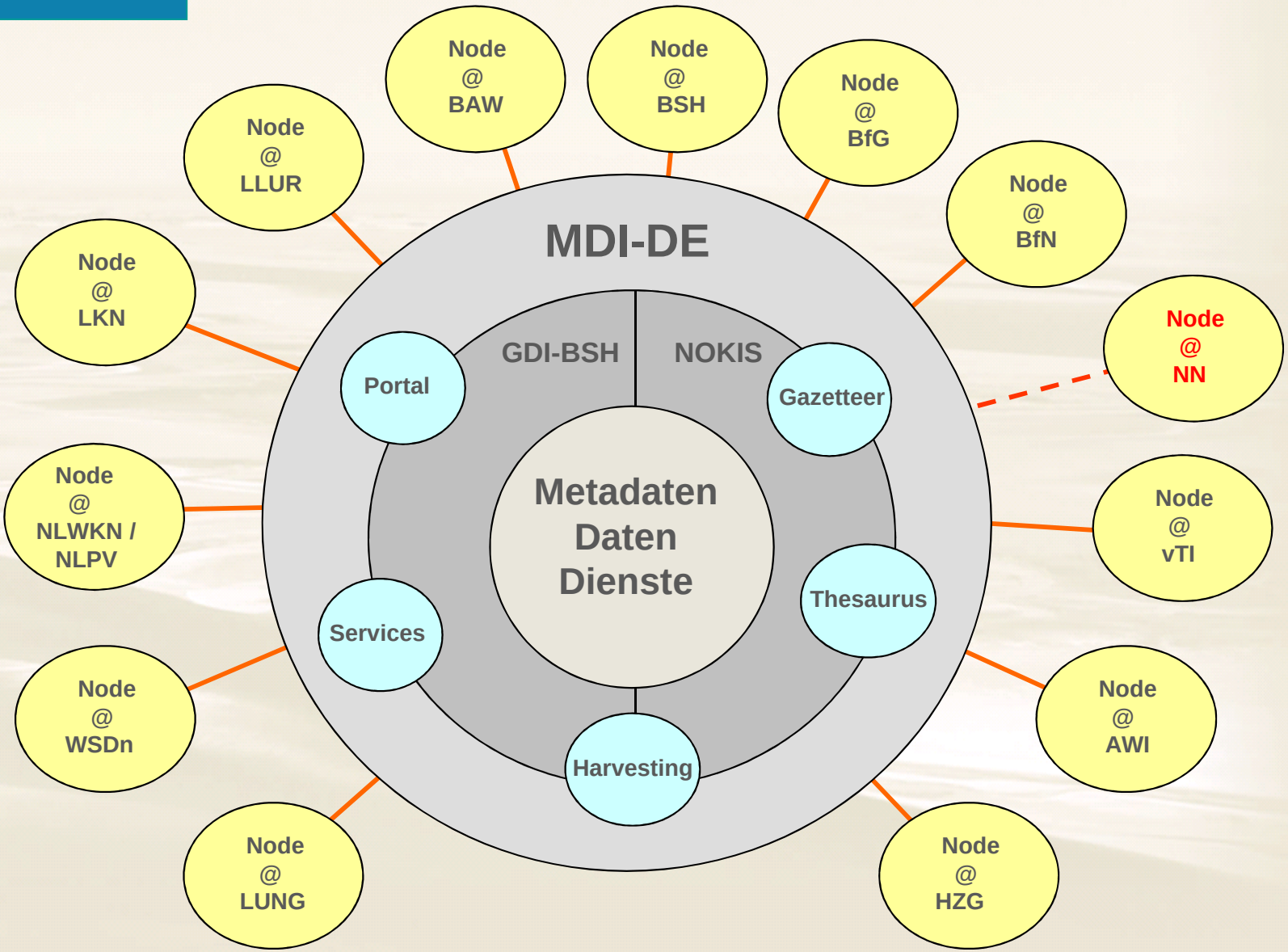
Spatial Data Infrastructures

- Service Oriented Architecture
- Decentralized network of data providing services
- Data and Services documented with metadata
- Focus on interoperability
  - open standards
    - International Organization for Standardization (ISO)
    - Open Geospatial Consortium (OGC).

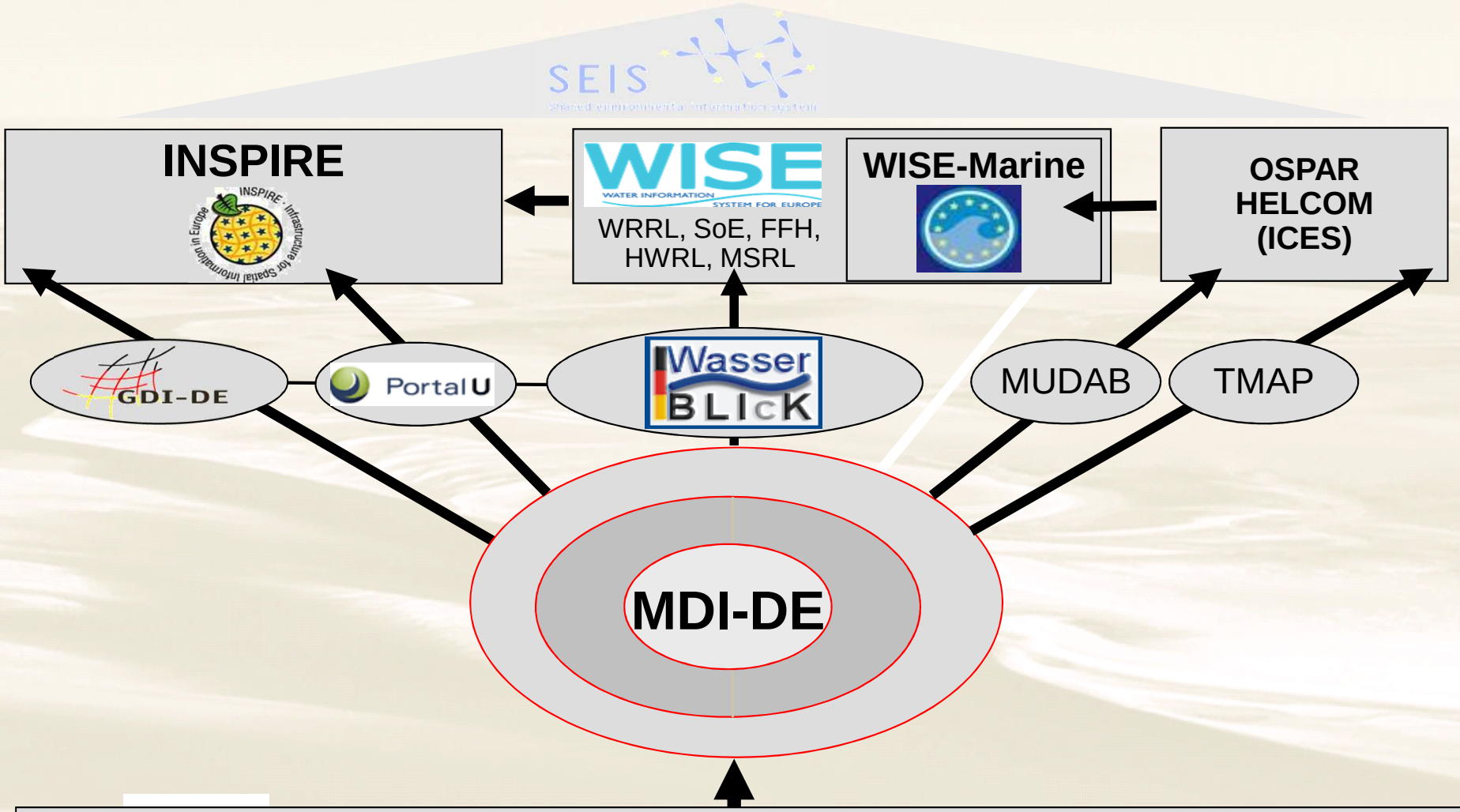


Future Network

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

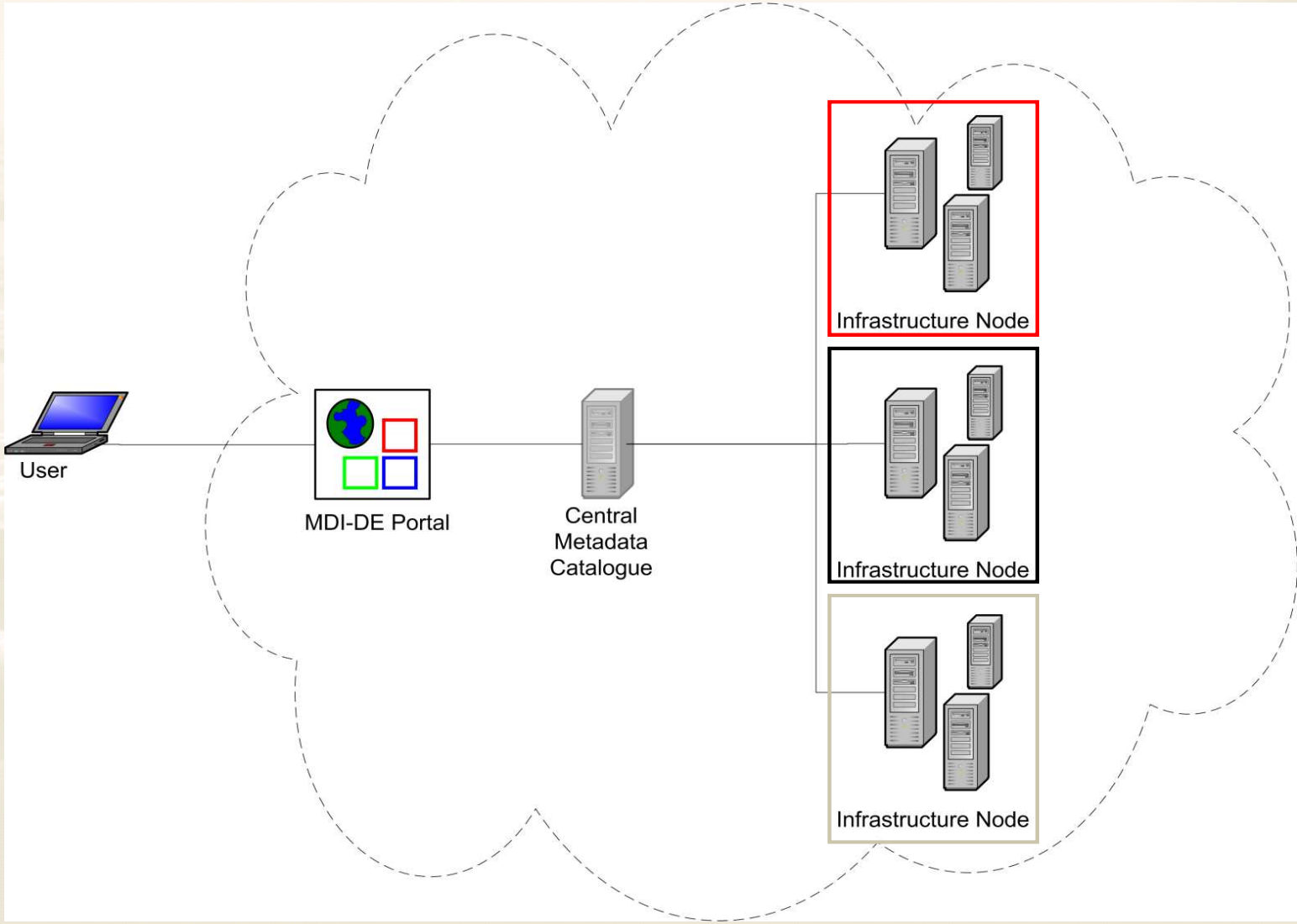


Marine Data Infrastructure-Germany (MDI-DE)

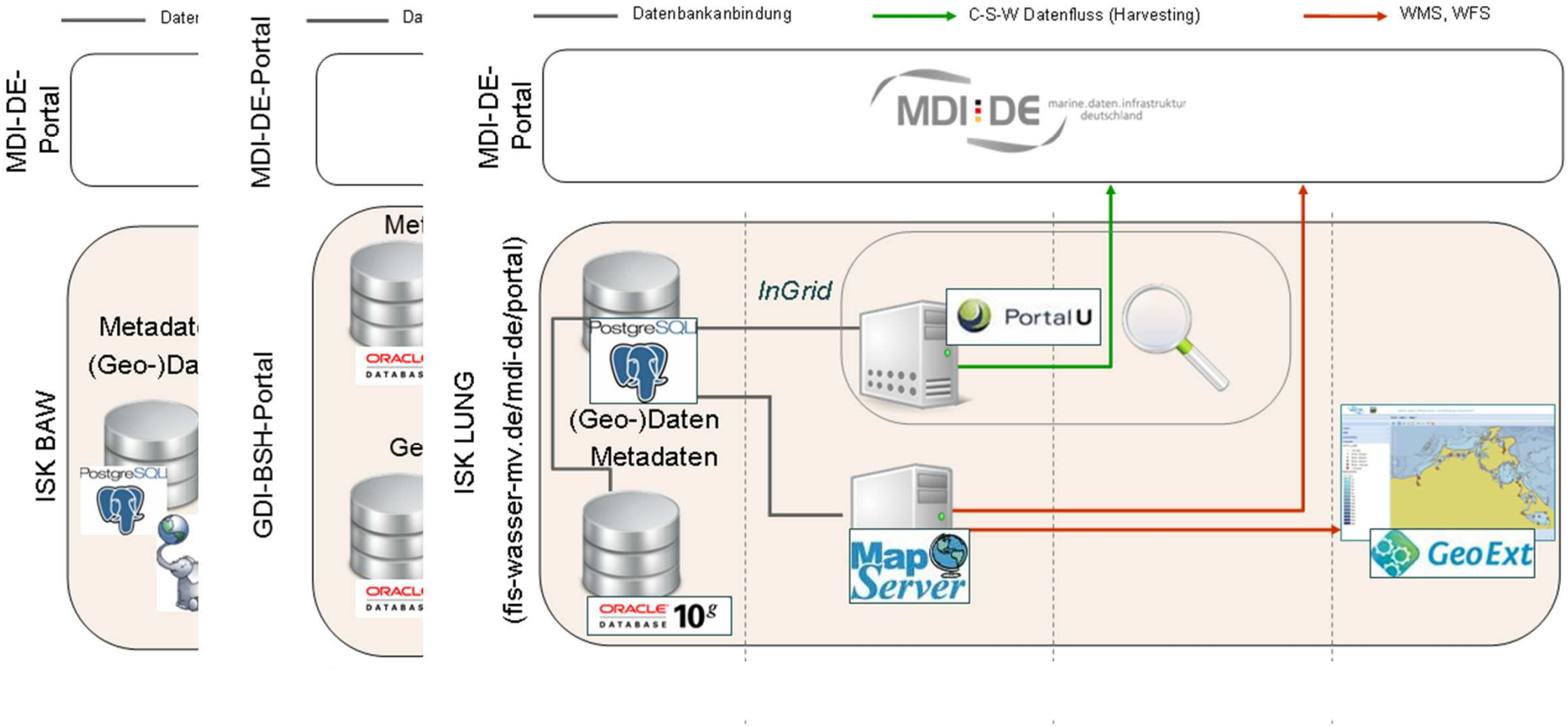


Basic Architecture

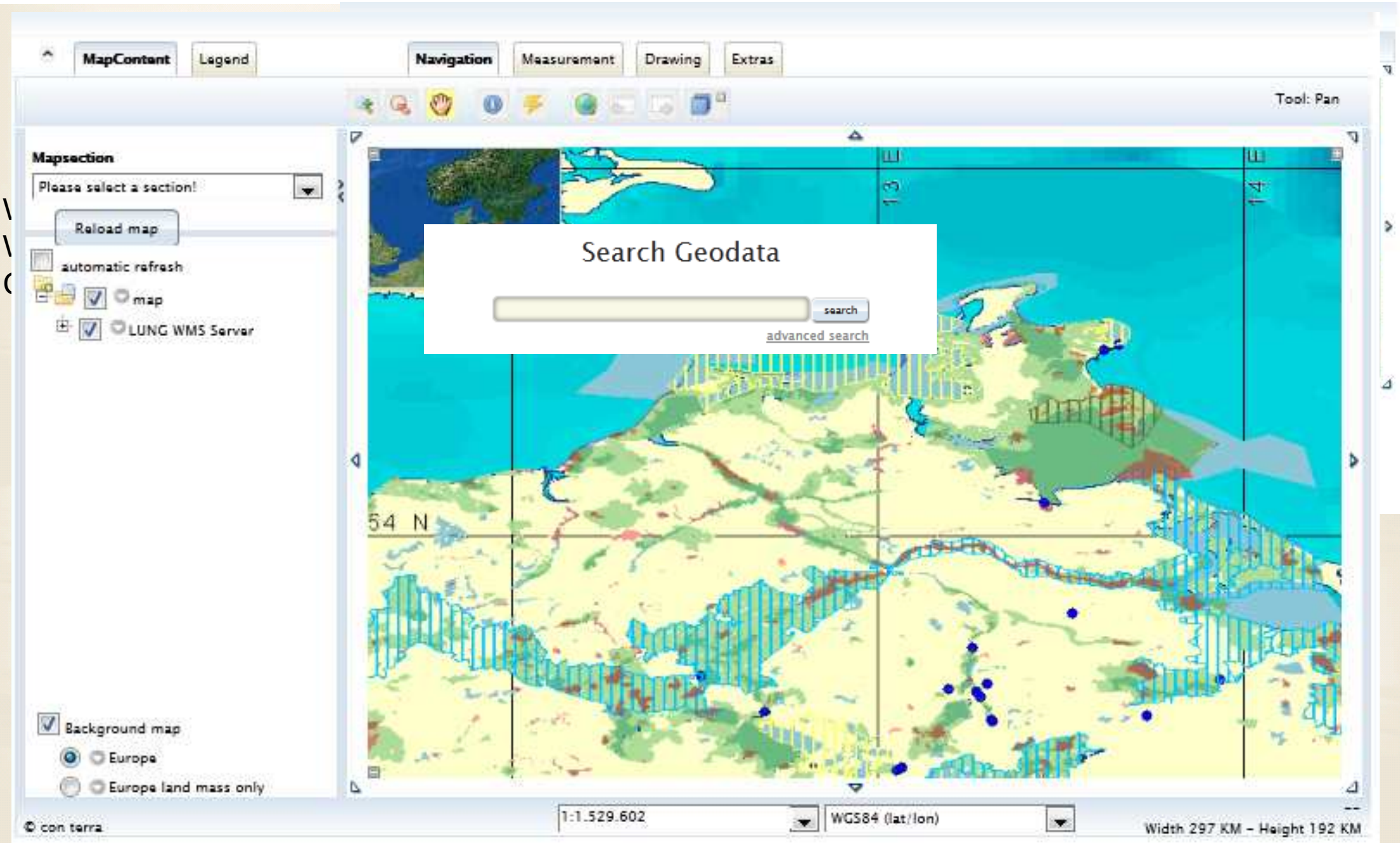
- Central Geoportal
- Central Metadata Catalogue
- Infrastructure Nodes providing marine data



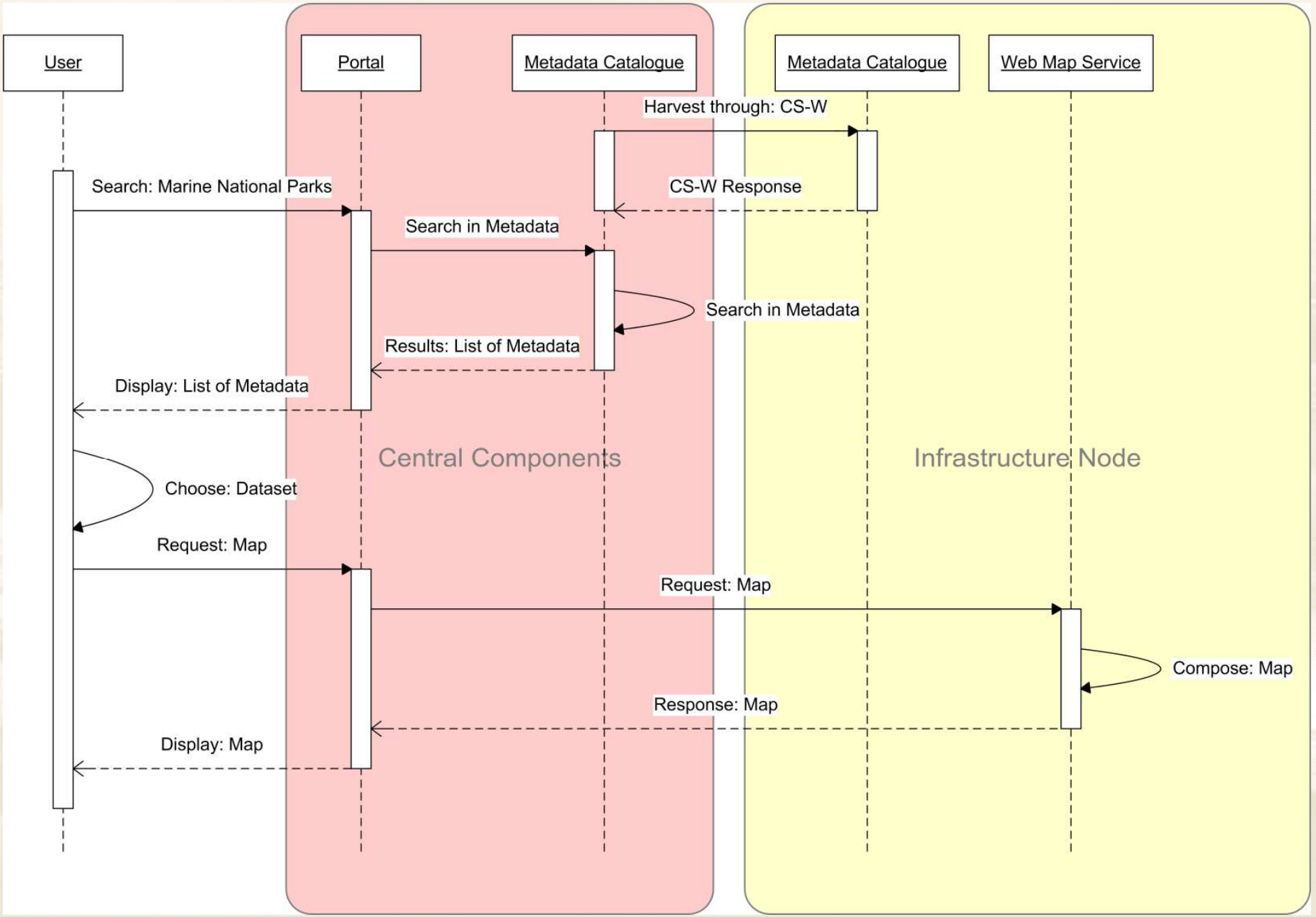
Infrastructure Nodes



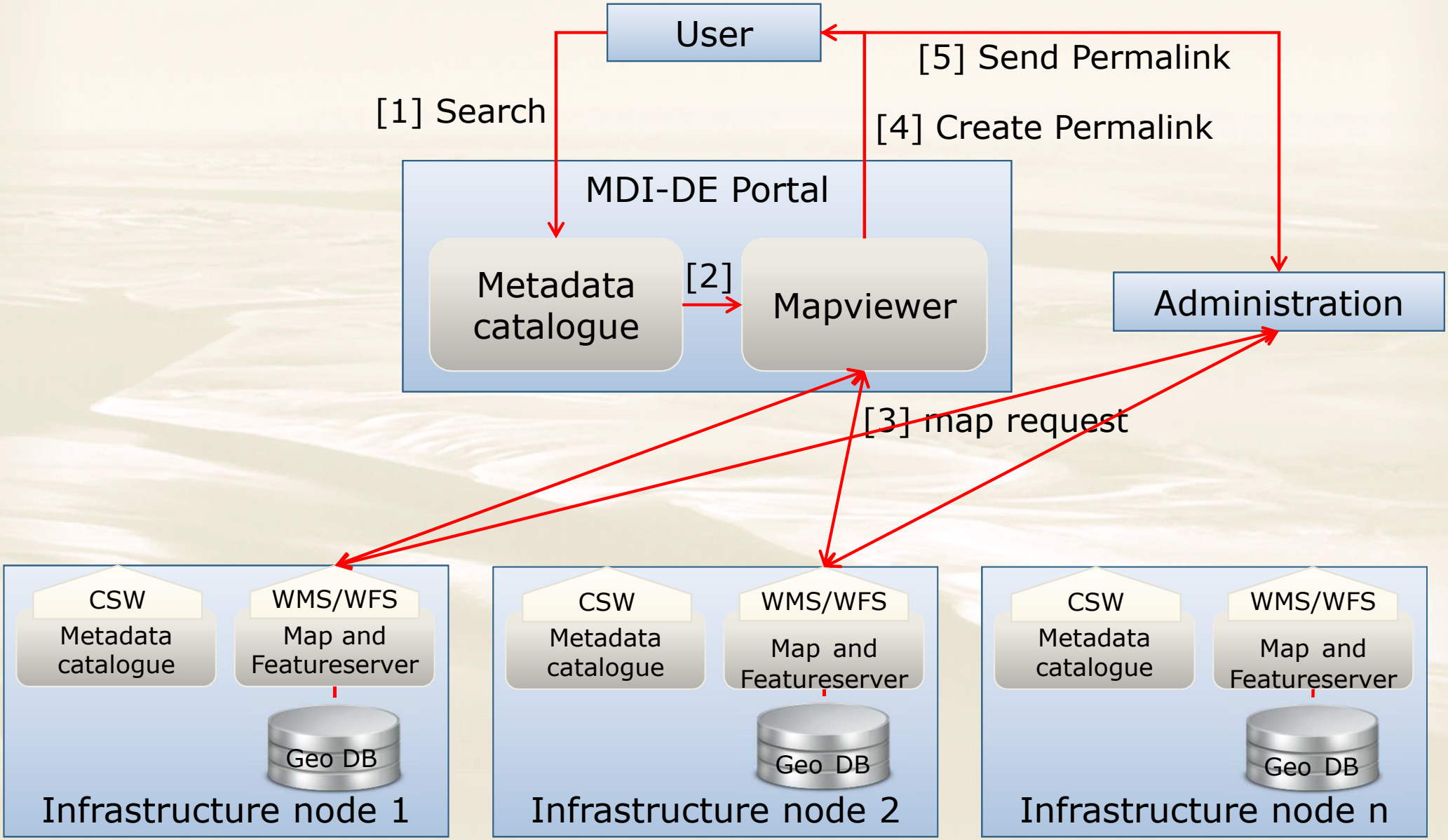
Basic Workflow



Common User Workflow



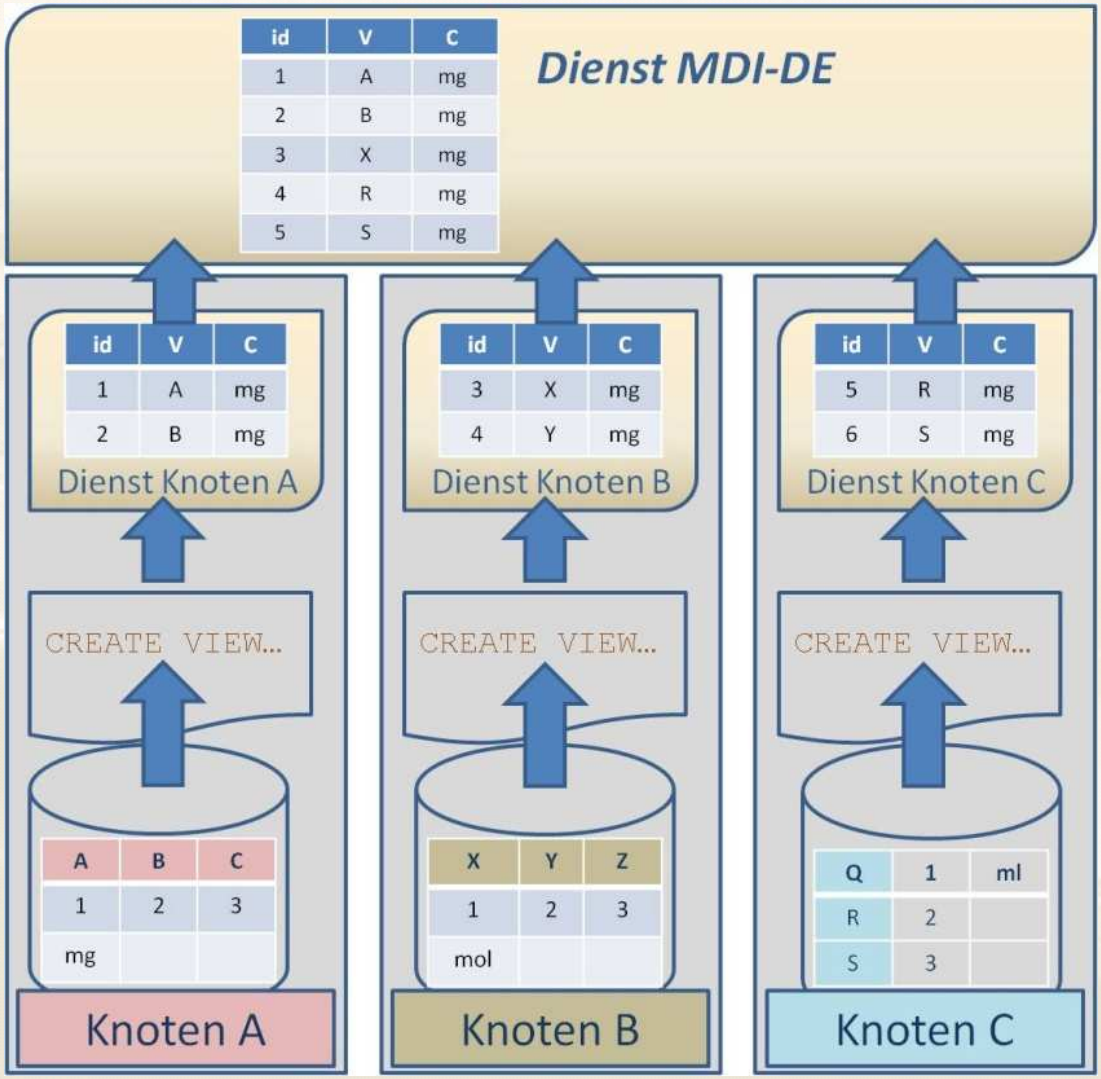
Reporting Workflow



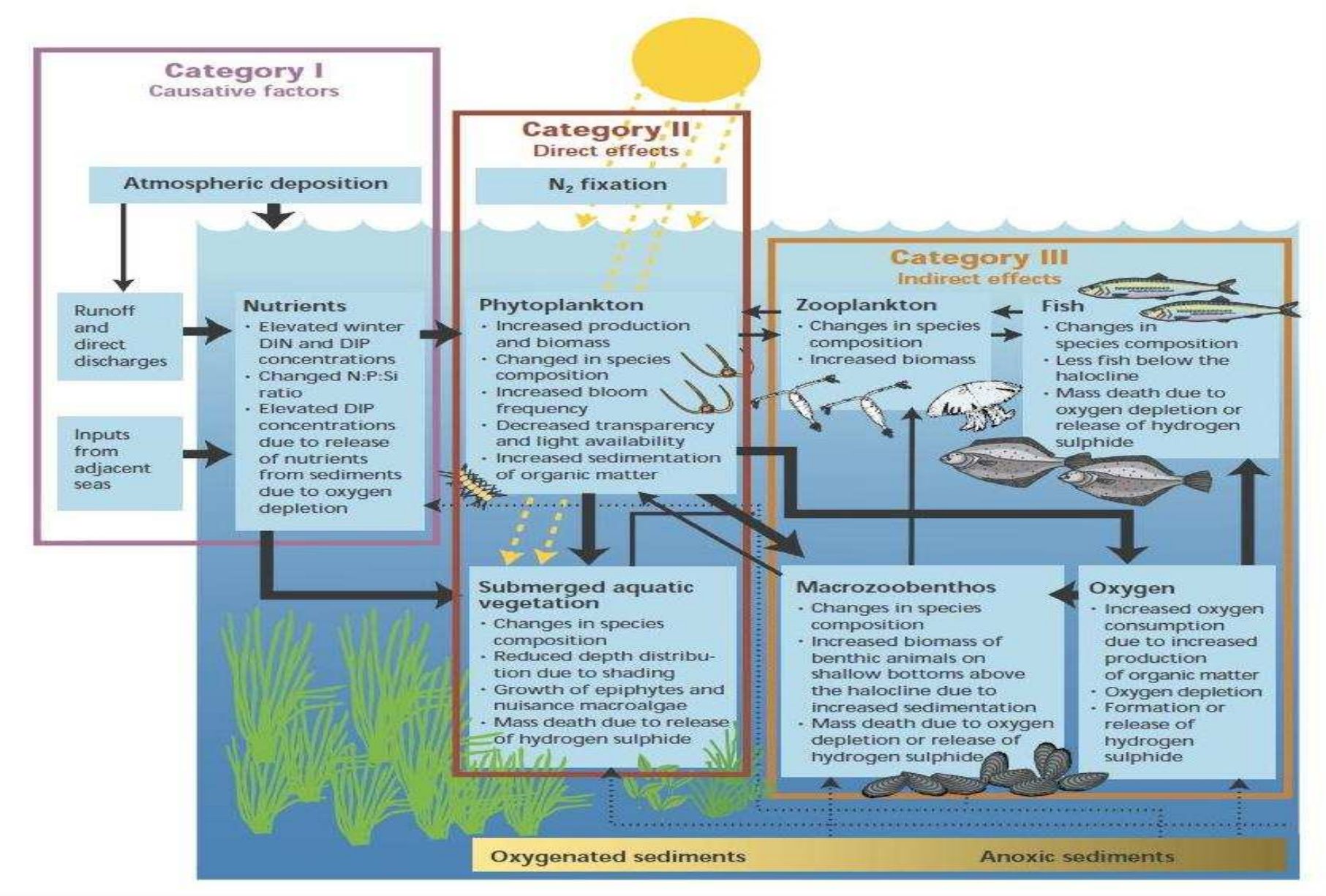
Data Harmonization

- Harmonization based on mutual agreements
- Flexible and sustainable with data base views

- Unified Data
  - Map colouring
  - Symbols
  - Legend

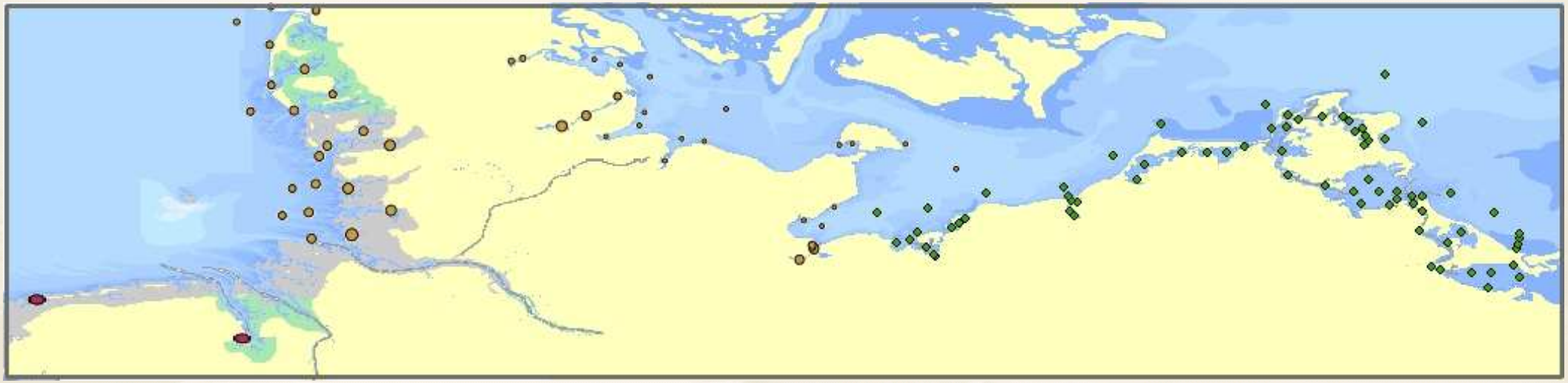


Eutrophication

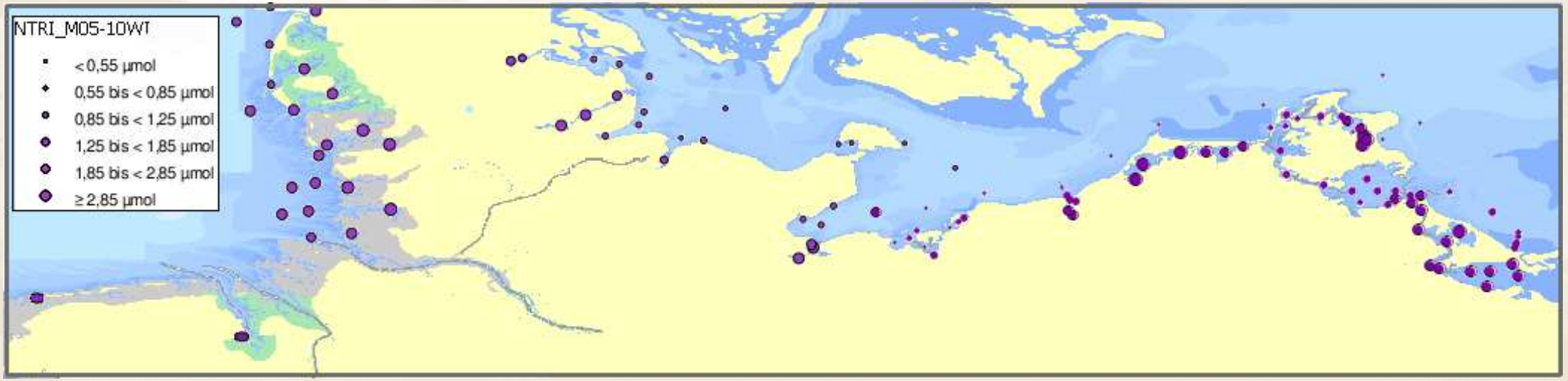


HELCOM, 2006: Development of tools for assessment of eutrophication in the Baltic Sea, Baltic Sea Environmental Proceedings No. 104

Harmonization: Example Eutrophication

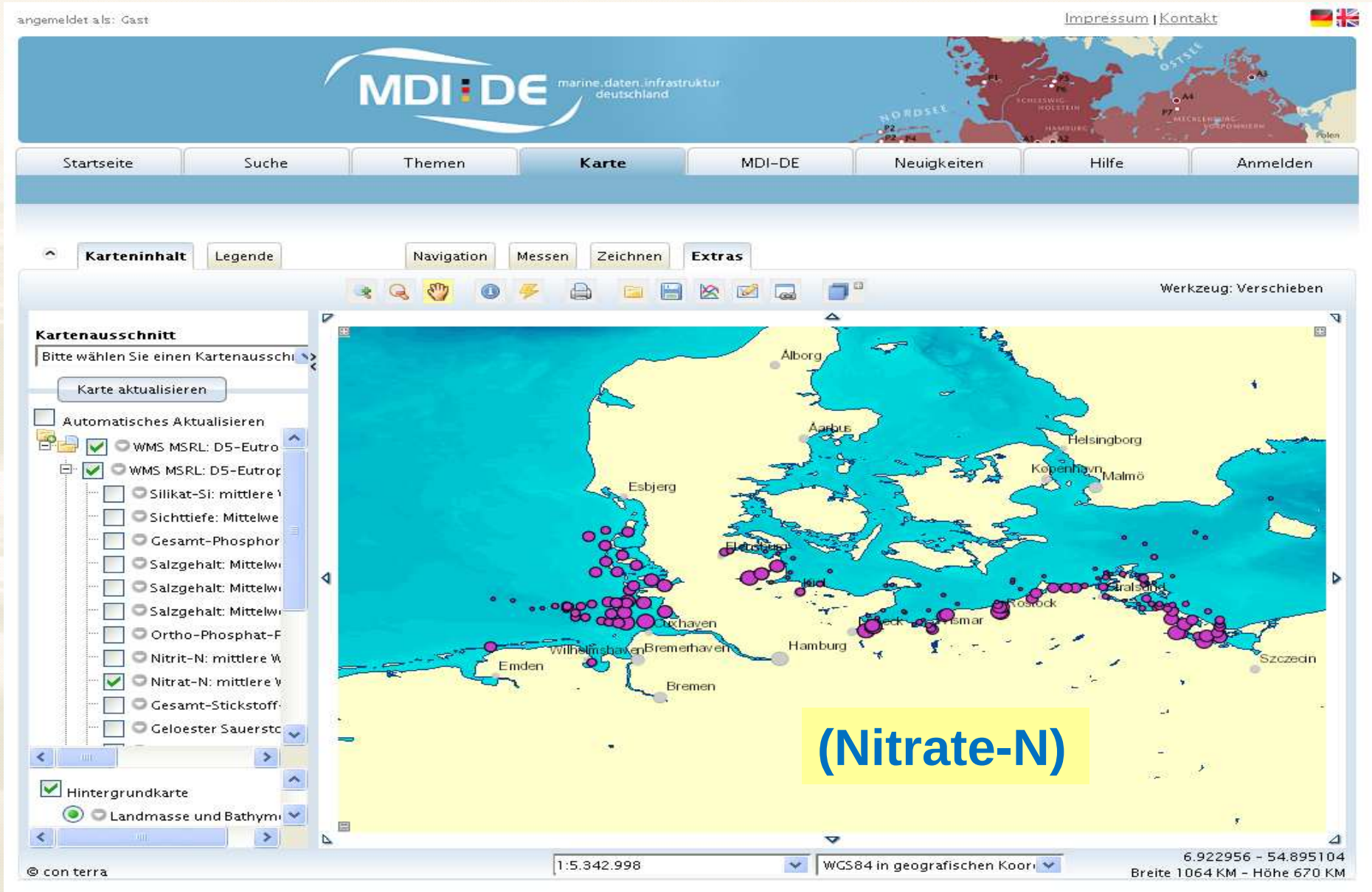


The Nitrite-N-Layer of different agencies with their own styles



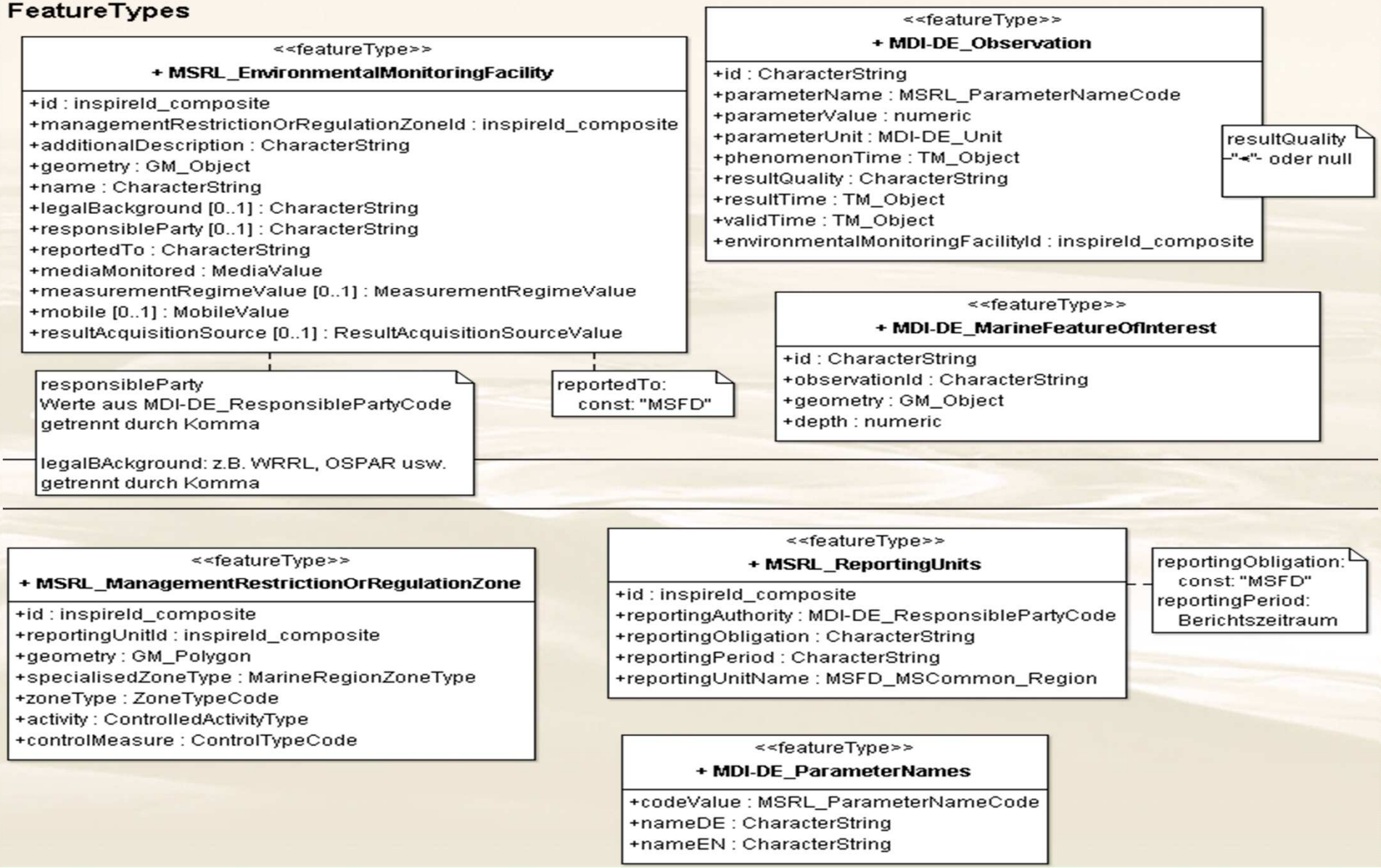
The harmonized Nitrite-N-Layer with unified symbols and legend

MSRL D5: Eutrophication



MSRL D5: INSPIRE compliant WFS

FeatureTypes



MDI-DE Portal

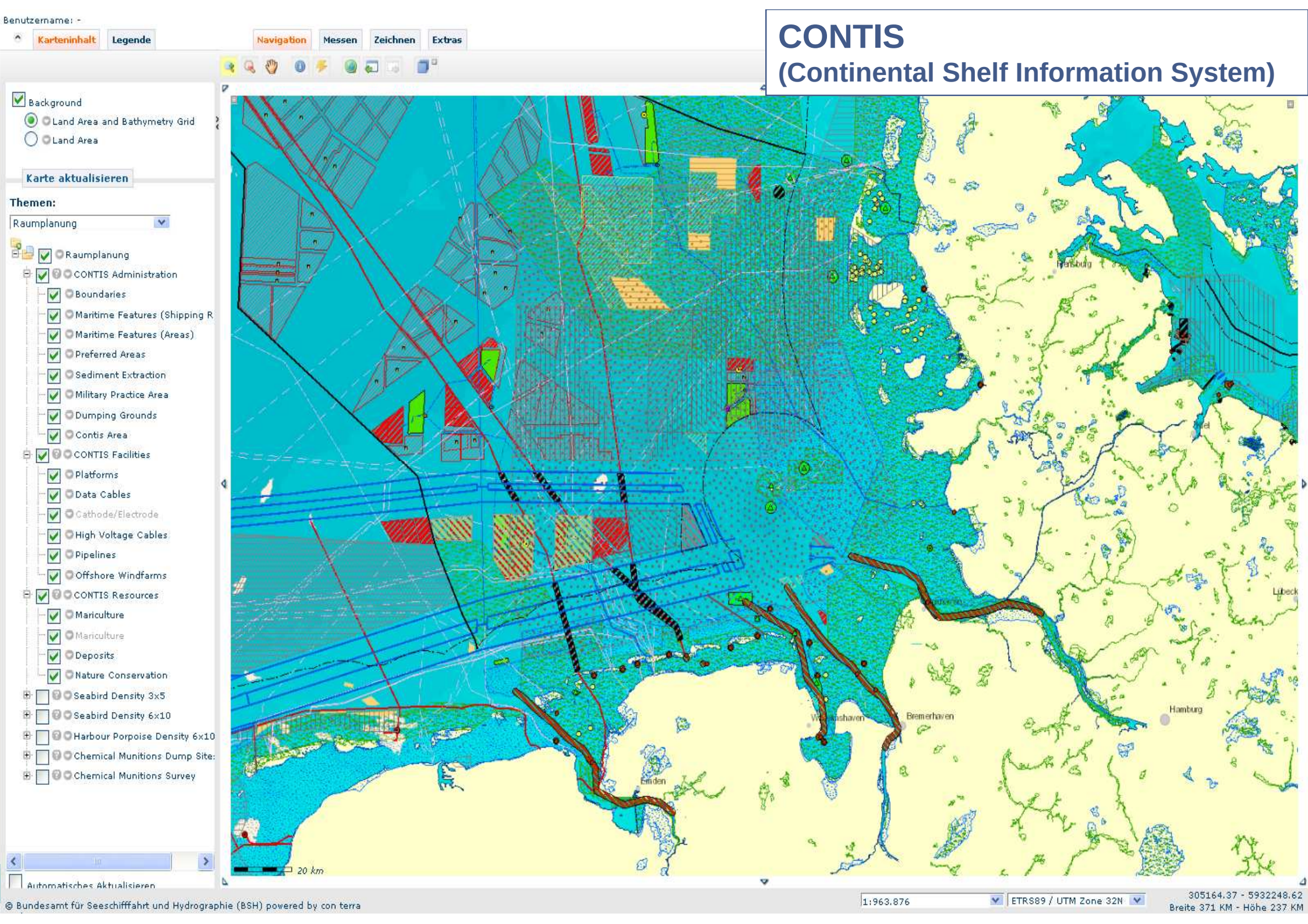
Data Search

DataVisualisation

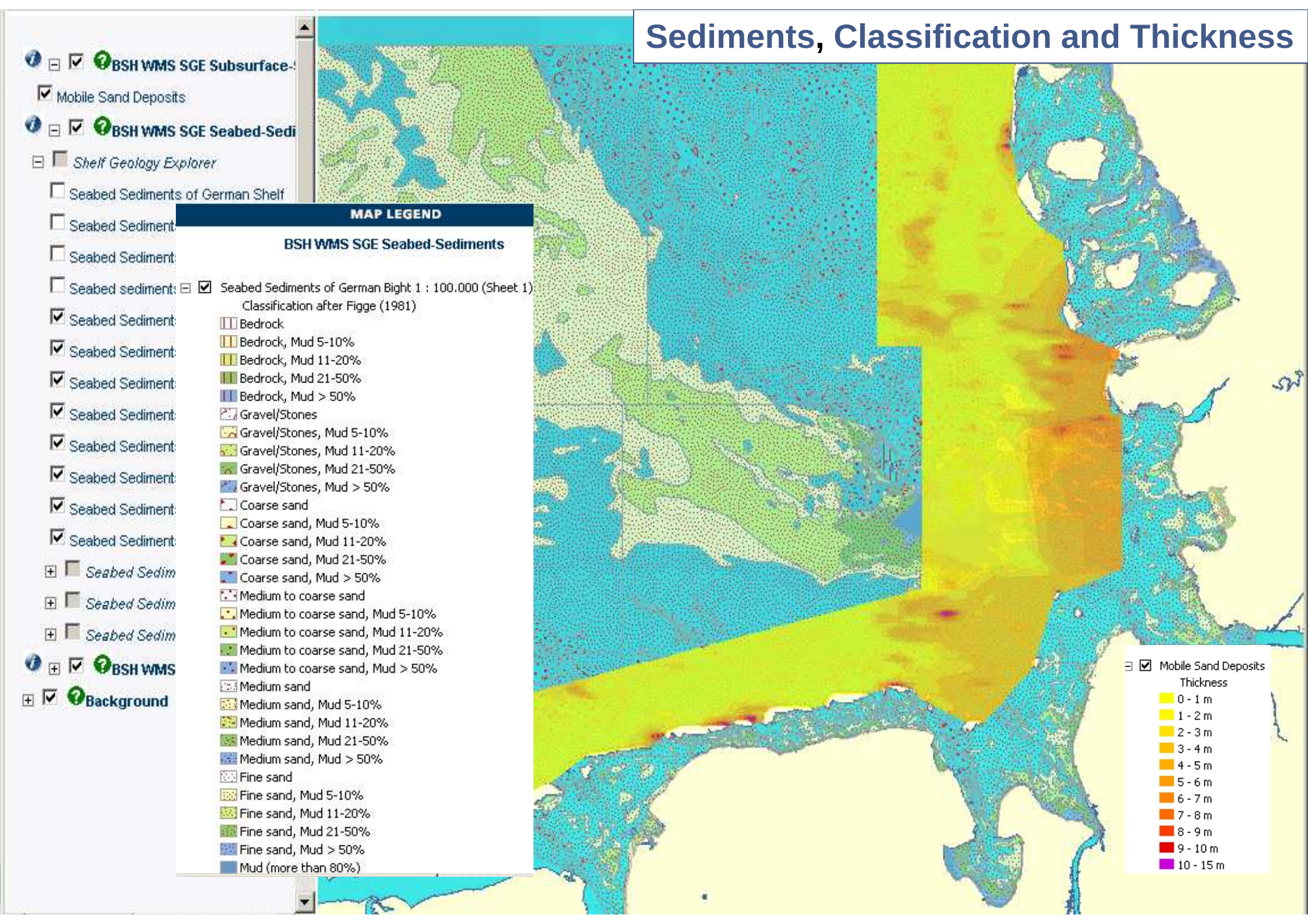
Data Access

https://www.mdi-de.org

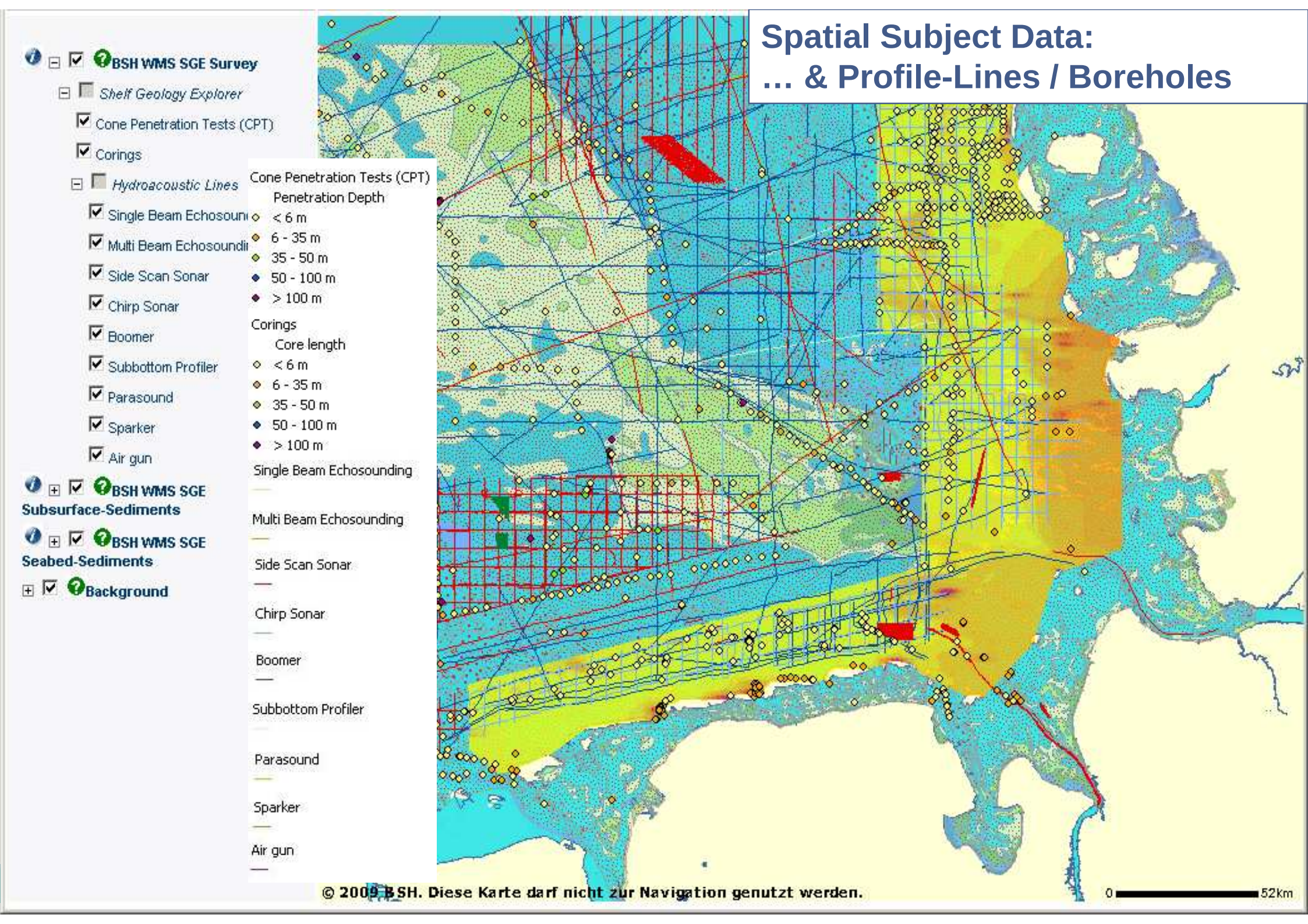
CONTIS
(Continental Shelf Information System)



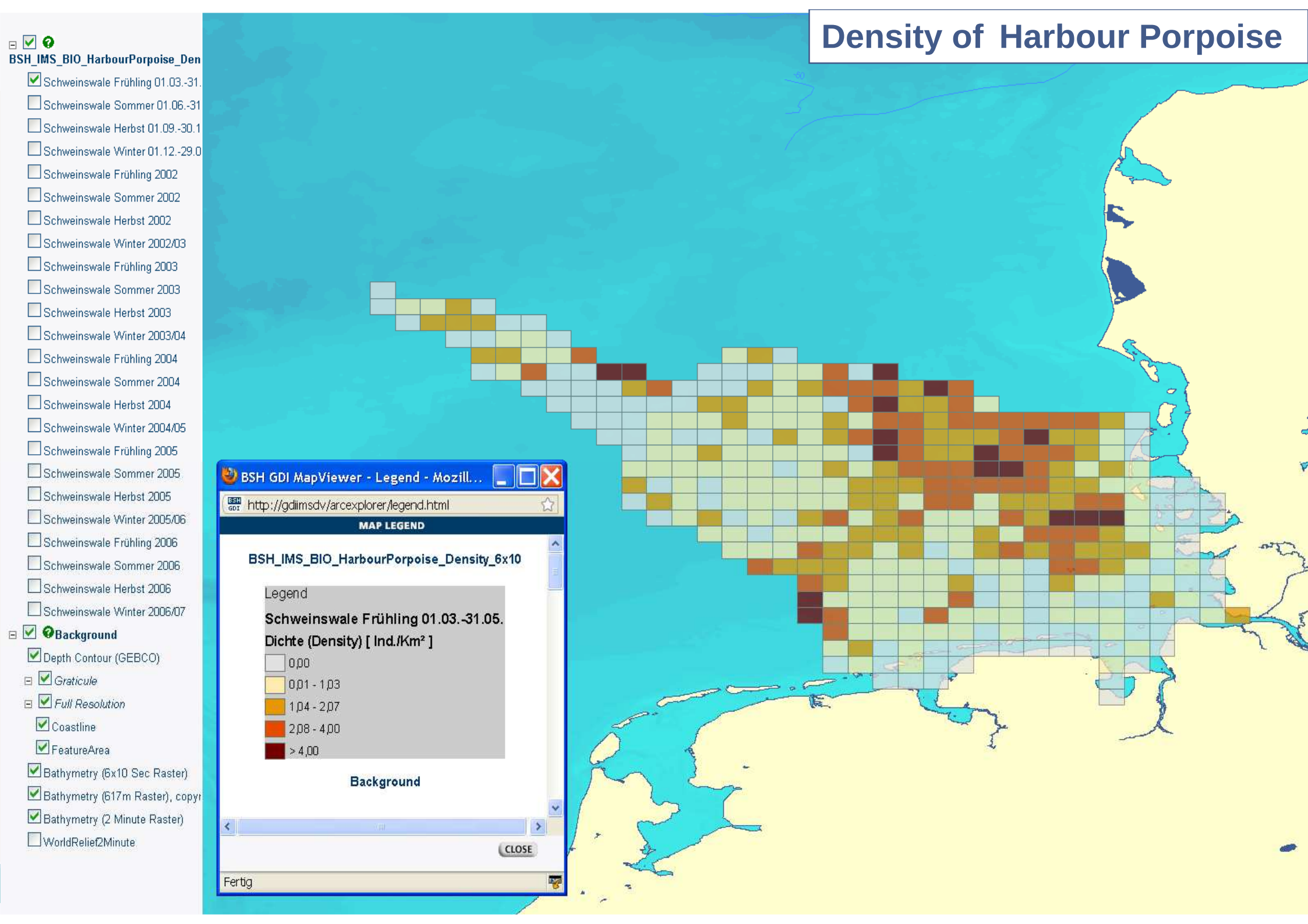
Sediments, Classification and Thickness



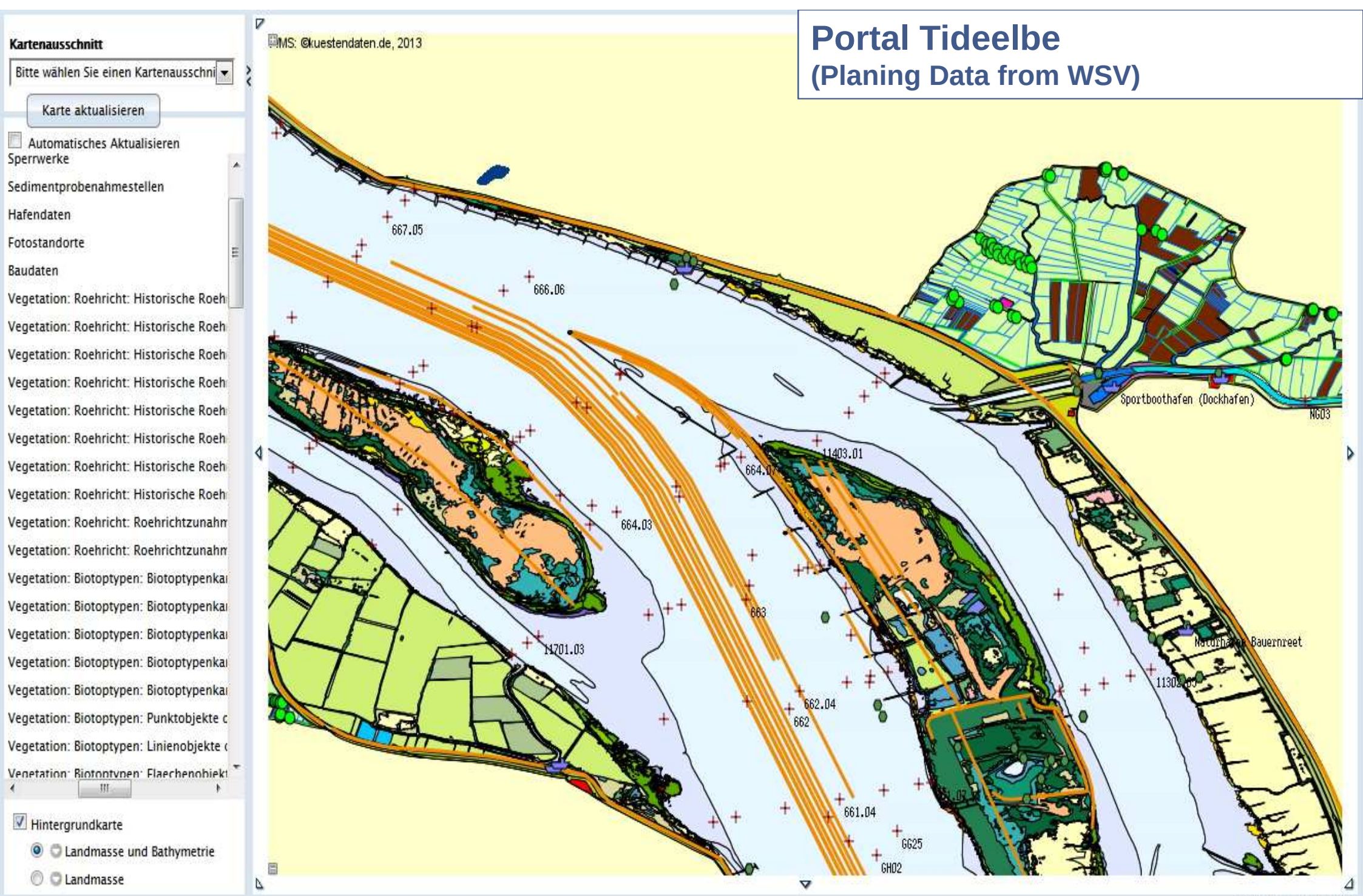
Spatial Subject Data:
… & Profile-Lines / Boreholes



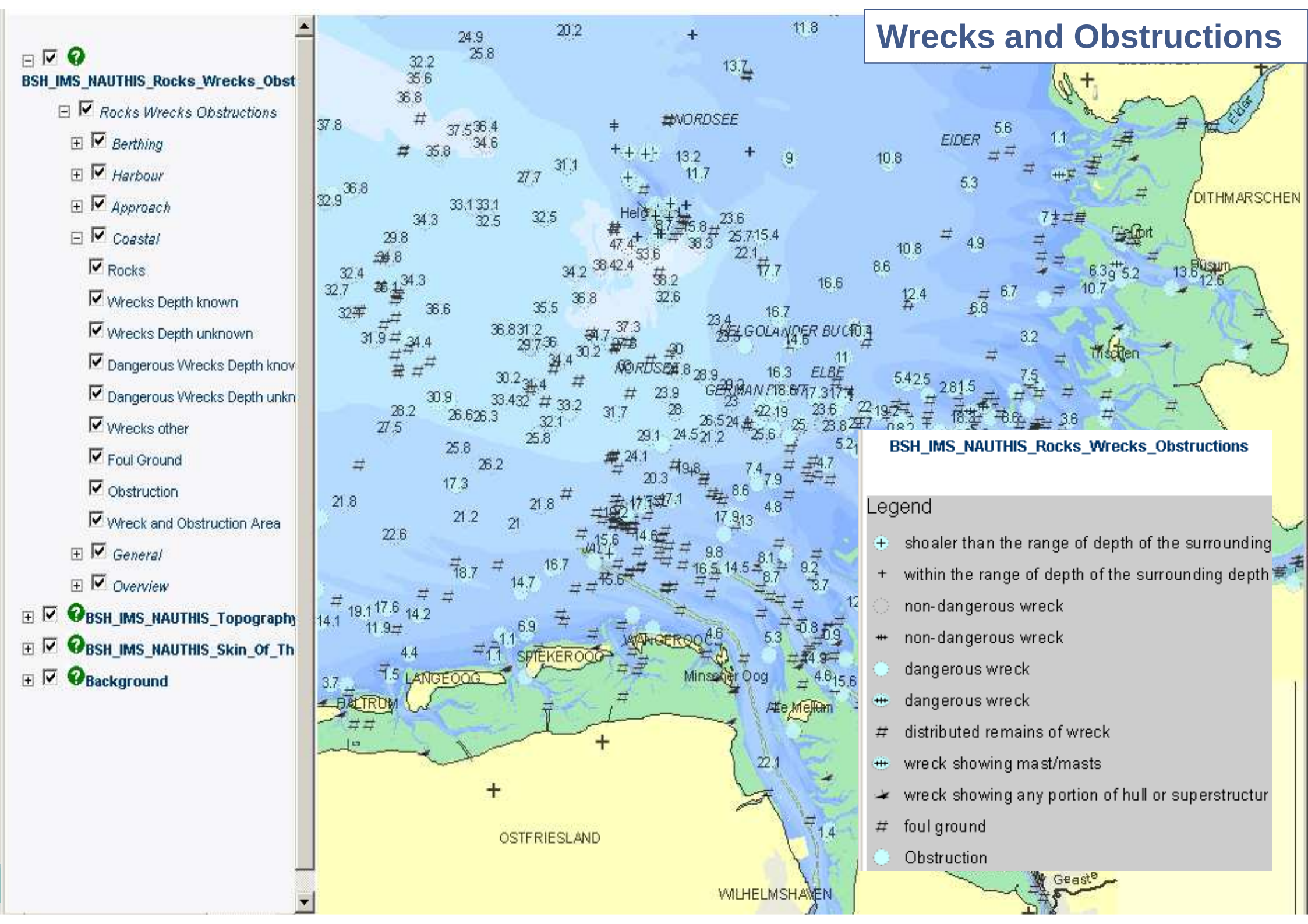
Density of Harbour Porpoise



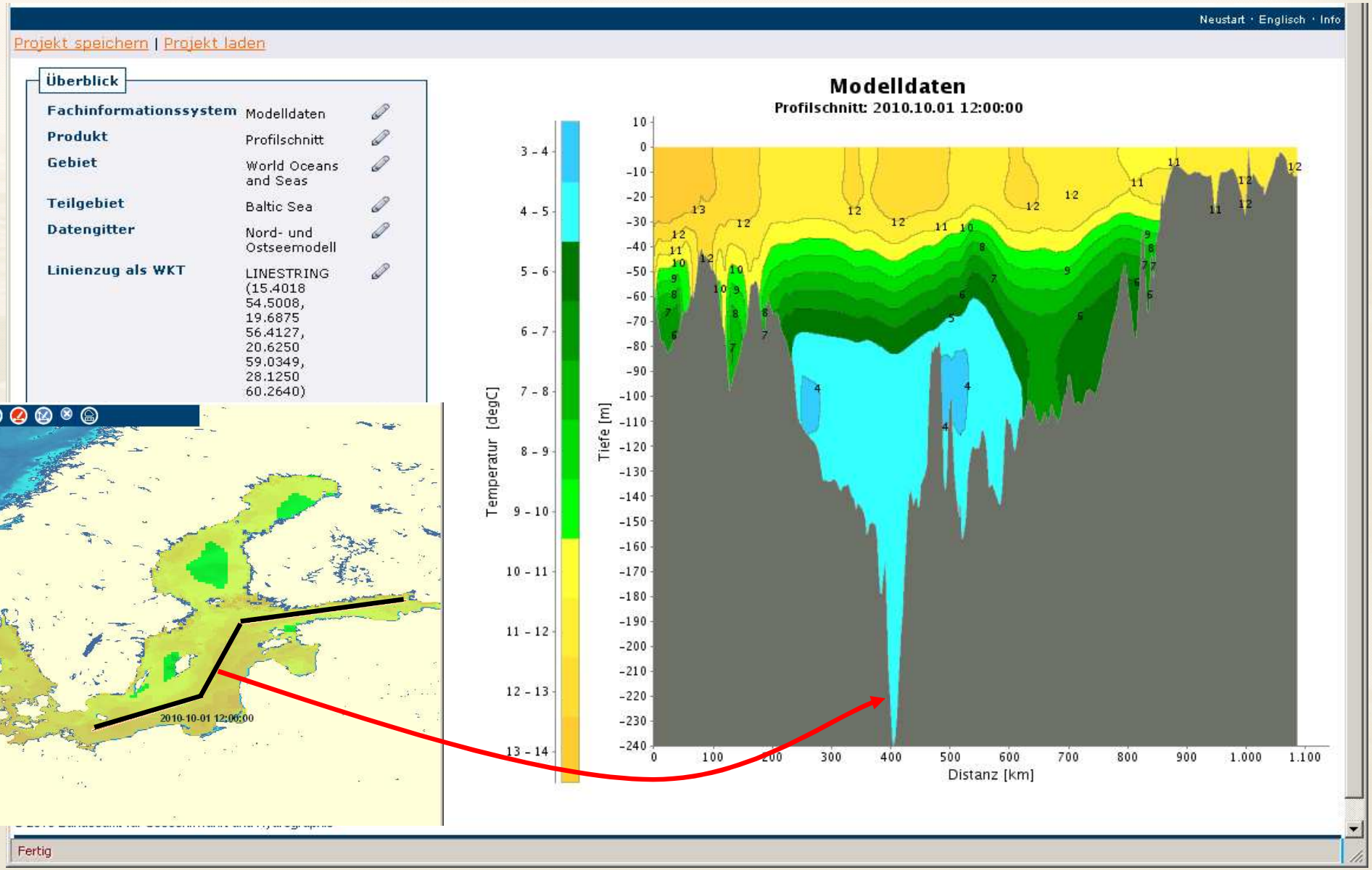
Portal Tideelbe
(Planing Data from WSV)



Wrecks and Obstructions



dataDIVER


Neustart · Englisch · Info
Projekt speichern | Projekt laden
Überblick
Fachinformationssystem Modelldaten
Produkt Profilschnitt
Gebiet World Oceans and Seas
Teilgebiet Baltic Sea
Datengitter Nord- und Ostseemodell
Linienzug als WKT LINESTRING (15.4018 54.5008, 19.6875 56.4127, 20.6250 59.0349, 28.1250 60.2640)
BSH_IMS_Prediction_Model_Water_Tempe
Surface Temperature Today
Surface Temperature Tomorrow
Surface Temperature Day After To
Bottom Temperature Today
Bottom Temperature Tomorrow
Bottom Temperature Day After Tom
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Graticule
Medium Resolution
Coastline (Medium Resolution)
Land Area (Medium Resolution)
Bathymetry (2 Minute Raster)
WorldRelief2Minute
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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