Wind farm data from environmental impact assessment

ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR- UND MEERESFORSCHUNG

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Wind farm data from environmental impact assessment

- Project by BSH (contractor) and AWI
- Two data bases = twin data bases

  a) protected private data from operators provided via BSH (excel) – curated, validated, harmonized by AWI scientists (content in German)

  b) AWI research data collected since 15 years (content in English)

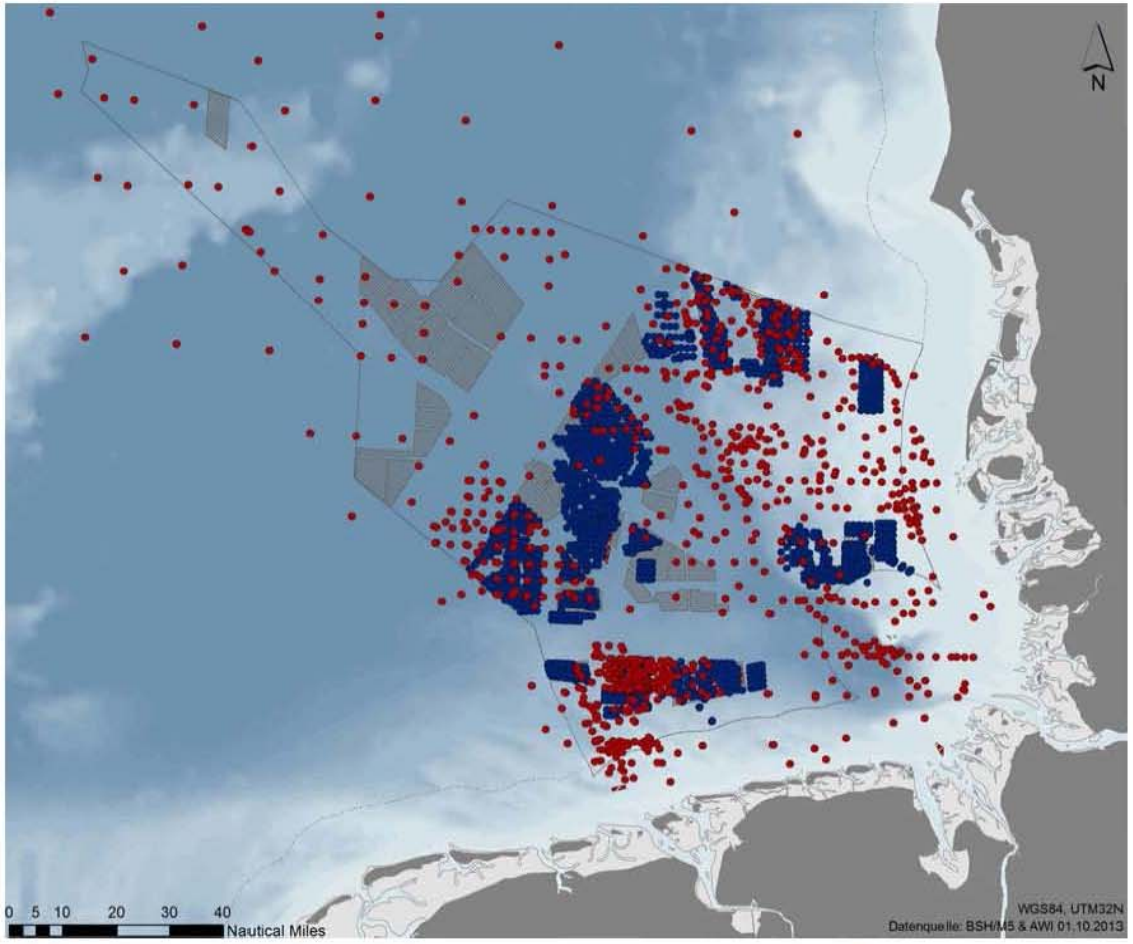
  - Both data bases are harmonized and easily connectable
- Data from 77 offshore wind farm projects (EAS)
- From 29 wind farm operators
  - sampling/data via subcontracts to consulting companies
- The data belong to the operators
  - they pay for sampling and taxonomic
- Any EIA must be based on original raw data!
  - same sampling procedure before, during and after installations
  - Same time intervals, same locations, same method

database

- database on benthic invertebrates and demersal fish
- relational database system

Benthic database

- van Veen grabs, beam trawls
- > 2100 station entries from science, > 7000 from environmental impact assessment
- > 200 000 taxa entries with biomass and abundance



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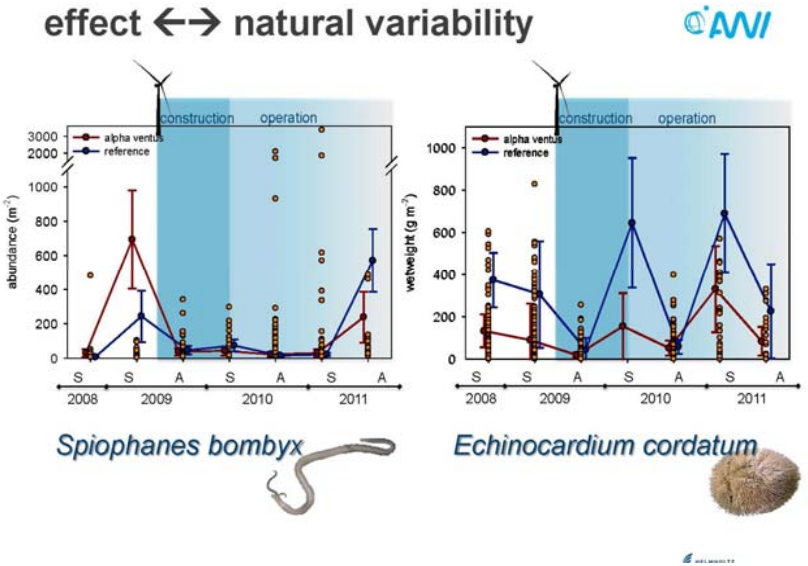
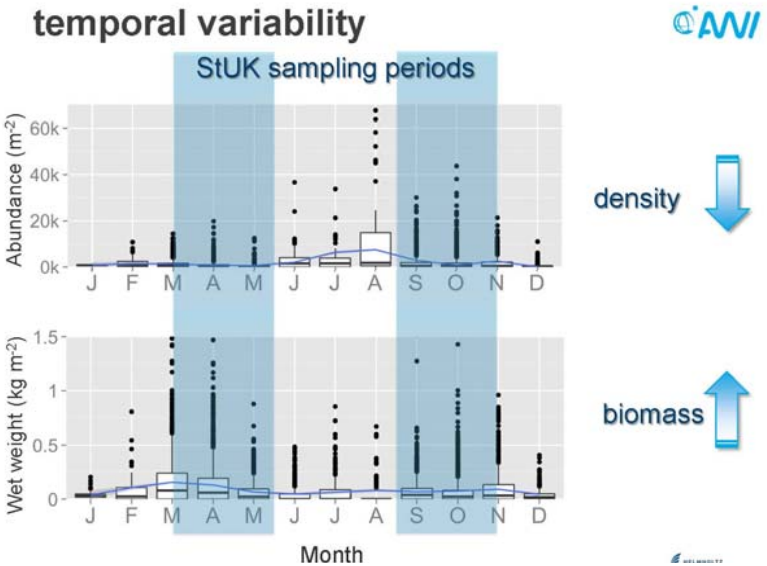
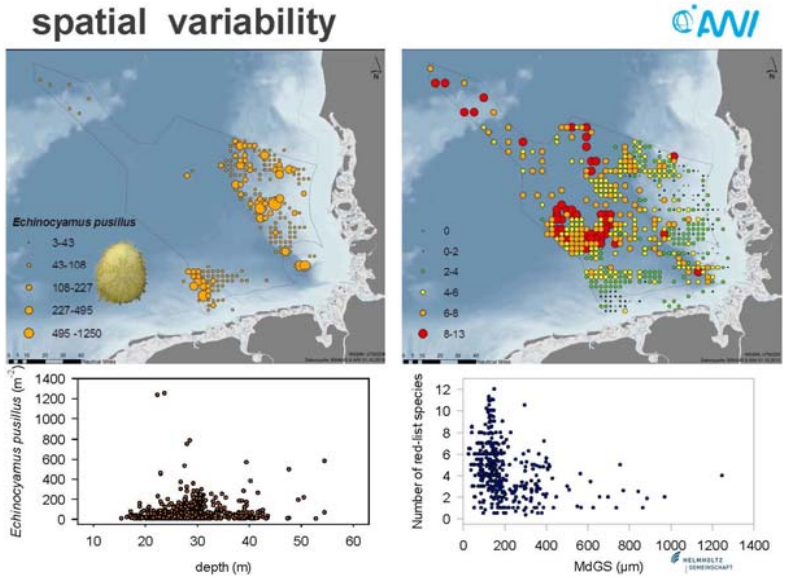
Wind farm data from environmental impact assessment

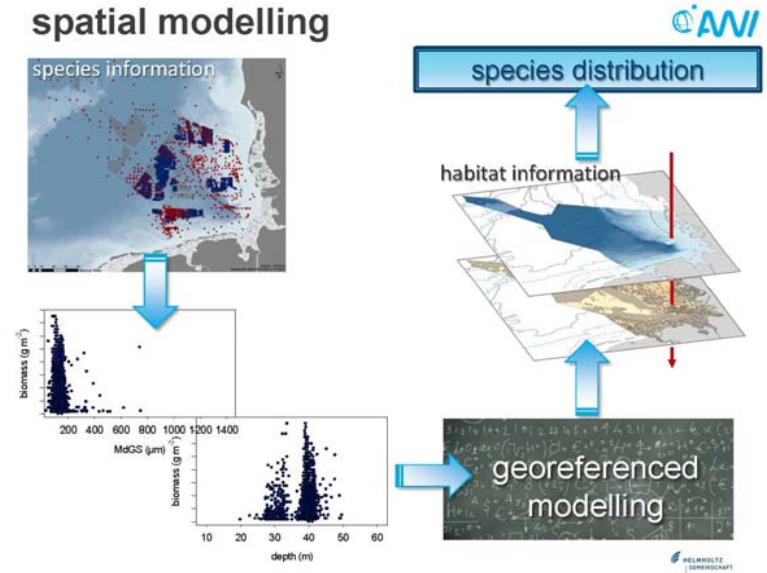
- Stringent regulations/methods are provided by BSH (StUK4)
  - Sampling methods, parameters have been developed by authorities and scientific projects
  - Disadvantage: no publication procedure, no global identifier, no library for harvestable bibliometrics on reports of methods
- Form sheets for data and meta data are provided by BSH (StUK4) to all operators and consulting companies
- All operators' data are delivered to BSH (excel sheets)
- BSH gives these data sheets to AWI scientists for curation, validation, quality check to harmonize them in a central DB
- AWI developed and runs this data base for national wind farm data (together with the scientific data from all other connected scientific projects)

What are scientist doing with these data?









Wind farm data from environmental impact assessment

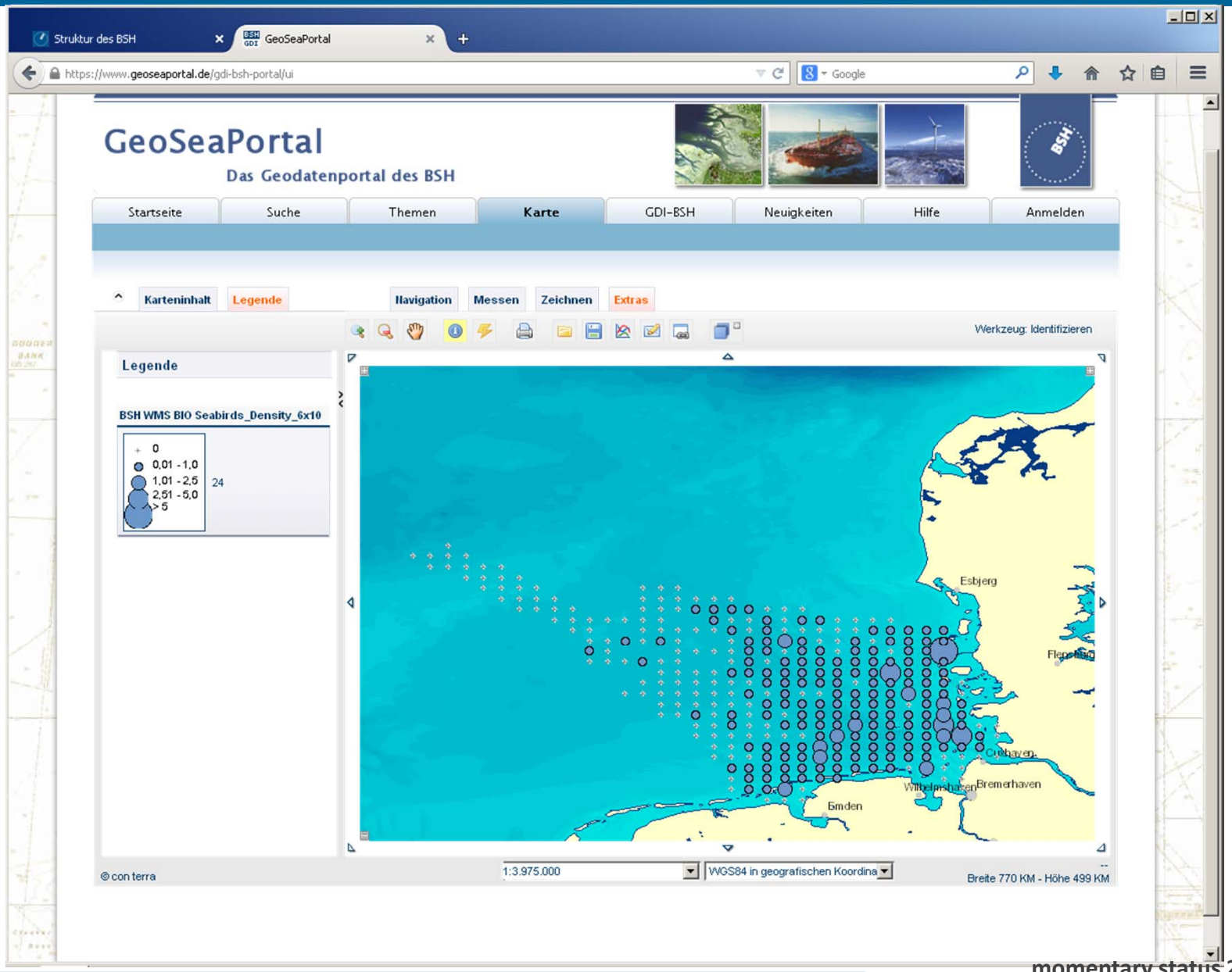
- Operators raw data are protected as “companie secret”
- BSH is not allowed to release these data!
- Measurements are not allowed to be published or been made retractable
- Scientists hold no rights to these data, although they put a lot of intellectual property into harmonization and statistical and analytical processing
- Research under heavy restrictions: usage of data only in aggregated and anonymized form
- Scientific publication only by individual allowance from public authority (BSH) as mediator to “secret data” (ordeal)
- Data/results may only be published anonymized and rasterized via BSH (GDI.DE/MDI-DE) the GeoSeaPortal

Wind farm data from environmental impact assessment

- AWI scientists are installed as juridical experts with the insight to the original data during court proceedings
- IT-security for secrete data is problematic and expensive for scientific institutes

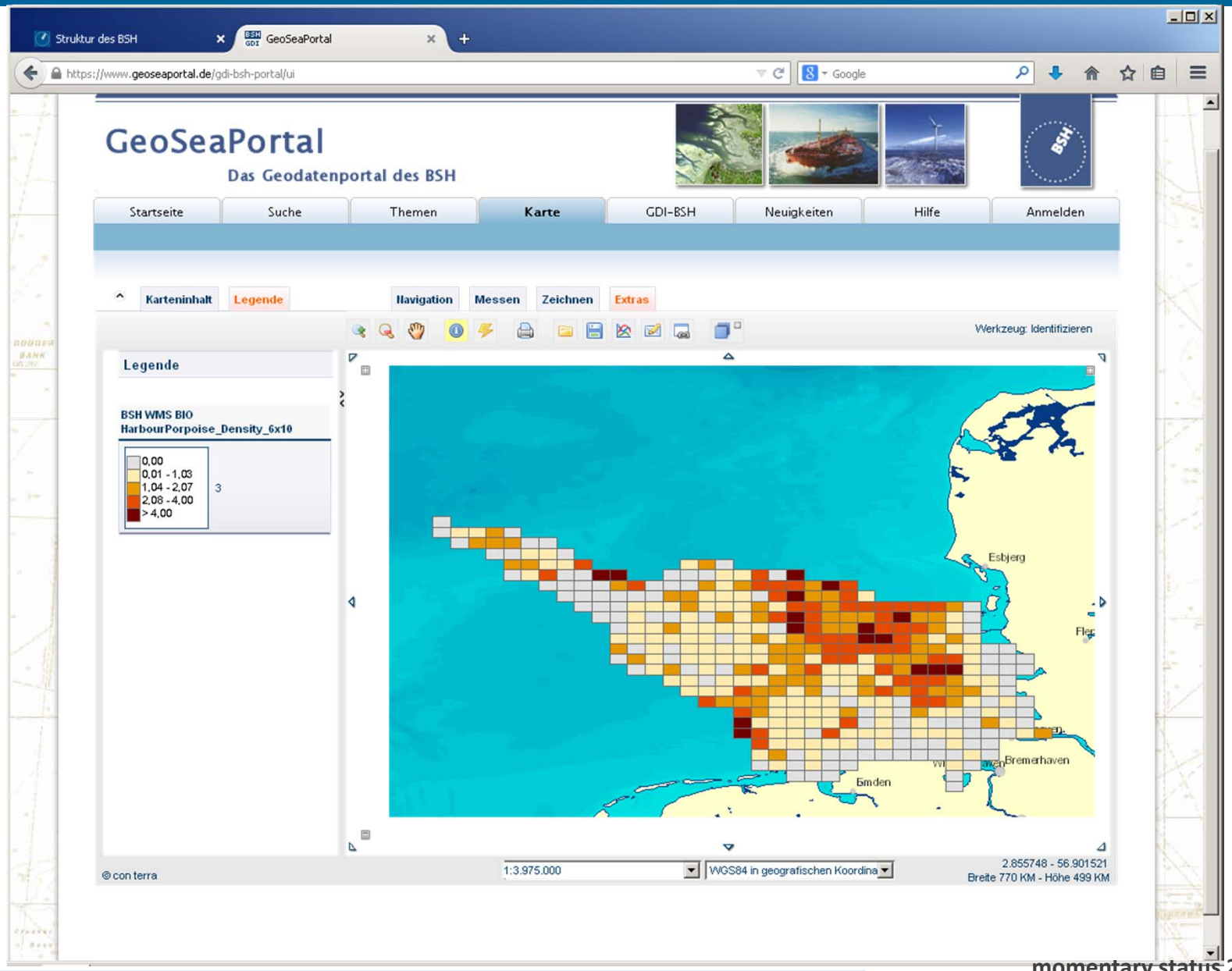
- Project ends! → mutual deletion of BSH and AWI data vice versa
- Further negotiations are underway – but unclear legal positions and divergent usage demands are absolutely dissatisfying in terms of data cooperation of science, authorities and private companies

Web Map Service on seagulls distribution



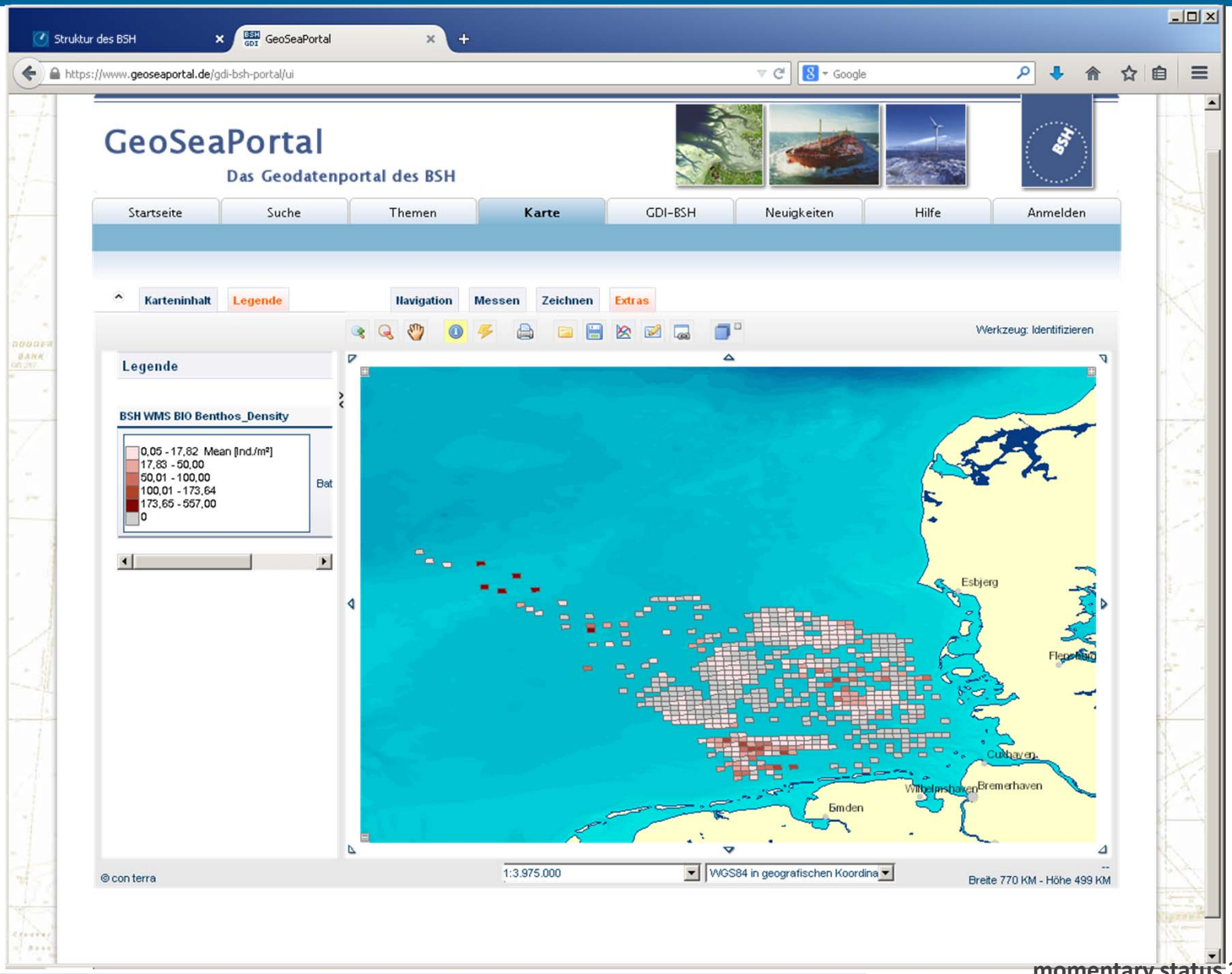
momentary status 26.06.2014

Web Map Servie on Porpoise distribution



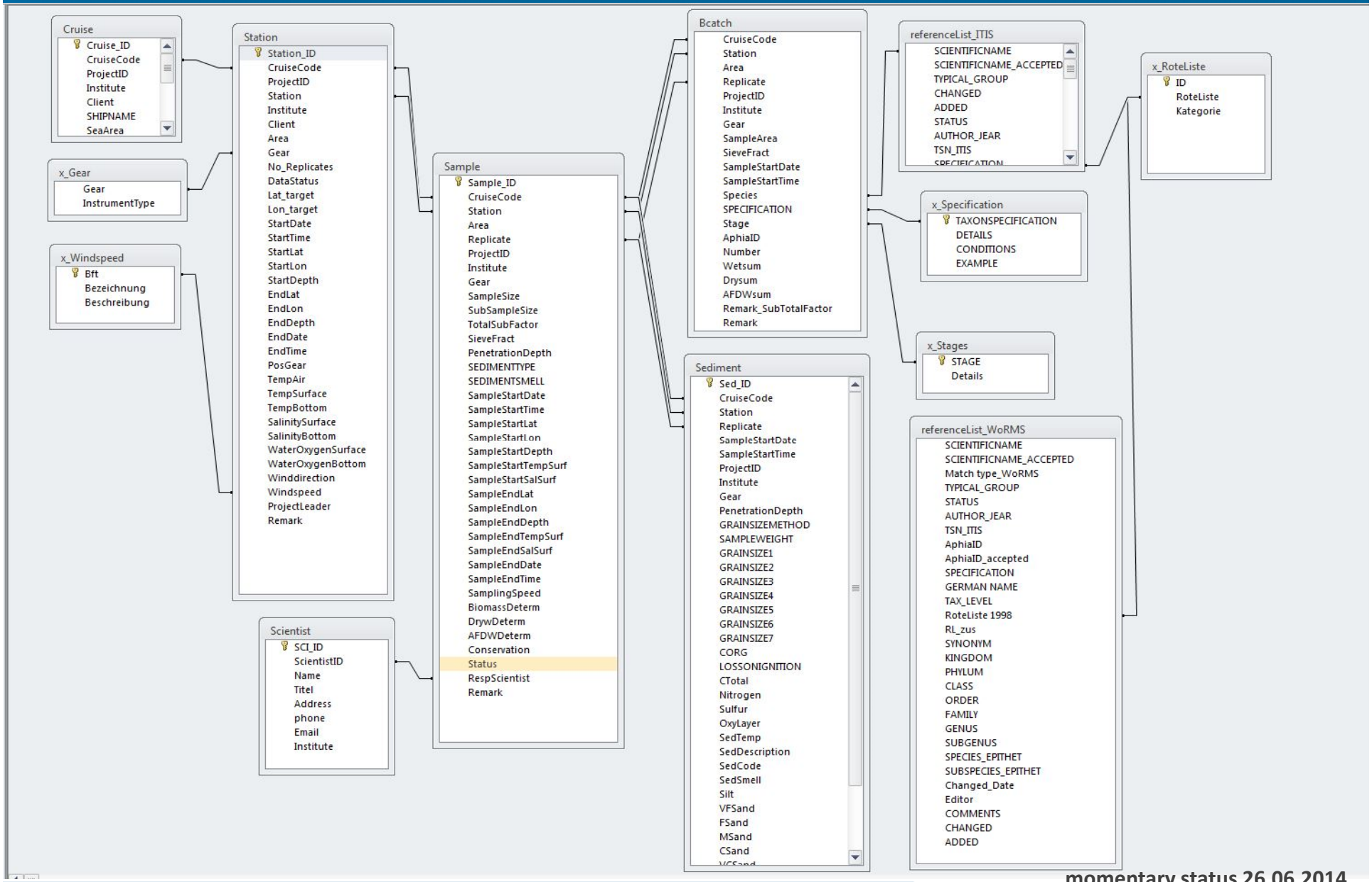
momentary status 26.06.2014

Web Map Service on crustacea distribution



momentary status 26.06.2014

Information loss by aggregation and anonymisation



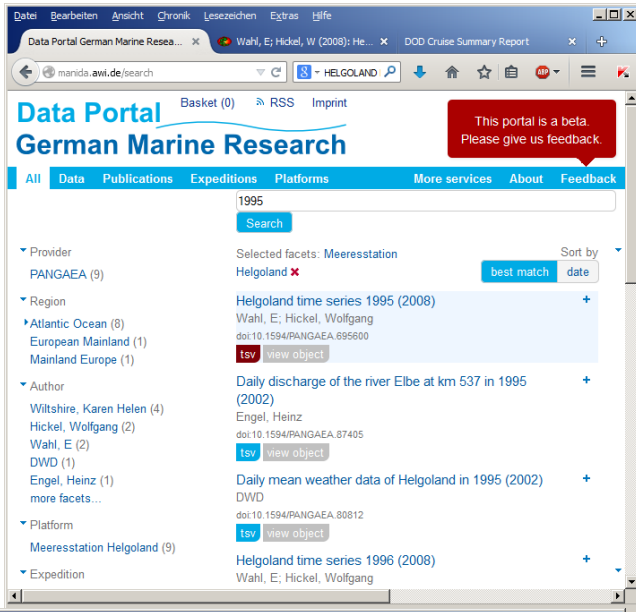
momentary status 26.06.2014

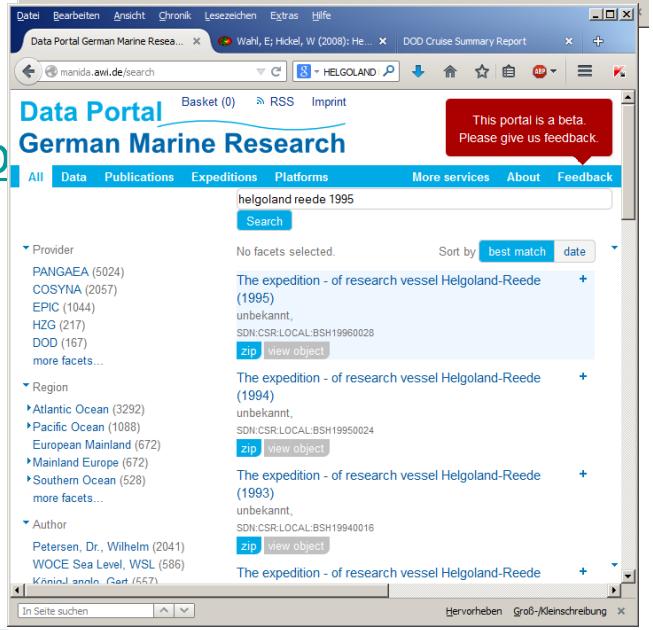
One data set – two versions

Helgoland Roads 1995
Long Term Time Series by AWI

Scientific data publication via DOI
http://doi.pangaea.de/10.1594/PANGAEA.695600

Distribution via CDI and NODC to SeaDataNet
and to Data Portal German Marine Reserach
http://seadata.bsh.de/Cgi-csr/retrieve_dod/viewRep





NODC focus on aggregation and reporting

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

German Oceanographic Data Centre(DOD) - Cruise Summary Report

Details of HELGOLAND REEDE Cruise - (BSH Ref-No.: 19960028)

GENERAL INFORMATION	
Platform/Ship	HELGOLAND REEDE
Cruise begin	01.01.1995
Cruise end	31.12.1995
Port of Departure	Unknown,
Port of Return	Unknown,
Chief Scientist(s)	UNKNOWN
Responsible Laboratory	Biologische Anstalt Helgoland, Hamburg
LOCATION	
General Ocean Areas	North Sea
Marsden Squares(S, N, E, W)	216 (50.0, 60.0, 0.0, 10.0)
Bounding Box(es)	
Specific Geographic Areas	
Link to Track / Station Chart	
PROJECT	
Project Title / Coordinating Body	
OBJECTIVES	
Description	
ADDITIONAL INFORMATION	
Parameters measured	
Instruments used	
Linkage / Report / Station list	
PRINCIPAL INVESTIGATORS	
A	unknown - Biologische Anstalt Helgoland, Hamburg, Hamburg,

19960028ST145811prof_DODDB.txt - Editor

Datei Bearbeiten Format Ansicht ?

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//<subject>SDN:LOCAL:TEMP_THM_NOT_NDT</subject><object>SDN:P011::TEMPRTNX</object><units>SDN:P061::UPAA</units>//Cruise Station Type
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Depth [m]      QV:SEADATANET    AMON_PTM_NOT_NDT[umol/l]      QV:SEADATANET    NTRA_PTM_NOT_NDT[umol/l]      QV:SEADATANET
NTRI_PTM_NOT_NDT[umol/l]      QV:SEADATANET    PHOS_PTM_NOT_NDT[umol/l]      QV:SEADATANET    SLCA_PTM_NOT_NDT[umol/l]
QV:SEADATANET    PSAL_CON_NOT_NDT[PSU]    QV:SEADATANET    TEMP_THM_NOT_NDT[degC]  QV:SEADATANETHelgoland-Reede -  0001    B       1995-01
-02T08:45:00       7.9000        54.1883       19960028ST145811prof_DODDB      2292            0.0     1       1.2     1       15.5
1       2.91    1       0.72    1       2.2     1       33.099  1       7.1     1
```

Summary of measurements and samples taken

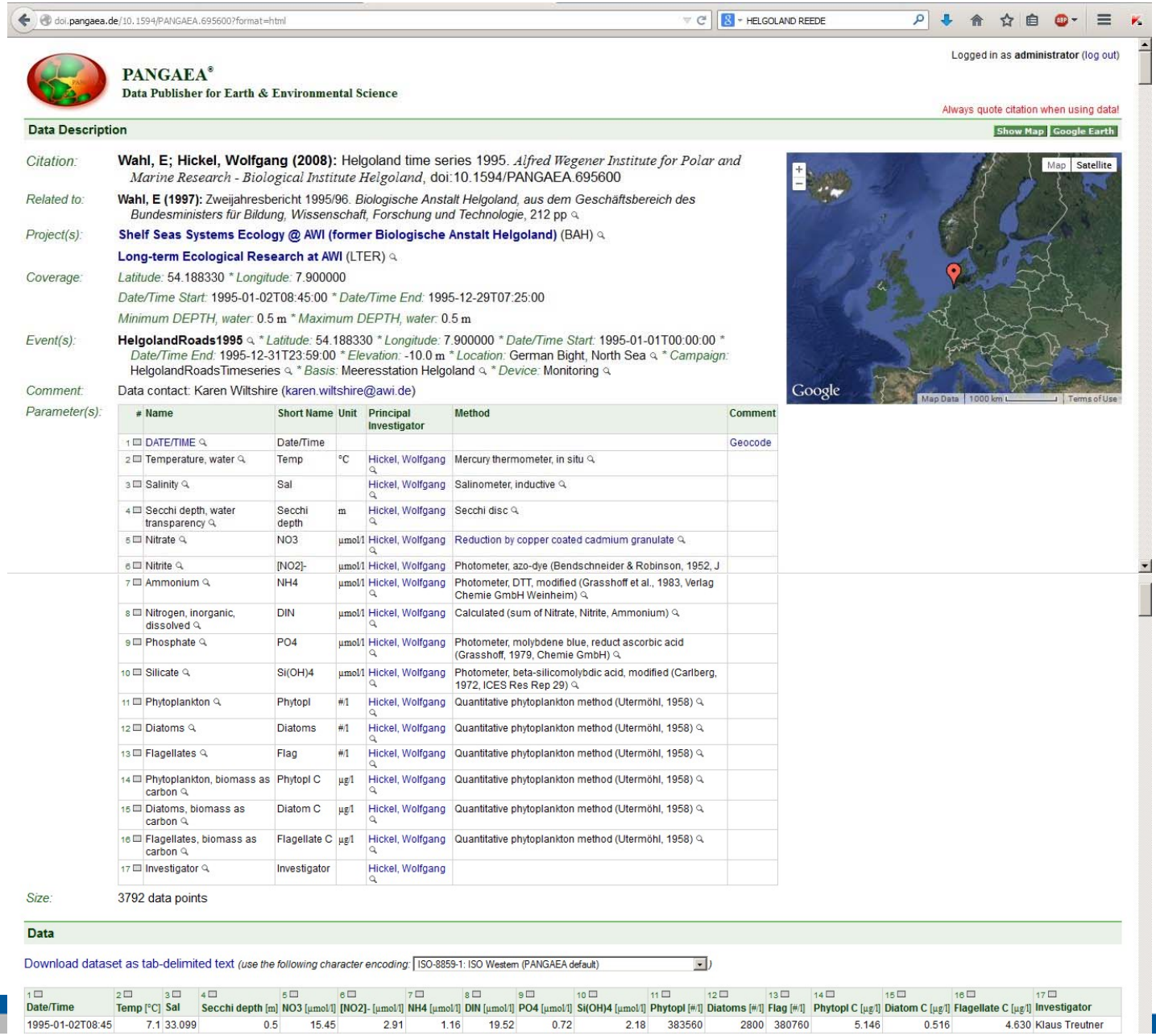
Chemical Oceanography

PI	Number	Type	Unit	Type of measurement	Description	Reference date
A	237	H22	stations	Phosphates		
A	237	H24	stations	Nitrates		
A	237	H25	stations	Nitrites		
A	237	H26	stations	Silicates		
A	237	H76	stations	Ammonia		

Physical Oceanography

PI	Number	Type	Unit	Type of measurement	Description	Reference date
A	237	H71	stations	Surface measurements underway (T, S)		

Scientific focus on citability and context of all data



doi.pangaea.de/10.1594/PANGAEA.695600?format=html

HELGOLAND REEDE

Logged in as **administrator** (log out)

PANGAEA®
Data Publisher for Earth & Environmental Science

Always quote citation when using data!

Data Description

Show Map | Google Earth

Citation: **Wahl, E; Hickel, Wolfgang (2008):** Helgoland time series 1995. *Alfred Wegener Institute for Polar and Marine Research - Biological Institute Helgoland*, doi:10.1594/PANGAEA.695600

Related to: **Wahl, E (1997):** Zweijahresbericht 1995/96. *Biologische Anstalt Helgoland, aus dem Geschäftsbereich des Bundesministers für Bildung, Wissenschaft, Forschung und Technologie*, 212 pp

Project(s): **Shelf Seas Systems Ecology @ AWI (former Biologische Anstalt Helgoland)** (BAH)

Long-term Ecological Research at AWI (LTER)

Coverage: *Latitude:* 54.188330 * *Longitude:* 7.900000

Date/Time Start: 1995-01-02T08:45:00 * *Date/Time End:* 1995-12-29T07:25:00

Minimum DEPTH, water: 0.5 m * *Maximum DEPTH, water:* 0.5 m

Event(s): **HelgolandRoads1995** * *Latitude:* 54.188330 * *Longitude:* 7.900000 * *Date/Time Start:* 1995-01-01T00:00:00 * *Date/Time End:* 1995-12-31T23:59:00 * *Elevation:* -10.0 m * *Location:* German Bight, North Sea * *Campaign:* HelgolandRoadsTimeseries * *Basis:* Meeresstation Helgoland * *Device:* Monitoring

Comment: Data contact: Karen Wiltshire (karen.wiltshire@awi.de)

Parameter(s):

#	Name	Short Name	Unit	Principal Investigator	Method	Comment
1	DATE/TIME	Date/Time				Geocode
2	Temperature, water	Temp	°C	Hickel, Wolfgang	Mercury thermometer, in situ	
3	Salinity	Sal		Hickel, Wolfgang	Salinometer, inductive	
4	Secchi depth, water transparency	Secchi depth	m	Hickel, Wolfgang	Secchi disc	
5	Nitrate	NO3	µmol/l	Hickel, Wolfgang	Reduction by copper coated cadmium granulate	
6	Nitrite	[NO2]-	µmol/l	Hickel, Wolfgang	Photometer, azo-dye (Bendschneider & Robinson, 1952, J	
7	Ammonium	NH4	µmol/l	Hickel, Wolfgang	Photometer, DTT, modified (Grasshoff et al., 1983, Verlag Chemie GmbH Weinheim)	
8	Nitrogen, inorganic, dissolved	DIN	µmol/l	Hickel, Wolfgang	Calculated (sum of Nitrate, Nitrite, Ammonium)	
9	Phosphate	PO4	µmol/l	Hickel, Wolfgang	Photometer, molybdene blue, reduct ascorbic acid (Grasshoff, 1979, Chemie GmbH)	
10	Silicate	Si(OH)4	µmol/l	Hickel, Wolfgang	Photometer, beta-silicomolybdic acid, modified (Carlberg, 1972, ICES Res Rep 29)	
11	Phytoplankton	Phytopl	#/l	Hickel, Wolfgang	Quantitative phytoplankton method (Utermöhl, 1958)	
12	Diatoms	Diatoms	#/l	Hickel, Wolfgang	Quantitative phytoplankton method (Utermöhl, 1958)	
13	Flagellates	Flag	#/l	Hickel, Wolfgang	Quantitative phytoplankton method (Utermöhl, 1958)	
14	Phytoplankton, biomass as carbon	Phytopl C	µg/l	Hickel, Wolfgang	Quantitative phytoplankton method (Utermöhl, 1958)	
15	Diatoms, biomass as carbon	Diatom C	µg/l	Hickel, Wolfgang	Quantitative phytoplankton method (Utermöhl, 1958)	
16	Flagellates, biomass as carbon	Flagellate C	µg/l	Hickel, Wolfgang	Quantitative phytoplankton method (Utermöhl, 1958)	
17	Investigator	Investigator		Hickel, Wolfgang		

Size: 3792 data points

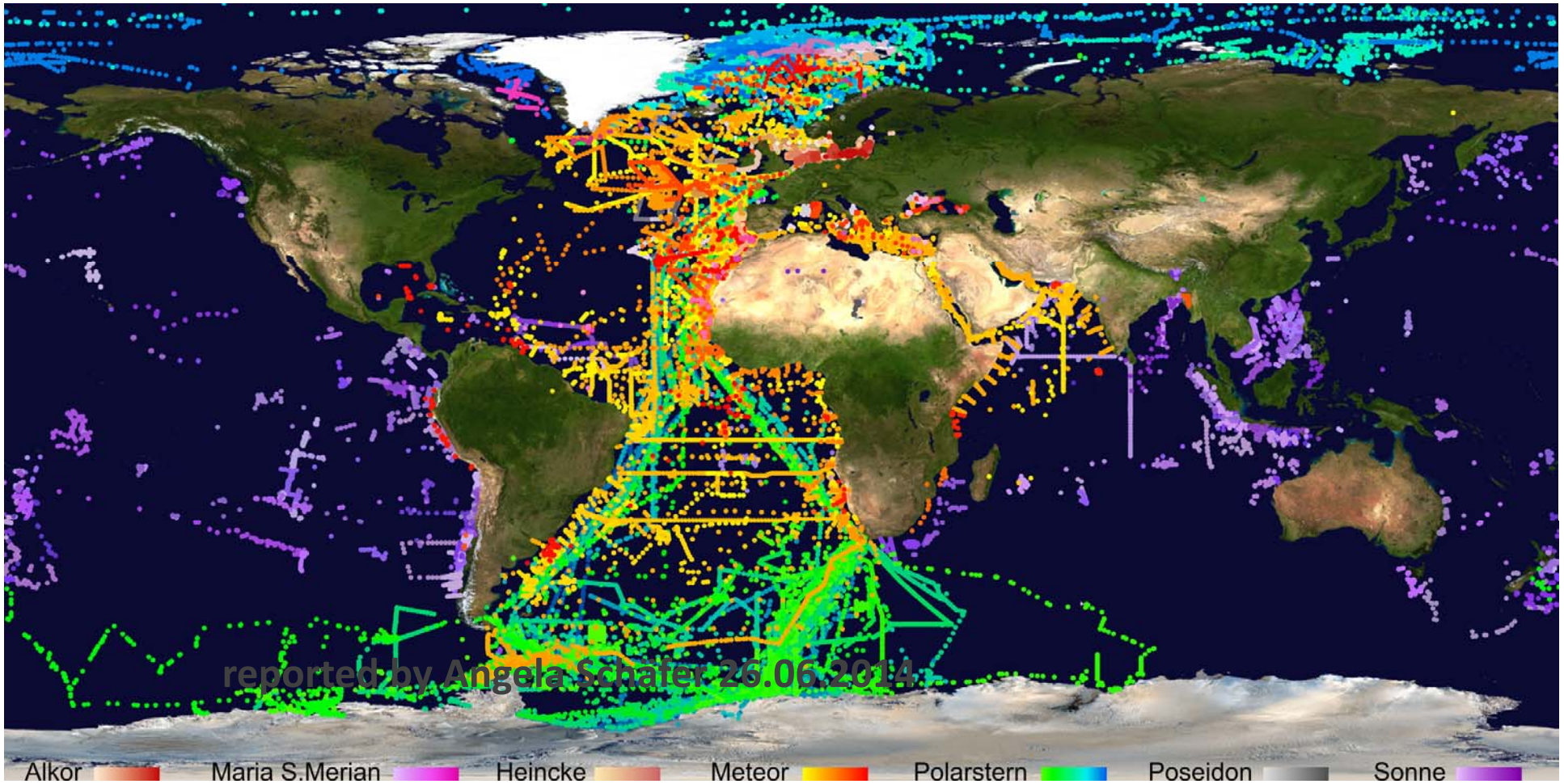
Data

Download dataset as tab-delimited text *(use the following character encoding:* ISO-8859-1: ISO Western (PANGAEA default) *)*

1 Date/Time	2 Temp [°C]	3 Sal	4 Secchi depth [m]	5 NO3 [µmol/l]	6 [NO2]- [µmol/l]	7 NH4 [µmol/l]	8 DIN [µmol/l]	9 PO4 [µmol/l]	10 Si(OH)4 [µmol/l]	11 Phytopl [#/l]	12 Diatoms [#/l]	13 Flag [#/l]	14 Phytopl C [µg/l]	15 Diatom C [µg/l]	16 Flagellate C [µg/l]	17 Investigator
1995-01-02T08:45	7.1	33.099	0.5	15.45	2.91	1.16	19.52	0.72	2.18	383560	2800	380760	5.146	0.516	4.630	Klaus Treutner

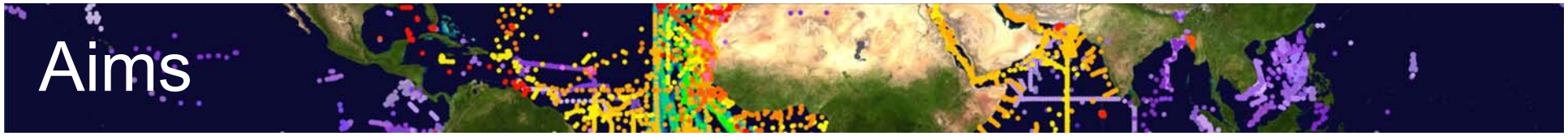
MaNIDA - Marine Network for Integrated Data Access

A national initiative to provide standardized content for e-infrastructures



reported by Angela Schäfer (AWI) 26.06.2014

Aims



- Central Search and access to research data via

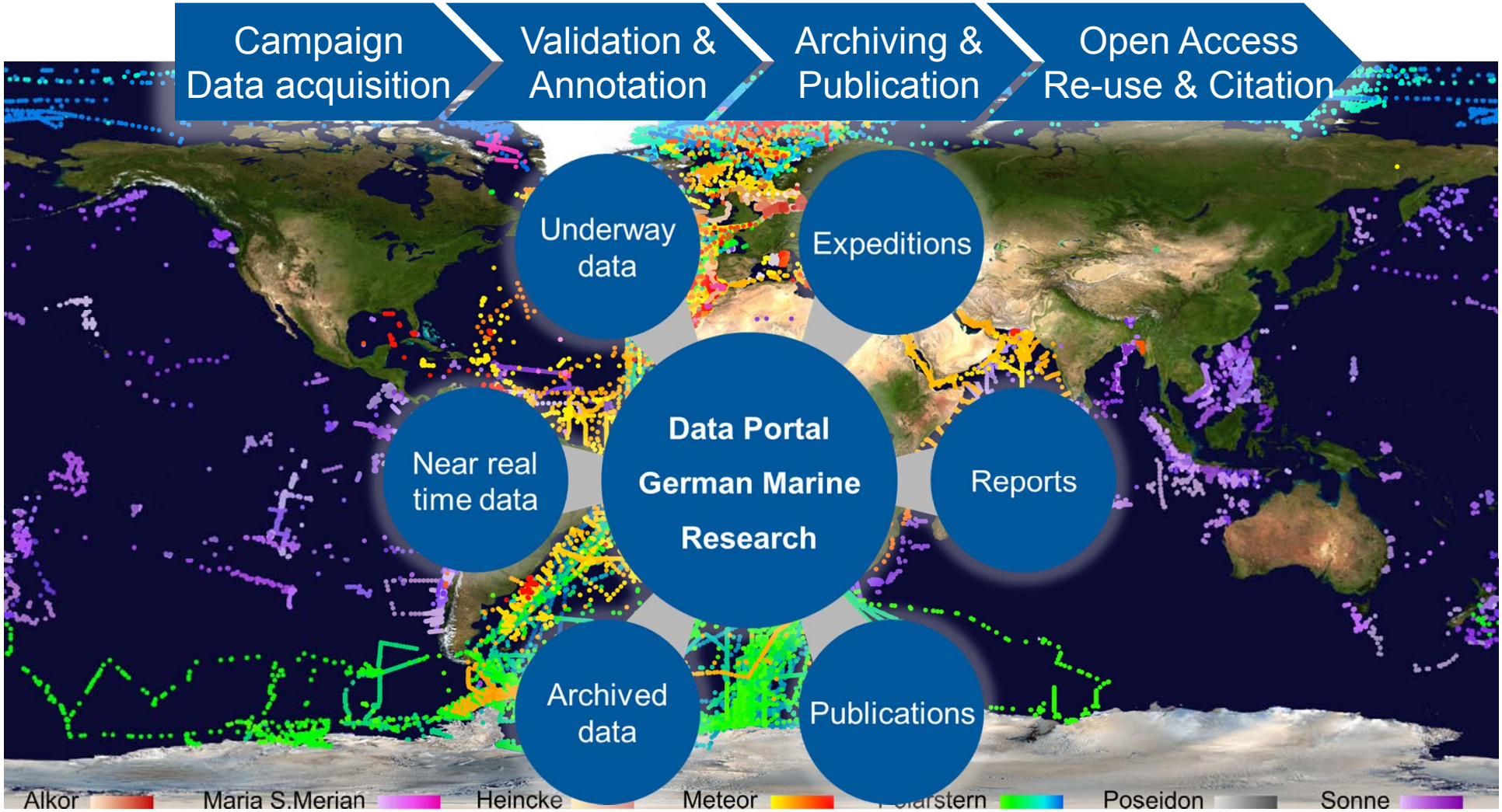
  „Data Portal German Marine Resaerch“

  - validated expedition information on German research vessels/platforms
  - archived, quality controlled primary data, NearRealTime data and products
  - citability and re-usabilty
  - linked to publications and reports

- Curation Center
  - support of workflows and user support (Ticketing System)
  - standardized vocabularies and ontologies
  - structured data management → repositories

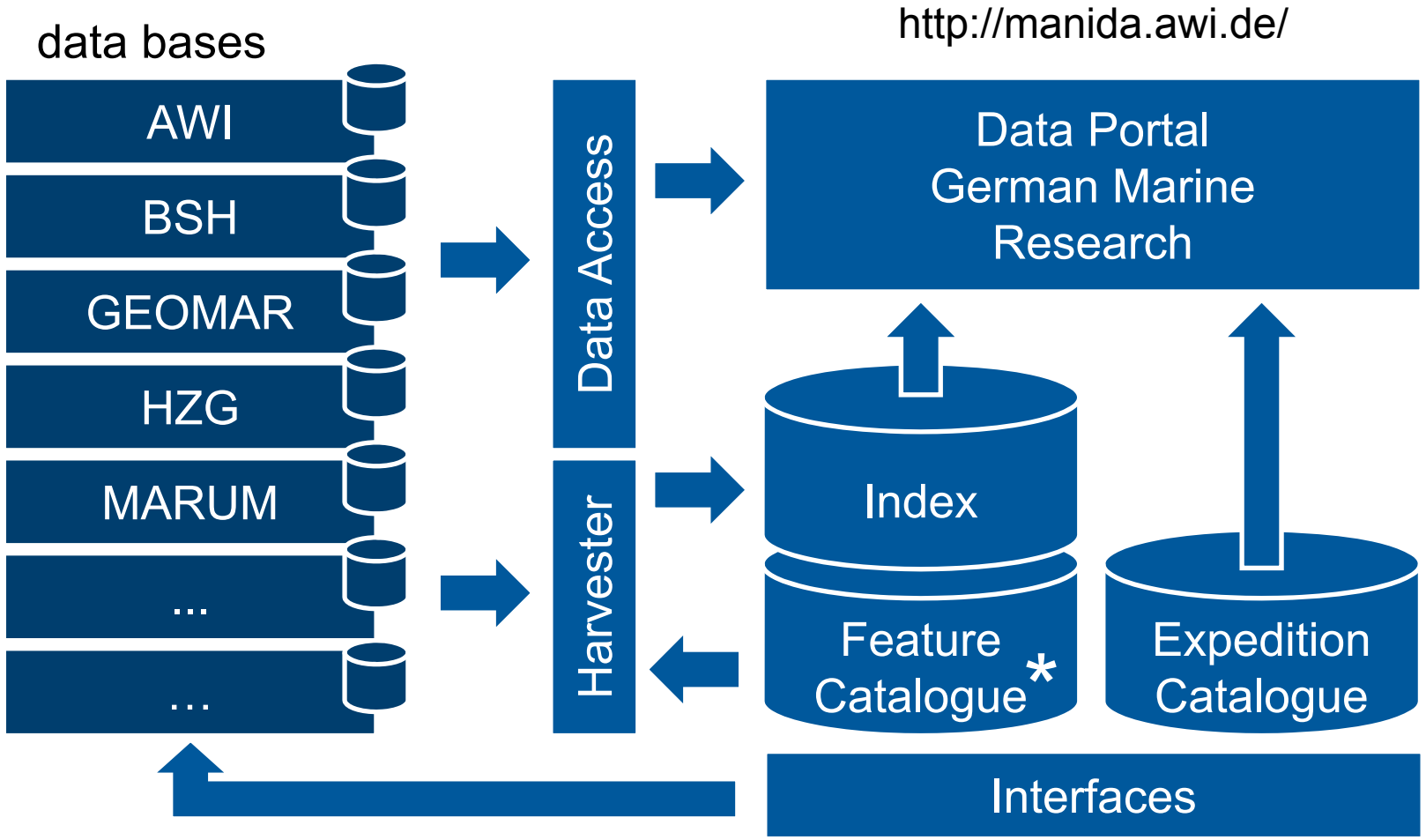
- Sustainable infrastructures and workflows
  - ship/NearRealTime → validation → repositories → data portal

MaNIDA – provision of data workflows and content



http://manida.awi.de/

Architecture



* harmonization of vocabularies, ontologies