Session 1 – Initial mapping of EMODnet data products to INSPIRE objects

Data Specifications

Andrej Abramić

ECOAQUA

www.ecoaqua.eu

EMODnet-INSPIRE technical workshop

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Research and Technology to enhance excellence in maritime development under an Ecosystem approach

UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA

CAMPUS ATLÁNTICO TRICONTINENTAL CANARIAS 2010/2015

Parque Científico Tecnológico

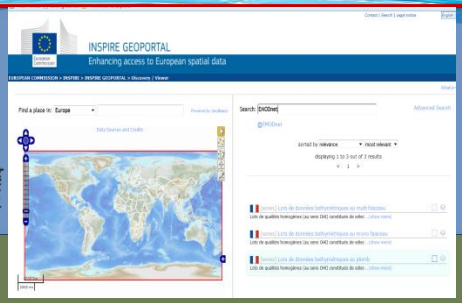
Grupo de Investigación en Acuicultura

Bioges

INSPIRE components

EMODnet
European Marine Observation and Data Network

Following INSPIRE principles
(**not 100% INSPIRE compliant**)



Geoportals and applications

Service Bus

Discovery Service | View Service | Download Service | Transformation Service

Other SDS | Registry Service

Portal level,
EMODnet level? Query Tool

…Licenses, negotiations

Spatial Data Services

Service Metadata | Data Set Metadata

Metadata following INSPIRE structure - ISO 19119

Metadata

Spatial Data Set

Interoperability Target Specifications

Harmonized data sets (products)

Data

Registers

SeaDataNet ?

In the scope of the JRC **Marine pilot** project

- **EMODnet-INSPIRE Meeting** 30/06/2015, JRC, Ispra

EMODnet European Marine Observation and Data Network

Provider of INSPIRE data

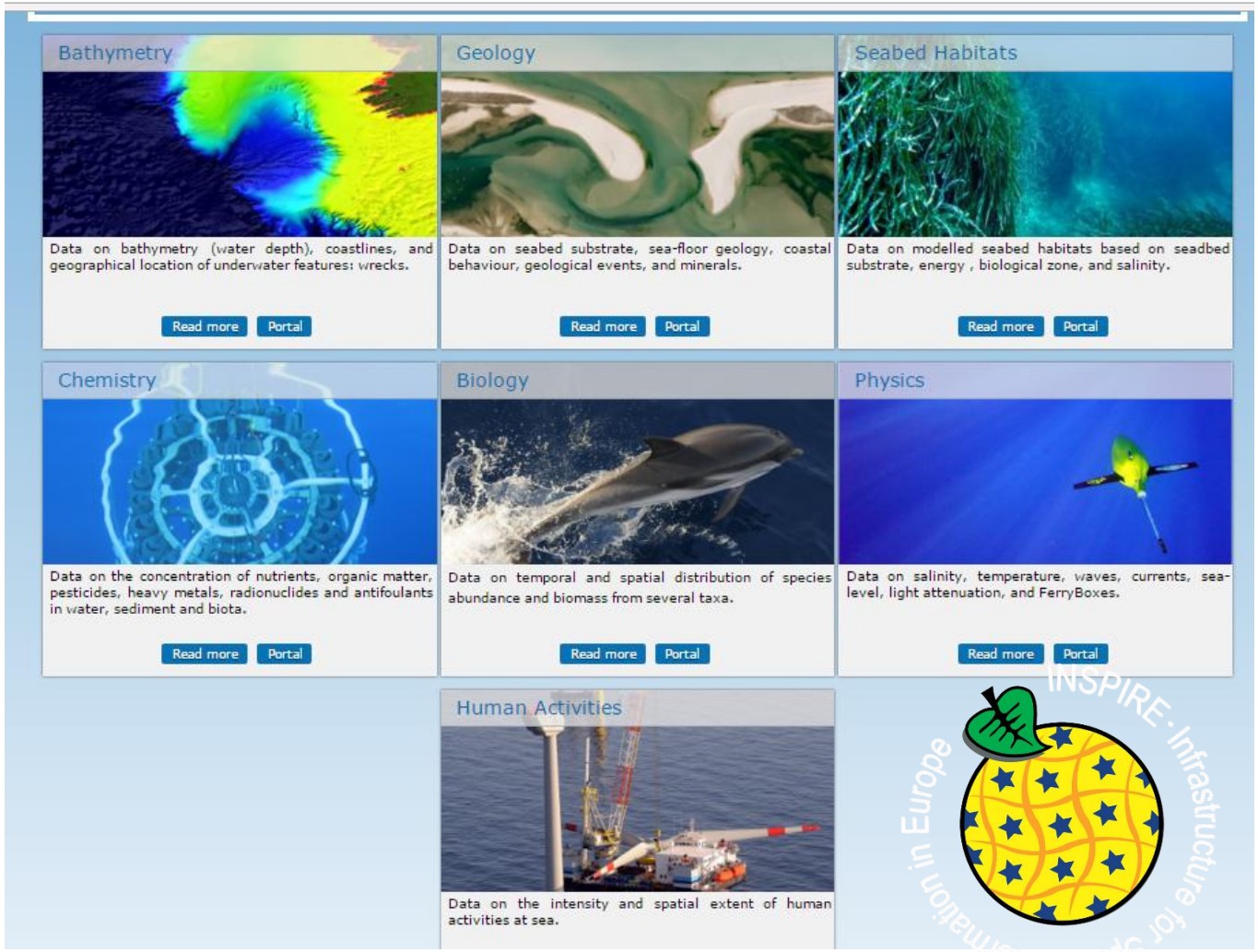
EMODnet European Marine Observation and Data Network

Receiver of INSPIRE data

EMODnet European Marine Observation and Data Network

"INSPIRE as a service"

Initial mapping

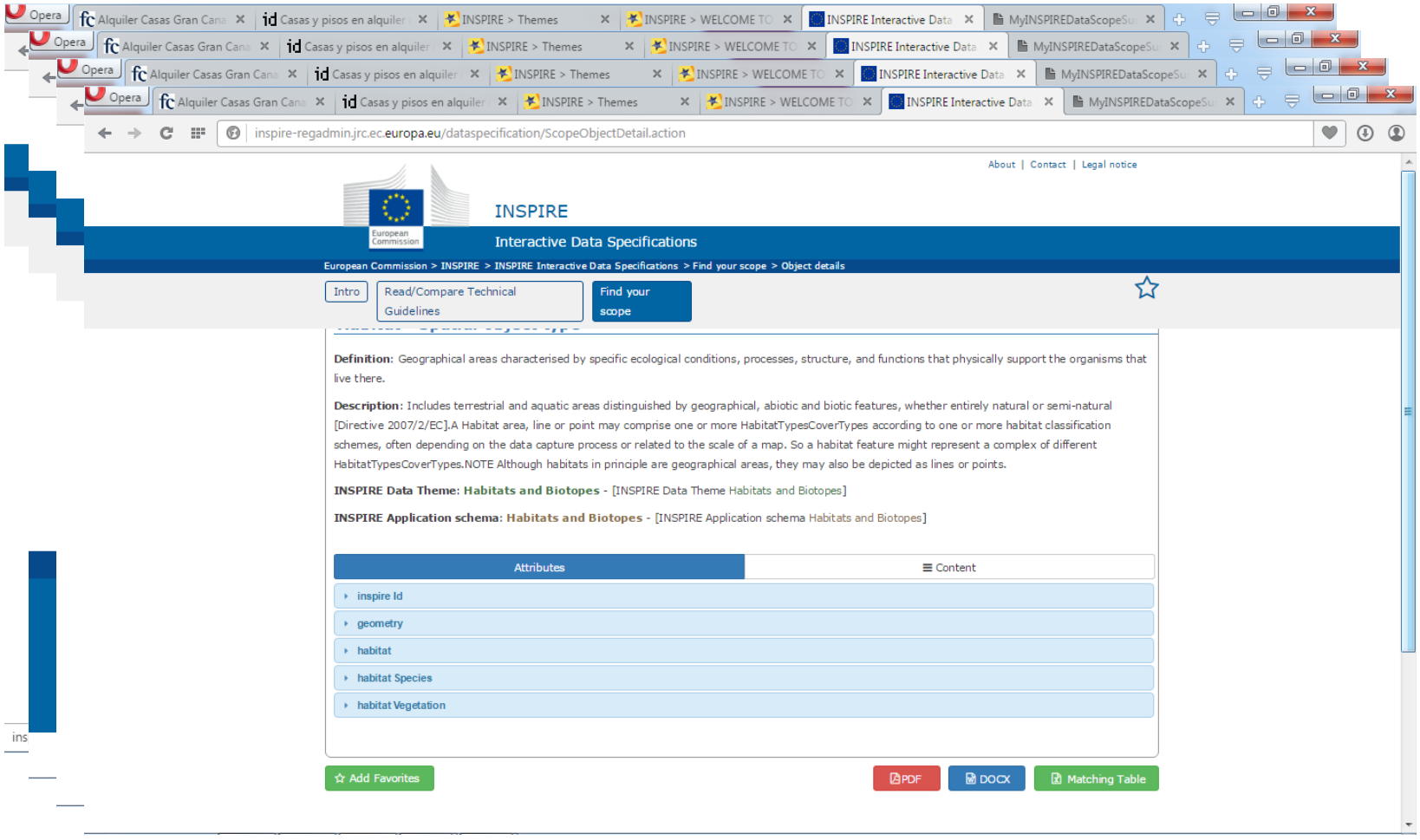


Draft of the EMODnet mapping

- Draft ¸is done using the **Interactive Data Specifications**
- EMODnet **products** that were available are mapped **into INSPIRE data model** on the level of the INSPIRE features – objects
- Mapping need to be **finalized by EMODnet**
- EMODnet data model of the product need to be analyzed against INSPIRE data model using the **Matching table** provided by Interactive Data Specifications

Interactive data specifications mapping

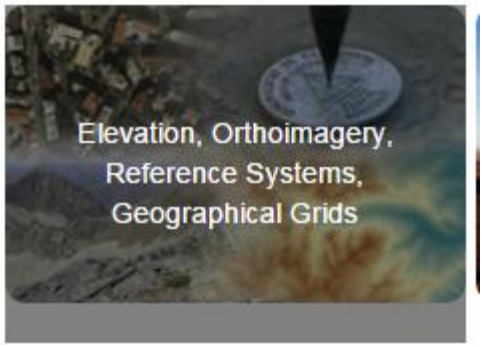
- Find your scope:



Bathymetry

EMODnet Bathymetry			
EMODnet product	**INSPIRE theme**	**Spatial Object**	**Comments**
coastlines	Sea Regions	CoastLine	
Sea Names	Sea Regions	Geographical name	
Depth contours	Elevation	ElevationVectorObject	
GEBECO Undersea Features	Geographical Names	NamedPlace	
Wrecks	Protected sites	ProtectedSite	
Source references			TBD
Survey tracks/polygons	Environmental Monitoring Facilities	EnvironmentalMonitoringActivity	
Land Geogarphy	Land cover	LandCoverDataset	
Mean depth	Elevation	ElevationGridCoverage	

- Depth contours, mean depth, survey tracks polygons



Physics

		EMODnet - Physics			
		EMODnet product	**INSPIRE theme**	**Spatial Object**	**Comments**
EMODnet - Physics	platform type	Argo floats	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
		drifting bouys	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
		ferrybox/ship	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
		gliders	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
		Morring time series	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
		profiling floats	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
		Radar	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
	parameters	Water Temperature	Oceanographic Geographical Features	PointTimeSeriesObservation	
		Waves and…	Oceanographic Geographical Features	PointTimeSeriesObservation	
		…and wind	Atmospheric Conditions and Meteorological Geographical Features	PointTimeSeriesObservation	
		Sea Level	Oceanographic Geographical Features	PointTimeSeriesObservation	
		Water Salinity/ Conductivity/ Density	Oceanographic Geographical Features	PointTimeSeriesObservation	
		Currents (time series)	Oceanographic Geographical Features	PointTimeSeriesObservation	
		Currents (covarage)	Oceanographic Geographical Features	GridSeriesObservation	
		Light Attenuation/ Absorpition/ Fluorescence/ Back Scattering	Oceanographic Geographical Features	PointTimeSeriesObservation	
		Atmosphere	Atmospheric Conditions and Meteorological Geographical Features	PointTimeSeriesObservation	
		Chemical Parameters	Oceanographic Geographical Features	PointTimeSeriesObservation	
		SEA BASIN	Sea Regions	Sea	
		DATA PROVIDERS	Environmental Monitoring Facilities		Included in the EF model
		INITIATIVES	Environmental Monitoring Facilities		Included in the EF model

- Platform type – EF's
- Parameters – Observations – point time series

Biology

EMODnet - Biology

		EMODnet product	INSPIRE theme	Spatial Object	Comments
EMODnet Biology		**Taxa:**			
		Benthos	Species Distribution	SpeciesDistributionUnit	
		Zooplankton	Species Distribution	SpeciesDistributionUnit	
		Phytoplankton	Species Distribution/Oceanographic Geographical Features	SpeciesDistributionUnit/PointTimeSeriesObservation	CHL a
		Fish	Species Distribution	SpeciesDistributionUnit	
		Birds	Species Distribution	SpeciesDistributionUnit	
		Mammals	Species Distribution	SpeciesDistributionUnit	
		Reptiles	Species Distribution	SpeciesDistributionUnit	
		Algae	Species Distribution	SpeciesDistributionUnit	
		Angiosperms	Species Distribution	SpeciesDistributionUnit	
		Data sets			
		Pigments	Oceanographic Geographical Features	GridSeriesObservation	
		Benthos	Species Distribution	SpeciesDistributionDataSet ,	
		Zooplankton	Species Distribution	SpeciesDistributionDataSet ,	
		Phytoplankton	Species Distribution	SpeciesDistributionDataSet ,	
		Fish	Species Distribution/Oceanographic Geographical Features	SpeciesDistributionDataSet/PointTimeSeriesObservation	CHL a (colour) is co
		Birds	Species Distribution	SpeciesDistributionDataSet ,	
		Mammals	Species Distribution	SpeciesDistributionDataSet ,	
		Reptiles	Species Distribution	SpeciesDistributionDataSet ,	
		Algae	Species Distribution	SpeciesDistributionDataSet ,	
		Angiosperms	Species Distribution	SpeciesDistributionDataSet ,	
		Administrative boundaries			
		EEZ	Administrative units	MaritimeZone	
		ICES Ecoregion & IHO Sea areas	Area Management Restriction and Regulation Zones	ManagementRestrictionOrRegulationZone	

- Data sets – mainly the Species distribution (Unit) – time series – observations
- On the “observation” cluster discussion on the Spices distribution VS O&M

Chemistry

		EMODnet - Chemistry			
		EMODnet product	**INSPIRE theme**	**Spatial Object**	**Comments**
EMODnet Chemistry		for all parameters			
		EMODNET Chemistry - Map Server /products	Oceanographic Geographical Features	GridSeriesObservation	
		EMODNET Chemistry - Dynamic Plots	Oceanographic Geographical Features	PointTimeSeriesObservation	
		EMODNET Chemistry - Static Plots	Oceanographic Geographical Features	PointTimeSeriesObservation	

- Mapping into OF theme –grid/point time series observations

Habitats

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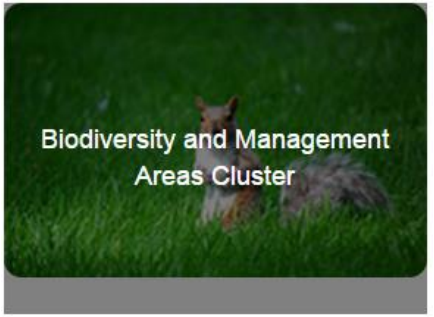
EMODnet -Habitats

		EMODnet product	INSPIRE theme	Spatial Object	Comments
EMODnet Seabed Habitats		**Broad-scale habitat mapping (EUSeaMap)**			
		Habitat maps (EUNIS-based)	Habitat and biotopes	Habitat	
		Habitat maps (simplified classification)	Habitat and biotopes	Habitat	
		Input physical data (categorised)	Sea regions	SeaBedArea	
		Input physical data (quantitative)	TBD		
		Baltic Sea bathymetry (2012)	Elevation	ElevationVectorObject	
		Baltic Sea water depth:secchi depth ratio (2012)	Oceanographic Geographical Features	GridObservation	
		Celtic & North Seas light at seabed (2012)	Oceanographic Geographical Features	GridObservation	
		W Med, Celtic & North Seas bathymetry	Elevation	ElevationGridCoverage	
		Confidence in boundaries (quantitative)	TBD		
		Confidence in data sources (qualitative)	TBD		
		EUNIS habitat maps from surveys			
		Habitat maps (polygons)	Habitat and biotopes	Habitat	
		Confidence in habitat maps	TBD		
		Study Areas			
		Survey sample points (UK)	Environmental Monitoring Facilities	EnvironmentalMonitoringFacility	
		Other habitat maps from surveys	no data		
		Modelled maps of specific habitats			
		Probability of coralligenous habitat (MEDISEH)	Habitat and biotopes	HabitatDistributionDataSet	
		Probability of maerl habitat (MEDISEH)	Habitat and biotopes	HabitatDistributionDataSet	
		Probability of Posidonia oceanica (MEDISEH)	Species Distribution	SpeciesDistributionUnit	
		OSPAR habitats (public reference dataset)	Habitat and biotopes	Habitat	
		Boundaries			
		EUSeaMap 1 regions	Bio-geographical Regions	Bio-geographicalRegion	
		ICES ecoregions	Bio-geographical Regions	Bio-geographicalRegion	
		MAIA project Marine Protected Areas	Protected sites	Protected site	
		MESH project area (2004-2008)	TBD	TBD	
		MESH regional seas	Bio-geographical Regions	Bio-geographicalRegion	



Human Activities

		EMODnet -Human activities			
		EMODnet product	**INSPIRE theme**	**Spatial Object**	**Comments**
Human Activities		Aggregate Extraction	Land (marine) use	Existing Land Use Object	HILUCS
		Cultural Heritage	Protected sites	Protected site	
		Dredging	Land (marine) use	Existing Land Use Object	HILUCS
		Environment/Protected areas	Protected sites	Protected site	
		Environment/State of bathing water	Oceanographic Geographical Features	Point Observation	
		Fishery Zones	Land (marine) use	Existing Land Use Object	
		Hydrocarbon Extraction	Land (marine) use	Existing Land Use Object	
		Main Ports	Transport networks	PortArea	
		Mariculture	Agricultural and Aquaculture Facilities	Holding	
		Ocean Energy Facilities	Energy resources	Renewable And Waste Resource	
		Other Forms of Area Management/Designation	Area Management, Restriction and Regulation Zones/AdministrativeUnits	Management Restriction or Regulation Zone/Maritime Units	
		Pipelines and Cables	Utility and Governmental Services	Duct	
		Waste Disposal	Land (marine) use	Existing Land Use Object	
		Wind Farms	Energy resources	Renewable And Waste Resource	

- All of the objects can be mapped with *Land/marine use* theme – as existing Land Use Object
- More precise mapping provided – depending on the data that are available

Geology

		EMODnet -Geology			
		EMODnet product	**INSPIRE theme**	**Spatial Object**	**Comments**
EMODnet Geology		Sediment accumulation rate	Geology		
		Sea-floor geology	Geology		
		Seabed lithology	Geology		
		Stratigraphy	Geology		
		Coastline migration	Geology		
		Aggregate resources	Geology		
		Geological events	Geology		

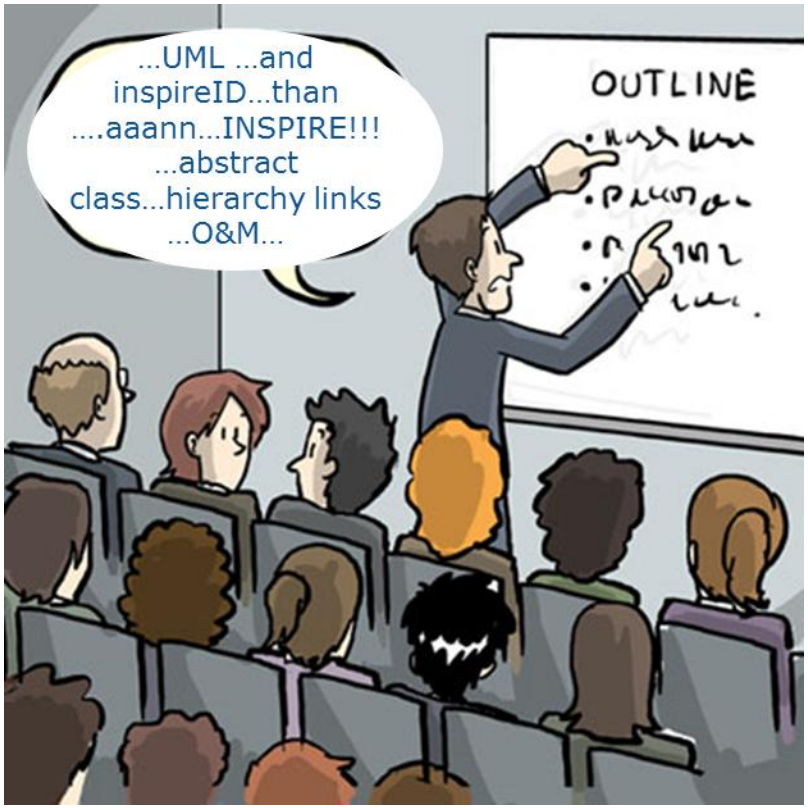
- Needed mapping on the spatial object level
- Geology theme is covering all objects

Mapping need to be finalized by EMODnet

Application Schema 'Sea Regions' (version 4.0)							Application Schema <provide name of the application schema>								
Type	Documentation	Attribute Association role Constraint	Attribute Association role Constraint documentation	Vaues/ Enumerations	Multiplicity	Voidable/ Non-voidable	Type	Documentation	Attribute Association role Constraint	Attribute Association role Constraint documentation	Vaues/ Enumerations	Multiplicity	Voidable/ Non-voidable	Status	Remarks
Coastline Subtype of: Shoreline Supertype of: Coastline	-- Definition -- A special case of a shoreline defined as the shoreline at Mean High Water (MHW). Where there is not significant variation in water level, Mean Sea Level (MSL) can be used as a substitute for MHW. -- Description -- This feature type is designed for the general use case where the land:sea boundary is required to support general discovery and viewing of datasets. It is not designed to infer any political boundaries. The	**segment - Shoreline**	A section of shoreline.	ShoreSegment	1...*										
		water Level - Shoreline	The water level used when defining this shoreline (e.g. meanHighWater)	WaterLevelValue	1	voidable									
		geographical Name - HydroObject	A geographical name that is used to identify a hydrographic object in the real world. It provides a 'key' for implicitly	GeographicalName	0...*	voidable									
		hydro Id - HydroObject	An identifier that is used to identify a hydrographic object in the real world. It provides a 'key' for implicitly associating	HydroIdentifier	0...*	voidable									
		coastline is special case of shoreline at Mean High Water Level	/*Coastline is a special case of shoreline at Mean High Water Level. Coastline is the boundary between land and sea to be used for viewing, discovery and general purpose applications where a land/marine boundary is required. Where there is not significant variation in water level, MSL can be used as a substitute for MHW */												

- Mapping with a Interactive data spec. provide Matching table of INSPIRE feature/object that should be analyzed VS EMODnet data model (sometimes available)
- Confirm the mapping for the transformation in the INSPIRE data model

Thank you for your attention



....and patience

andrej.abramic@ulpgc.es