



Offshore Wind Farms Geodatabase

Version 3

WP9 Data Management and Synthesis

Valentina Grande, Federica Foglini

CNR-ISMAR, Bologna, Italy

January 2016

Table of contents

1.	Introduction.....	1
2.	Geodatabase design	2
3.	Geodatabase architecture.....	3
3.1.	Feature Dataset– MeasurementSystems	3
3.1.1.	Feature Class: BuoyNetwork	3
3.1.2.	Feature Class: CoastalStation	4
3.1.3.	Feature Class: OffshorePlatform	4
3.1.4.	Feature Class: Satellite.....	5
3.2.	Feature Class: OffshoreWindFarmSite	5
3.3.	Feature Class: PotentialOffshoreWindFarmSite.....	6
3.4.	Feature Class: PotentialLocation	6
3.5.	FeatureClass: Turbine	7
3.6.	Raster catalog: BlackSeaWindModels	7
3.7.	Raster catalog: MediterraneanSeaWindModels	7
3.8.	Object Classes.....	8
3.8.1.	Object Class: Characteristics.....	8
3.8.2.	Object Class: SourceMethodType.....	8
3.8.3.	Object Class: RelatedParty.....	8
3.9.	Relationship Classes	9
4.	Metadata	15

ANNEX 1 – Acronyms and References

ANNEX 2 – Domains

ANNEX 3 – UML diagram

ANNEX 4 – Layer visualization

1. Introduction

CoCoNet is a European project that will produce guidelines to design, manage and monitor network of MPAs and Ocean Wind Farms. The Project covers a high number of Countries and involves researchers covering a vast array of subjects, developing a timely holistic approach and integrating the Mediterranean and Black Seas scientific communities through intense collective activities and a strong communication line with stakeholders and the public at large. Within this project we aim at providing a common framework for marine data management and final synthesis of the outcomes of different scientific topics from heterogeneous sources. An integrated Geodatabase and a WebGIS system will be the linking tool for all partners, regions and thematic research. It will involve the entire consortium at different levels in topics such as data provision and integration, GIS products, GIS interpretation, data archiving and data exchange. The work is organized around the following main objectives:

- assess the rules for data and metadata sharing between partners reviewing the existing common European protocols and standards (INSPIRE);
- design and implement data repositories (Marine Geodatabase) following the INSPIRE Directive, to store and retrieve the spatial data collected during the lifespan of the project for the Mediterranean and Black Sea areas and for the pilot study areas;
- develop the COCONET WebGIS to integrate the multi scale GIS layers derived from all regions going towards an integrated management of the marine resources;
- develop an analytical and evaluative framework for designing, managing and monitoring regional networks of MPAs, including wind farms, centered on science-based guidelines, criteria, concepts and models.

The CoCoNet project produced the architecture of thirteen Geodatabases storing data about the major themes starting from the INSPIRE Directive: Protected sites, Habitats and Biotopes, Threats, Geology, Biodiversity, Offshore Wind Farms, Elevation, Maritime Units, Biogeographical and Sea Regions, Oceanography, Socioeconomics, Connectivity, Habitat Mapping.

The final goal will be to deliver digital maps of networks of marine protected areas and offshore wind farms as final synthesis of the outcome from all scientific topics. The integrated Geodatabase will be a fundamental tool to produce the guidelines to design, manage and monitor network of MPAs, and an enriched wind atlas for both the Mediterranean and the Black Seas. The Project will identify groups of putatively interconnected MPAs in the Mediterranean and the Black Seas, shifting from local (single MPA) to regional (Networks of MPAs) and basin (network of networks) scales. The identification of physical and biological connections with clear the processes that govern patterns of biodiversity distribution. This will enhance policies of effective environmental management, also to ascertain if the existing MPAs are sufficient for ecological networking and to suggest how to design further protection schemes based on effective exchanges between protected areas.

2. Geodatabase design

The INSPIRE data model is the conceptual model which the Protected Sites Geodatabase is inspired. The logic model is built in Microsoft Visio 2007 using ESRI classes. The physical model is a ESRI File Geodatabase, with Feature Classes, Object Classes, Domains, Subtypes, Relationship Classes, Feature Dataset and RasterCatalogs.

Feature Class: a collection of geographic features with the same geometry type (such as point, line, or polygon), the same attributes, and the same spatial reference. Feature classes can be stored in geodatabases, shapefiles, coverages, or other data formats. Feature classes allow homogeneous features to be grouped into a single unit for data storage purposes. For example, highways, primary roads, and secondary roads can be grouped into a line feature class named "roads." In a geodatabase, feature classes can also store annotation and dimensions

Object Class: In a geodatabase, a collection of nonspatial data of the same type or class. While spatial objects (features) are stored in feature classes in a geodatabase, nonspatial objects are stored in object classes.

Relationship Class: An item in the geodatabase that stores information about a relationship. A relationship class is visible as an item in the ArcCatalog tree or contents view.

Domains: The range of valid values for a particular metadata element.

Code Value Domain: A type of attribute domain that defines a set of permissible values for an attribute in a geodatabase. A coded value domain consists of a code and its equivalent value. For example, for a road feature class, the numbers 1, 2, and 3 might correspond to three types of road surface: gravel, asphalt, and concrete. Codes are stored in a geodatabase, and corresponding values appear in an attribute table.

Subtype: In geodatabases, a subset of features in a feature class or objects in a table that share the same attributes. For example, the streets in a streets feature class could be categorized into three subtypes: local streets, collector streets, and arterial streets. Creating subtypes can be more efficient than creating many feature classes or tables in a geodatabase.

Feature Dataset: In ArcGIS, a collection of feature classes stored together that share the same spatial reference; that is, they share a coordinate system, and their features fall within a common geographic area. Feature classes with different geometry types may be stored in a feature dataset.

Raster Catalog: A collection of raster datasets defined in a table of any format, in which the records define the individual raster datasets that are included in the catalog. Raster catalogs can be used to display adjacent or overlapping raster datasets without having to mosaic them together into one large file (<http://support.esri.com/en/knowledgebase/GISDictionary/term/object%20class>).

The Offshore Wind Farms Geodatabase stores spatial data (vector, grid and raster) and nonspatial data.

The structure with data of the Geodatabase is available as .xml file, OGC services (WFS, WMS) and in the Google Earth file format (.kmz).

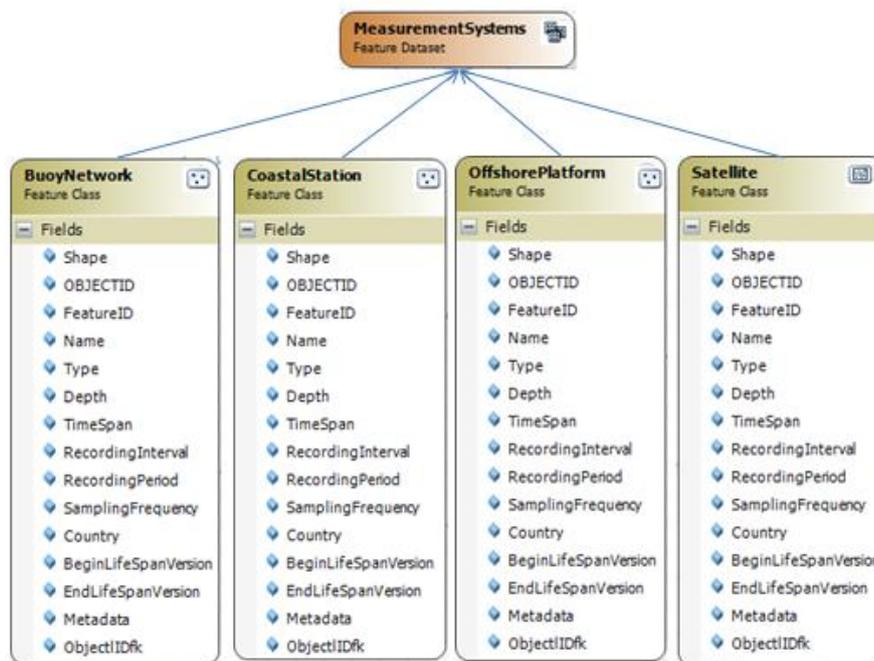
3. Geodatabase architecture

The Offshore Wind Farms Geodatabase consists of one Feature Dataset, named MeasurementSystem (BuoyNetwork, CoastalStation, OffshorePlatform, Satellite) and four Feature Classes (OffshoreWindFarmSite, Potential Location, PotentialOffshoreWindFarmSite, Turbine), the Feature Dataset and the Feature Classes are used to store vector data. For managing raster data, two Raster Catalog are present in the Geodatabase, named BlackSeaWindModels and MediterraneanSeaWindModels. In the Geodatabase there are three tables: Characteristics, RelatedParty and SourceMethodType. The tables are linked to the Feature Classes though Relationship Classes. Domains and Subtypes are present in the Feature Classes and in the Object Classes.

3.1. Feature Dataset- MeasurementSystems

The Feature Dataset collects the Feature Classes related to the measurement system, that is buoy networks, coastal stations, offshore platforms and areas acquired by satellite. Other systems can be added to the dataset.

GeometryType: abstract



3.1.1. Feature Class: BuoyNetwork

Networks of buoys dedicated to collect information about wind.

GeometryType: point

Field	Type	Restriction	Description
FeatureID	String	None	The identification string of the measurement object
Name	String	None	Name of the measurement object
Type	String	None	Type of the measurement object
Depth	Double	None	Depth where the measurement object is situated
TimeSpan	String	None	Time from which the system is active

RecordingInterval	Double	None	Interval with which the data have been recorded
RecordingPeriod	Double	None	Period in which the data have been recorded
SamplingFrequency	Double	None	Frequency of sampling of the data
Country	String	Code Value Domain	Country where the measurement object is situated (land or EEZ)
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.1.2. Feature Class: CoastalStation

Sampling station on the coast dedicated to collect information about wind.

GeometryType: point

Field	Type	Restriction	Description
FeatureID	String	None	The identification string of the measurement object
Name	String	None	Name of the measurement object
Type	String	None	Type of the measurement object
Depth	Double	None	Depth where the measurement object is situated
TimeSpan	String	None	Time from which the system is active
RecordingInterval	Double	None	Interval with which the data have been recorded
RecordingPeriod	Double	None	Period in which the data have been recorded
SamplingFrequency	Double	None	Frequency of sampling of the data
Country	String	Code Value Domain	Country where the measurement object is situated (land or EEZ)
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.1.3. Feature Class: OffshorePlatform

Offshore platforms dedicated to collect information about wind.

GeometryType: point

Field	Type	Restriction	Description
FeatureID	String	None	The identification string of the measurement object
Name	String	None	Name of the measurement object
Type	String	None	Type of the measurement object
Depth	Double	None	Depth where the measurement object is situated
TimeSpan	String	None	Time from which the system is active
RecordingInterval	Double	None	Interval with which the data have been recorded
RecordingPeriod	Double	None	Period in which the data have been recorded
SamplingFrequency	Double	None	Frequency of sampling of the data
Country	String	Code Value	Country where the measurement object is situated

		Domain	(land or EEZ)
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.1.4. Feature Class: Satellite

Areas where data have been acquired by satellite.

GeometryType: polygon

Field	Type	Restriction	Description
FeatureID	String	None	The identification string of the measurement object
Name	String	None	Name of the measurement object
Type	String	None	Type of the measurement object
Depth	Double	None	Depth where the measurement object is situated
TimeSpan	String	None	Time from which the system is active
RecordingInterval	Double	None	Interval with which the data have been recorded
RecordingPeriod	Double	None	Period in which the data have been recorded
SamplingFrequency	Double	None	Frequency of sampling of the data
Country	String	Code Value Domain	Country where the measurement object is situated (land or EEZ)
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.2. Feature Class: OffshoreWindFarmSite

Areas where Offshore Wind Farms have been installed.

GeometryType: polygon

Field	Type	Restriction	Description
SiteID	String	None	Identification string of the OWF site
Name	String	None	Name of the OWF site
Country	String	Code Value Domain	Country where the OWF is situated
CapacityMW	Double	None	Capacity of the OWF installation measured in megawatt (MW)
Area_m2	Double	None	Area covered by the OWF site measured in square meters (m2)
MinWaterDepth_m	Double	None	Minimum water depth in the area of installation measured in meters
MaxWaterDepth_m	Double	None	Maximum water depth in the area of installation measured in meters
CommissionYear	Integer	None	Year in which the installation has been

			commissioned
DevelopmentStatus	String	None	Status of development of the installation
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.3. Feature Class: PotentialOffshoreWindFarmSite

Areas where Offshore Wind Farms could be installed.

GeometryType: polygon

Field	Type	Restriction	Description
SiteID	String	None	Identification string of the OWF site
Name	String	None	Name of the OWF site
Country	String	Code Value Domain	Country where the OWF is situated
CapacityMW	Double	None	Capacity of the OWF installation measured in megawatt (MW)
Area_m2	Double	None	Area covered by the OWF site measured in square meters (m2)
MinWaterDepth_m	Double	None	Minimum water depth in the area of installation measured in meters
MaxWaterDepth_m	Double	None	Maximum water depth in the area of installation measured in meters
DevelopmentStatus	String	None	Status of development of the installation
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.4. Feature Class: PotentialLocation

Areas where some parameters are favorable to realize a OWF site.

GeometryType: polygon

Field	Type	Restriction	Description
FeatureID	String	None	Identification string of the object
Country	String	Code Value Domain	Country where the potential location is situated
Parameters	String	None	Parameters that are favorable to the installation in that location
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was

			inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.5. FeatureClass: Turbine

Turbines distribution inside the OWF site.

GeometryType: point

Field	Type	Restriction	Description
SiteIDfk	String	None	Identification string of the OWF site at which the turbine belongs
TurbineID	String	None	Identification string of the turbine
WaterDepth_m	Double	None	Water depth in the point of the turbine position measured in meters
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.6. Raster catalog: BlackSeaWindModels

This Raster Catalog stores all the raster mosaics about the wind and involving the Black Sea region, for example, wind speed and wind energy.

GeometryType: polygon

Field	Type	Restriction	Description
Raster	Raster	None	Field that stores the raster mosaic
Name	String	None	Name of the raster mosaic
RasterID	String	None	The identification string of the raster mosaic
Variable	String	None	The variable represented, the Z component of the raster mosaic
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.7. Raster catalog: MediterraneanSeaWindModels

This Raster Catalog stores all the raster mosaics about the wind and involving the Mediterranean Sea region, for example, wind speed and wind energy.

GeometryType: polygon

Field	Type	Restriction	Description
-------	------	-------------	-------------

Raster	Raster	None	Field that stores the raster mosaic
Name	String	None	Name of the raster mosaic
RasterID	String	None	The identification string of the raster mosaic
Variable	String	None	The variable represented, the Z component of the raster mosaic
Metadata	String	None	The name of the metadata file available on the SeaDataNet repository
BeginLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was inserted or changed in the spatial data set
EndLifespanVersion	Date	DD/MM/YYYY	Date at which this version of the spatial object was superseded or retired in the spatial data set

3.8. Object Classes

3.8.1. Object Class: Characteristics

Characteristics that describe the Offshore Wind Farm site or the turbine, for example number of turbines in the case of the OWF site or the aerogenerator power in the case of a turbine.

Field	Type	Restriction	Description
ObjectIDfk	String	None	Identification string of the object. The field is used as foreign key
Characteristic	String	Code Value Domain	Parameter, variable or descriptor to which the value in the field "Value" refers
Value	String	None	Value of the parameter in the field "Characteristic"
UnitOf Measure	String	None	Unit of measure of the value in the field "Value"

3.8.2. Object Class: RelatedParty

An organization or a person with a role related to a resource (INSPIRE Directive, r4618).

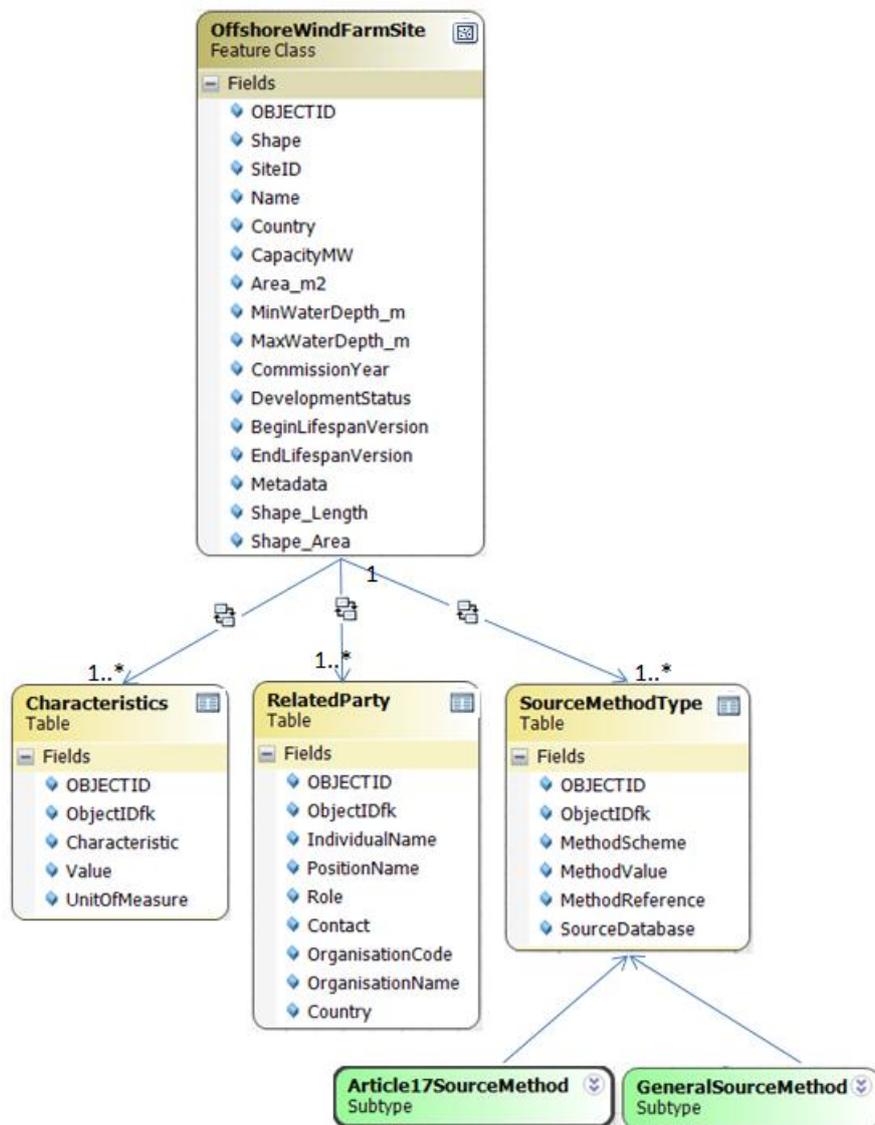
Field	Type	Restriction	Description
ObjectIDfk	String	None	Identification string of the object. The field is used as foreign key.
IndividualName	String	None	Name of the related party (INSPIRE Directive, r4618).
PositionName	String	None	Position of the party in relation to a resource, such as head of department (INSPIRE Directive, r4618).
Role	String	Code Value Domain	Role(s) of the party in relation to a resource, such as owner (INSPIRE Directive, r4618).
Contact	String	None	Contact information for the related party (INSPIRE Directive, r4618).
OrganizationCode	String	None	Code of the related organization (INSPIRE Directive, r4618).
OrganizationName	String	None	Name of the related organization (INSPIRE Directive, r4618).
Country	String	Code Value Domain	Country of the related organization (INSPIRE Directive, r4618).

3.8.3. Object Class: SourceMethodType

Contains metadata about specific instances of the object. Refers to the methods on how observations have been made or recorded (INSPIRE Directive, r4618).

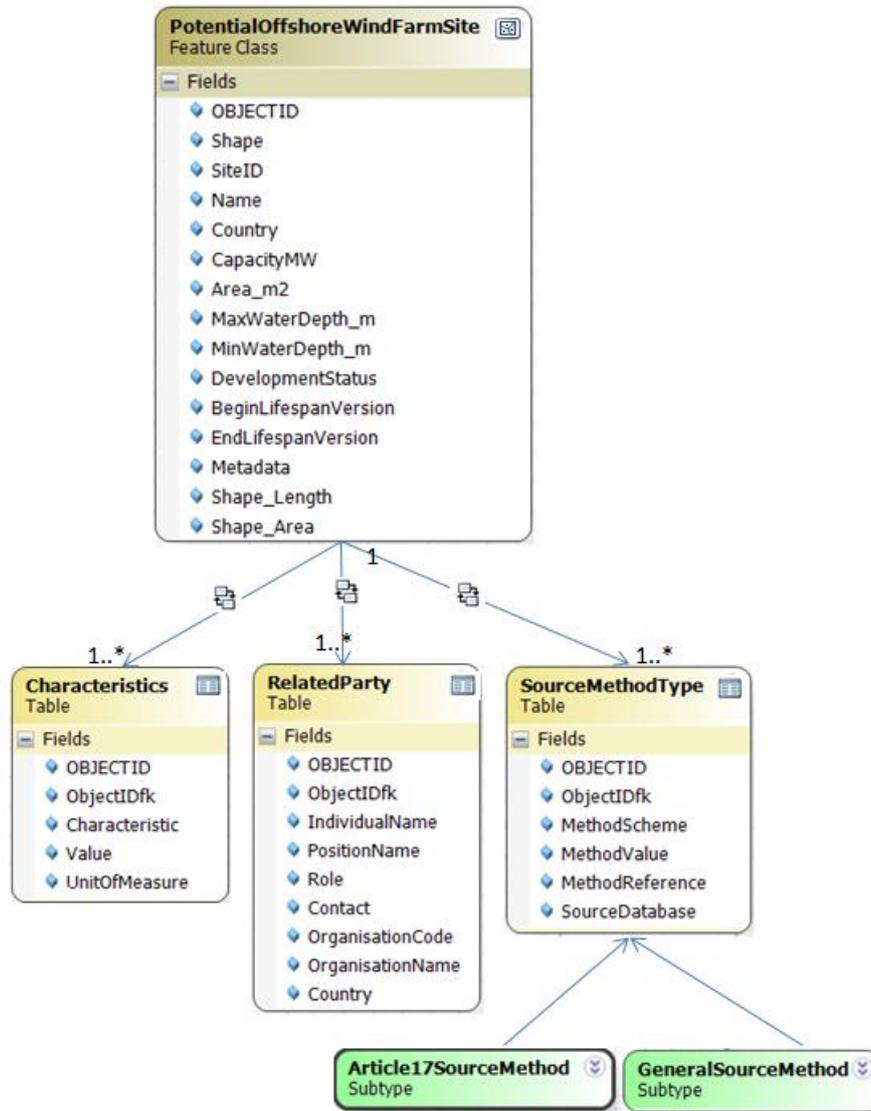
Field	Type	Restriction	Description
ObjectIDfk	String	None	Identification string of the object. The field is used as foreign key.
MethodScheme	String	Subtype	Scheme used to compiling the Method Value field (Article17SourceMethodValue or GeneralSourceMethod) (INSPIRE Directive, r4618).
MethodValue	String	Code Value omain	Method by which the data is collected (INSPIRE Directive, r4618).
MethodReference	String	None	A reference to a description of the method by which the data on the object is collected (INSPIRE Directive, r4618).
SourceDatabase	String	None	Name of the database where the data is retrieved from (INSPIRE Directive, r4618).

3.9. Relationship Classes

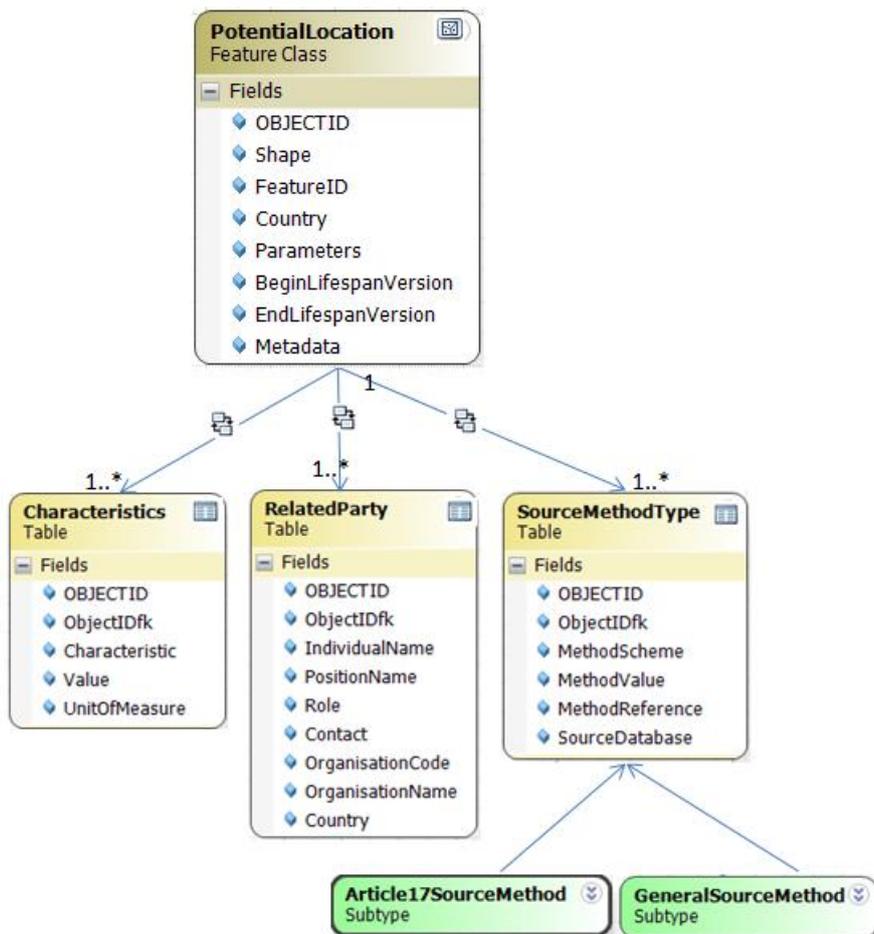


Name	Multiplicity	Origin class	Destination class	Primary key	Foreign key
OffshoreWindFarmSiteHas	1→1..*	OffshoreWind	SourceMethodType	SiteID	ObjectIDfk

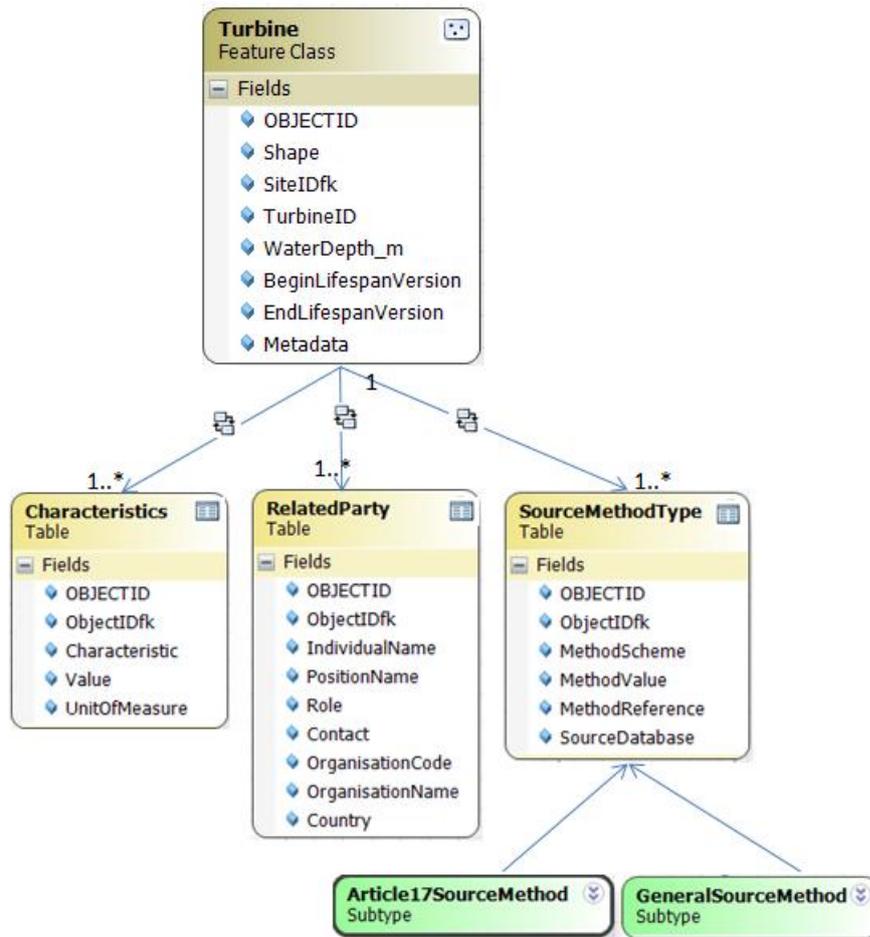
SourceMethodType		FarmSite			
OffshoreWindFarmSiteHas RelatedParty	1→1..*	OffshoreWind FarmSite	RelatedParty	SiteID	ObjectdIDfk
OffshoreWindFarmSiteHas Characteristics	1→1..*	OffshoreWind FarmSite	Characteristics	SiteID	ObjectdIDfk



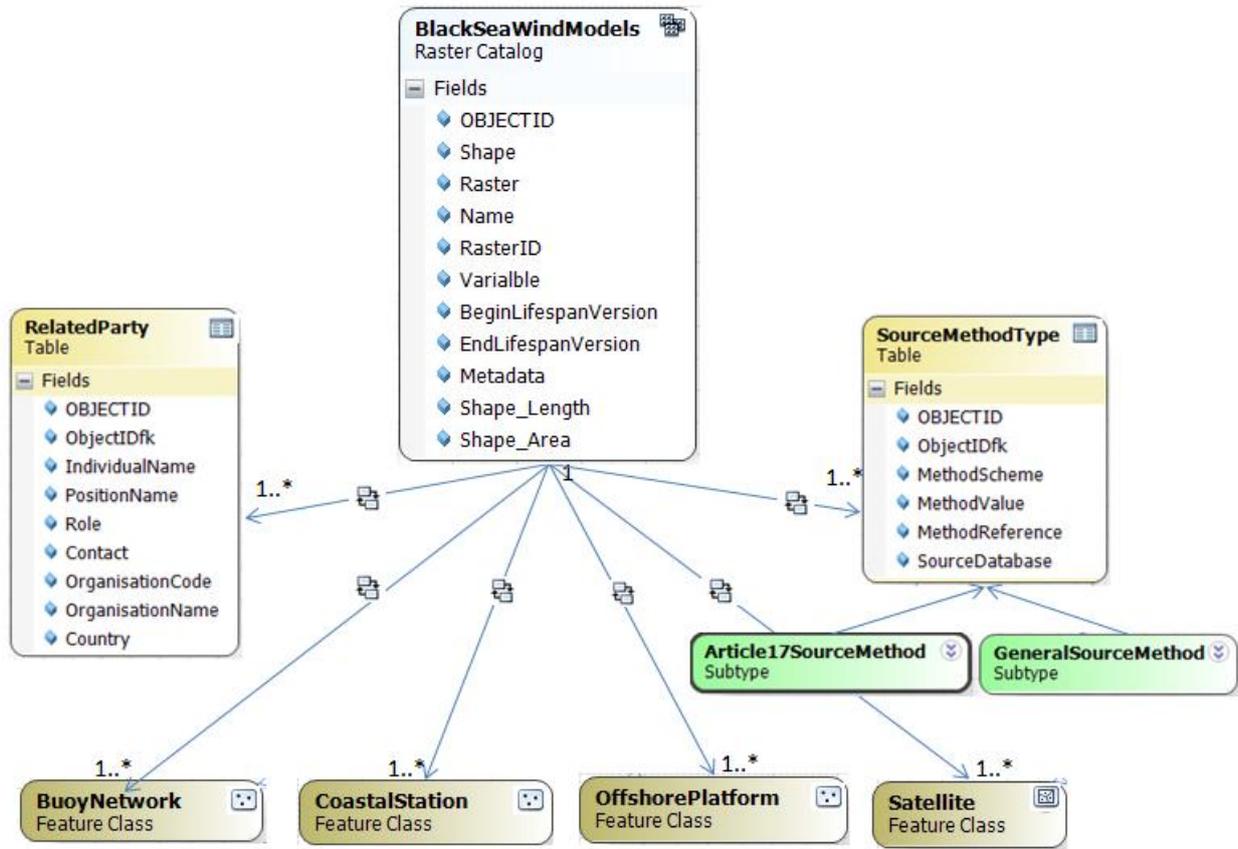
Name	Multiplicity	Origin class	Destination class	Primary key	Foreign key
PotentialOffshore WindFarmSiteHas SourceMethodType	1→1..*	PotentialOffshore WindFarmSite	SourceMethodType	SiteID	ObjectdIDfk
PotentialOffshore WindFarmSiteHas RelatedParty	1→1..*	PotentialOffshore WindFarmSite	RelatedParty	SiteID	ObjectdIDfk
PotentialOffshore WindFarmSiteHas Characteristics	1→1..*	PotentialOffshore WindFarmSite	Characteristics	SiteID	ObjectdIDfk



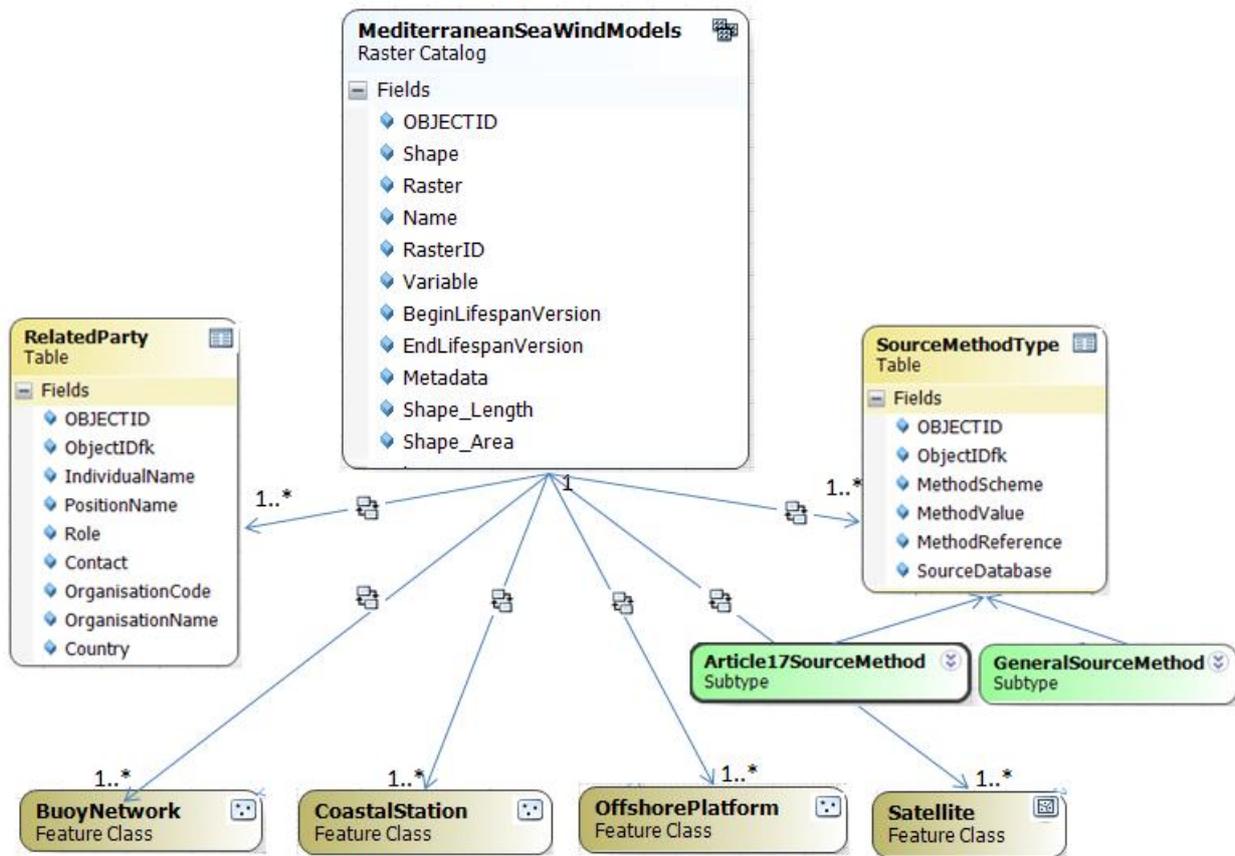
Name	Multiplicity	Origin class	Destination class	Primary key	Foreign key
PotentialLocationHas SourceMethodType	1→1..*	PotentialLocation	SourceMethodType	SiteID	ObjectdIDfk
PotentialLocationHas RelatedParty	1→1..*	PotentialLocation	RelatedParty	SiteID	ObjectdIDfk
PotentialLocationHas Characteristics	1→1..*	PotentialLocation	Characteristics	SiteID	ObjectdIDfk



Name	Multiplicity	Origin class	Destination class	Primary key	Foreign key
TurbineHas SourceMethodType	1→1..*	Turbine	SourceMethodType	TurbineID	ObjectdIDfk
TurbineHas RelatedParty	1→1..*	Turbine	RelatedParty	TurbineID	ObjectdIDfk
TurbineHas Characteristics	1→1..*	Turbine	Characteristics	TurbineID	ObjectdIDfk



Name	Multiplicity	Origin class	Destination class	Primary key	Foreign key
BlackSeaWindModels HasBuoyNetwork	1→1..*	BlackSeaWindModels	BuoyNetwork	RasterID	Objectd IDfk
BlackSeaWindModels HasCoastalStation	1→1..*	BlackSeaWindModels	CoastalStation	RasterID	Objectd IDfk
BlackSeaWindModels HasOffshorePlatform	1→1..*	BlackSeaWindModels	OffshorePlatform	RasterID	Objectd ID fk
BlackSeaWindModels HasSatellite	1→1..*	BlackSeaWindModels	Satellite	RasterID	Objectd ID fk
BlackSeaWindModels HasSourceMethodType	1→1..*	BlackSeaWindModels	SourceMethodType	RasterID	Objectd IDfk
BlackSeaWindModels HasRelatedParty	1→1..*	BlackSeaWindModels	RelatedParty	RasterID	Objectd IDfk



Name	Multiplicity	Origin class	Destination class	Primary key	Foreign key
MediterraneanSea WindModelsHas BuoyNetwork	1→1..*	MediterraneanSea WindModels	BuoyNetwork	RasterID	ObjectdID fk
MediterraneanSea WindModelsHas CoastalStation	1→1..*	MediterraneanSea WindModels	CoastalStation	RasterID	ObjectdID fk
MediterraneanSea WindModelsHas OffshorePlatform	1→1..*	MediterraneanSea WindModels	OffshorePlatform	RasterID	ObjectdID fk
MediterraneanSea WindModelsHas Satellite	1→1..*	MediterraneanSea WindModels	Satellite	RasterID	ObjectdID fk
MediterraneanSea WindModelsHas SourceMethodType	1→1..*	MediterraneanSea WindModels	SourceMethodType	RasterID	ObjectdIDfk
MediterraneanSea WindModelsHas RelatedParty	1→1..*	MediterraneanSea WindModels	RelatedParty	RasterID	ObjectdIDfk

4. Metadata

In the framework of the CoCoNet project, metadata are produced by Mikado software. Each Feature Class and raster layer has a CDI (Common Data Index) accessible through the SeaDataNet portal:

http://seadatanet.maris2.nl/v_cdi_v3/search.asp

The user of the WebGIS platform can find the name of the metadata file, which the object refers, in the field named "Metadata" in the attribute table.

The metadata for this Geodatabase are also in the CoCoNet Geoportal for metadata:

<http://gp.sea.gov.ua:8082/geoportal/>

ANNEX 1

Acronyms

CDI – Common Data Index

EEZ – Exclusive Economic Zone

FC – Feature Class

FD – Feature Dataset

fk – foreign key

kmz - Keyhole Markup Language

OC - Object Class

OWF – Offshore Wind Farm

xml – eXtensible Markup Language

References

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

D2.5: Generic Conceptual Model, Version 3.4 (D2.5_v3.4)

<http://inspire.ec.europa.eu/data-model/approved/r4618-ir/html/>

<http://coconetgis.ismar.cnr.it/>

http://seadatanet.maris2.nl/v_cdi_v3/search.asp

<http://gp.sea.gov.ua:8082/geoportal/>

ANNEX 2 – Domains

Article17SourceMethodValue_v3

Type: Code Value Domain

Description: The methods that have been used in the sources for compiling the information for article 17 purposes. Describes how the information has been compiled (INSPIRE Directive, r4618-ir)

Value	Code	Definition
Absent data	absentData	Absent data (INSPIRE Directive, r4618-ir)
Complete survey	completeSurvey	Complete survey (INSPIRE Directive, r4618-ir)
Estimate expert	estimateExpert	Estimate based in expert opinion with no or minimal sampling (INSPIRE Directive, r4618-ir)
Estimate partial	estimatePartial	Estimate based on partial data with some extrapolation and/or modeling (INSPIRE Directive, r4618-ir)

Created: 20/05/2015

Modified: none

Author: CNR-ISMAR

State: approved

Used in: SourceMethodType (OC)

Extensibility: none

Note 1: The values of the list are found here:

[http://circa.europa.eu/Public/irc/env/monnat/library?l=/habitats_reporting/reporting_2007-2012/reporting_guidelines/reporting-formats_1/_EN_1.0_&a=d \(D2.8.II.1_v3.0\)](http://circa.europa.eu/Public/irc/env/monnat/library?l=/habitats_reporting/reporting_2007-2012/reporting_guidelines/reporting-formats_1/_EN_1.0_&a=d (D2.8.II.1_v3.0))

CharacteristicsValue_v3

Type: Code Value Domain

Description: parameters, variables and descriptors that describe a OWF site or a turbine

Value	Code	Definition
Number of turbines	numberOfTurbines	
Aerogenerator power	aerogeneratorPower	
Number of covered utilities	numberOfCoveredUtilities	
Distance between turbines	distanceBetweenTurbines	
Total installed capacity	totalInstalledCapacity	
Distance from shore	distanceFromShore	
Annual estimated production	annualEstimatedProduction	
Annual production	annualProduction	
Capacity factor	capacityFactor	
Implant type	implantType	
Turbine manufacturer	turbineManufacturer	
Turbine model	turbineModel	
Rated power per turbine	ratedPowerPerTurbine	
Estimated watt per rotor	estimatedWattPerRotor	
Design life	designLife	
Cut in wind speed	cutInWindSpeed	
Operational temperature	operationalTemperature	
Rotor type	rotorType	
Rotor position	rotorPosition	
Rotor diameter	rotorDiameter	
Rotor area	rotorArea	
Rotor speed min	rotorSpeedMin	
Rotor speed rated	rotorSpeedRated	

Rotor speed max	rotorSpeedMax	
Rotor weight incl hub	rotorWeightInclHub	
Hub heigh above MSL	hubHeighAboveMSL	
Blade tip speed rated	bladeTipSpeedRated	
Blade tip speed max	bladeTipSpeedMax	
Blade tip height above MSL	bladeTipHeightAboveMSL	
Blade length	bladeLength	
Blade max chord	bladeMaxChord	
Power regulation	powerRegulation	
Drive train type	driveTrainType	
Gearbox lubrication	gearboxLubrication	
Gearbox stages	gearboxStages	
Generator type	generatorType	
Genarator rate power	genaratoRatePower	
Generator number of poles	generatorNumberOfPoles	
Power converter	powerConverter	
Power frequency	powerFrequency	
Turbine voltage level	turbineVoltageLevel	
Tranformer voltage level	tranformerVoltageLevel	
Yaw gears	yawGears	
Length of nacelle	lengthOfNacelle	
Width of nacelle	widthOfNacelle	
Height of nacelle	heightOfNacelle	
Weight of nacelle	weightOfNacelle	
Top head mass	topHeadMass	
Tower structure type	towerStructureType	
Tower structure material	towerStructureMaterial	
Substructure type	substructureType	
Number of support substructures	numberOfSupportSubstructures	
Support substructure description	supportSubstructureDescription	
Foundation type	foundationType	
Foundation substructure	foundationSubstructure	
Substructure manufacture	substructureManufacture	
Substructure designer	substructureDesigner	

Created: 20/05/2015

Modified: none

Author: CNR-ISMAR

State: approved

Used in: Characteristic (OC)

Extensibility: yes

Note 1: none

CountryCode_v3

Type: Code Value Domain

Description: Country code as defined in the Interinstitutional style guide published by the Publications Office of the European Union (INSPIRE Directive, r4618-ir)

Value	Code
Albania	AL
Algeria	ZD
Bosnia and Herzegovina	BA

Bulgaria	BG
Cyprus	CY
Croatia	HR
Egypt	EG
France	FR
Gaza Trip	PS
Georgia	GE
Gibraltar	GI
Greece	EL
Israel	IL
Italy	IT
Lebanon	LB
Libya	LY
Malta	MT
Monaco	MC
Morocco	MA
Montenegro	ME
Romania	RO
Russia	RU
Slovenia	SI
Spain	ES
Syria	SY
Tunisia	TN
Turkey	TR
Ukraine	UA
United Kingdom	UK

Created: 20/05/2015

Modified: none

Author: CNR-ISMAR

State: approved

Used in: RelatedParty (OC)

Extensibility: none

Note 1: none

GeneralSourceMethodValue_v3

Type: Code Value Domain

Description: What are the methods that have been used in the sources for compiling the information about the objects

Value	Code	Definition
Collection examination	collectionExamination	Data collected from examinations of collections (INSPIRE Directive, r4618-ir)
Grid mapping	gridMapping	Data observations collected by systematic surveys in grid cells (INSPIRE Directive, r4618-ir)
Line sampling	lineSampling	Data collected by systematic surveys along linear transects (INSPIRE Directive, r4618-ir)
Literature examination	literatureExamination	Data collected from literature examinations like printed maps, tables (INSPIRE Directive, r4618-ir)
Prediction modeling	predictionModeling	Data from prediction modeling
Random	ramdomObservation	Data collected by randomly distributed (INSPIRE

observation		Directive, r4618-ir)collection/observation sites randomly outside a systematic survey (INSPIRE Directive, r4618-ir)
Remote sensing observation	remoteSensingObservation	Data collected by the Remote Sensing Observation method
Statistical sampling	statisticalSampling	Data collected on locations selected by statistical sampling methods (INSPIRE Directive, r4618-ir)

Created: 20/05/2015

Modified: none

Author: CNR-ISMAR

State: approved

Used in: SourceMethodType (OC)

Extensibility: yes

Note 1: none

PartyRoleValue_v3

Type: Code Value Domain

Description: Roles of parties related to or responsible for a resource (INSPIRE Directive, r4618-ir)

Value	Code	Definition
Author	author	Author of the data (INSPIRE Directive, r4618-ir)
Custodian	custodian	Guardian or keeper responsible for maintaining data (INSPIRE Directive, r4618-ir)
Distributor	distributor	Person or organisation who distributes the data (INSPIRE Directive, r4618-ir)
Originator	originator	Responsible party who created the dataset or metadata (INSPIRE Directive, r4618-ir)
Owner	owner	Person who owns the data (INSPIRE Directive, r4618-ir)
Point of contact	pointOfContact	Responsible party who can be contacted for acquiring knowledge about or acquisition of the data (INSPIRE Directive, r4618-ir)
Principal investigator	principallInvestigator	Key person responsible for gathering information and conducting research (INSPIRE Directive, r4618-ir)
Processor	processor	Responsible party who has processed the data in a manner in which data has been modified (INSPIRE Directive, r4618-ir)
Publisher	publisher	Responsible party who published the data (INSPIRE Directive, r4618-ir)
Resource provider	resourceProvider	Party that supplies the data (INSPIRE Directive, r4618-ir)
User	user	Person who uses the data (INSPIRE Directive, r4618-ir)

Created: 20/05/2015

Modified: none

Author: CNR-ISMAR

State: approved

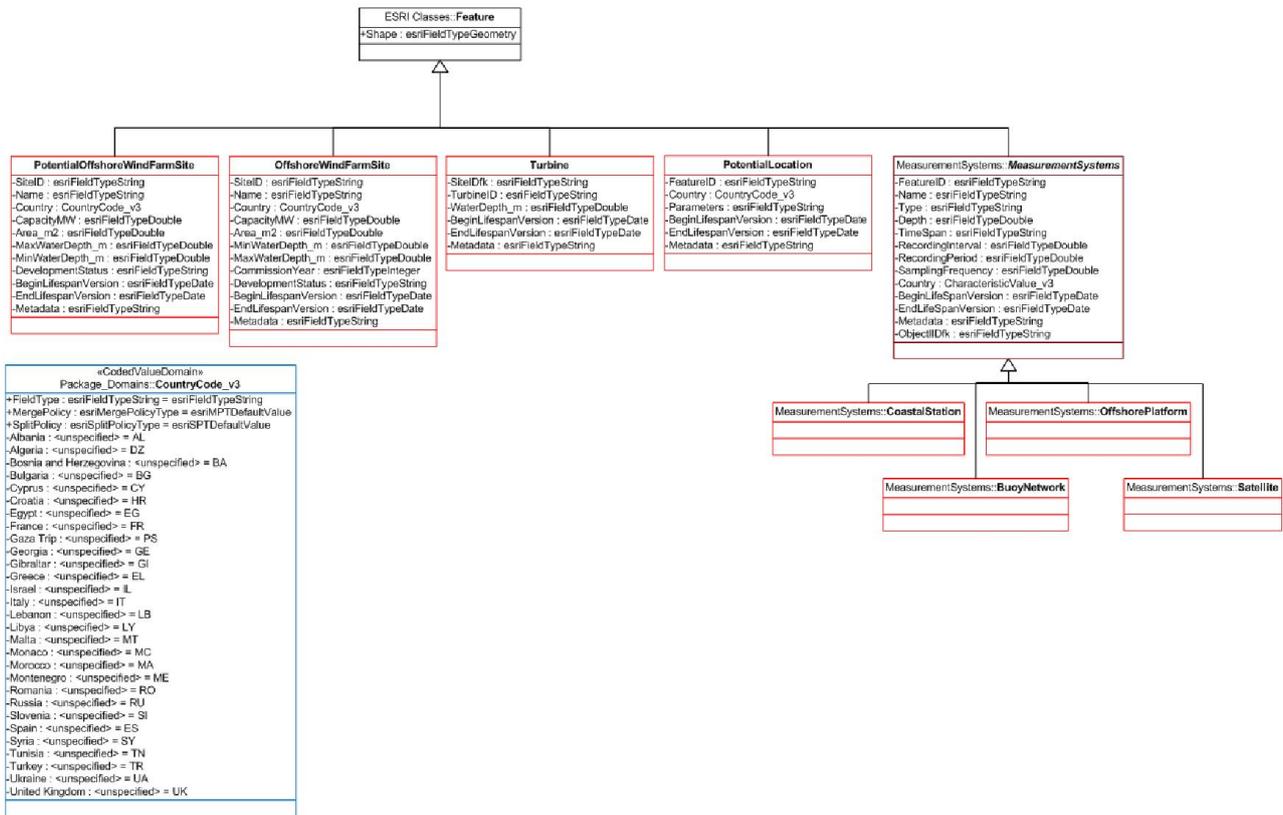
Used in: RelatedParty (OC)

Extensibility: yes

Note 1: none

Annex 3 –UML diagram

Feature classes

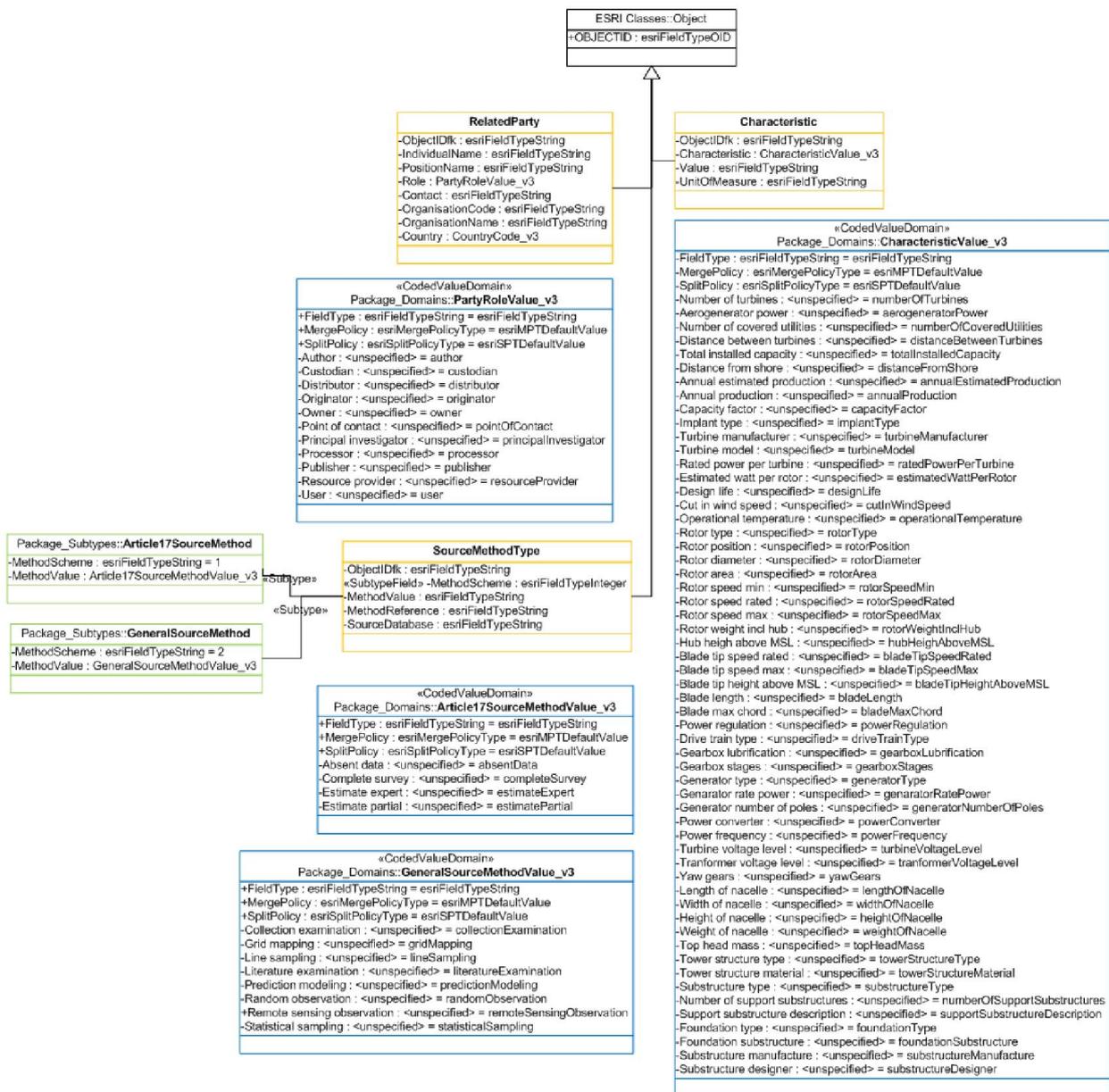


Abstract Feature Class: brown

Feature Class: red

Domain: blue

Object classes

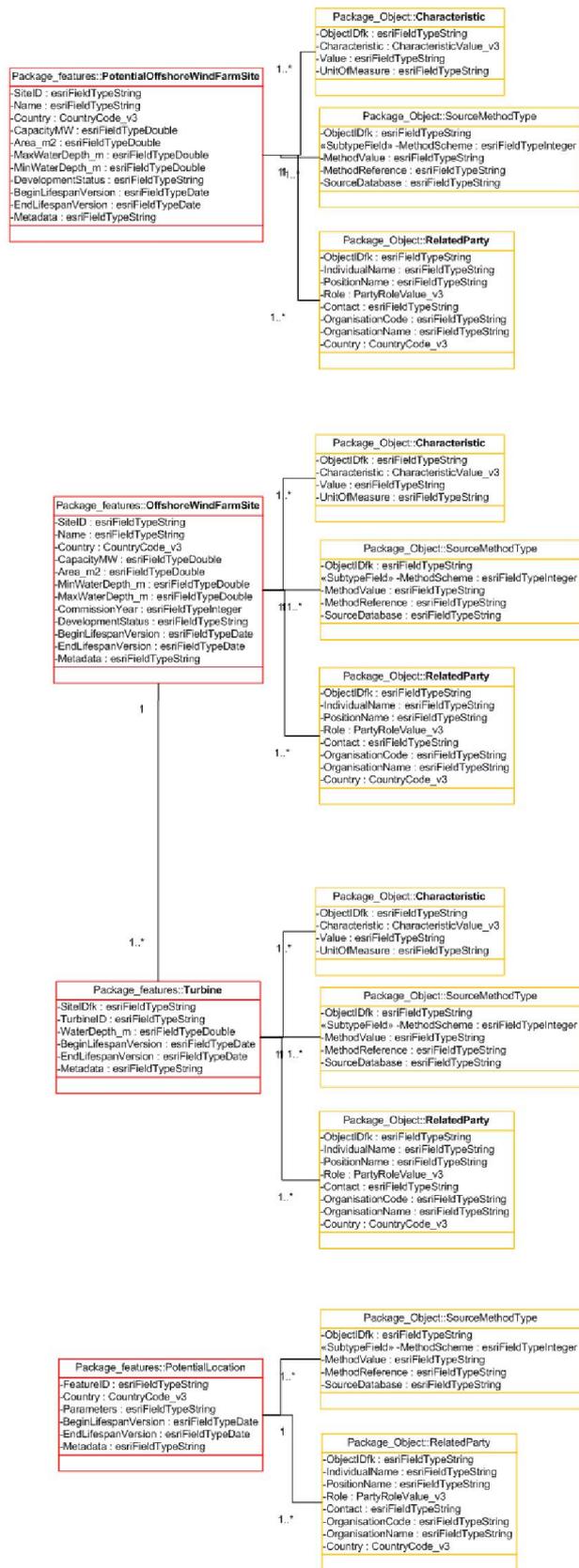


Object Class: orange

Subtype: green

Domain: blue

Relationship classes



Feature Class: red
Object Class: orange

Annex 4 – Layer visualization