European Topic Centre
Inland, coastal, marine waters

GIS Reference Layers on UWWT Directive Sensitive Areas
Description of dataset and processing

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Version history

Version	Date	Author	Status and description	Distribution
1.0	08/11/2012	PRO	Final version for EEA	Circa
2.0	14/03/2013	PRO	Final version after MS comments	Forum
3.0	05/04/2013	PRO	Final version after MS comments and confirmation regarding spatial data publication	BNJ, EEA
4.0	10/04/2013	PRO	Final version	Forum
5.0	21/08/2013	PRO	Minor text revision	BNJ, EEA

Contents

1   Definitions

Art. 15 of the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) obliges Member States to report data on the implementation of the Directive upon request from the European Commission bi-annually. Reported data include receiving areas as designated under UWWTD, agglomerations, urban waste water treatment plants serving the agglomerations and points of discharges.

Receiving area is the area receiving discharges of waste water from agglomerations. The UWWTD distinguishes several types of receiving areas depending on its sensitivity to eutprohication: normal area, sensitive area, catchment of sensitive area and less sensitive area. Type of receiving area and the size of the agglomeration determine the required treatment standards for the agglomeration.
The current reference layer displays the catchments of sensitive areas as reported by the Member states. Information on the type of sensitivity of the catchments of sensitive areas has been newly added into the reference layer in 2011.
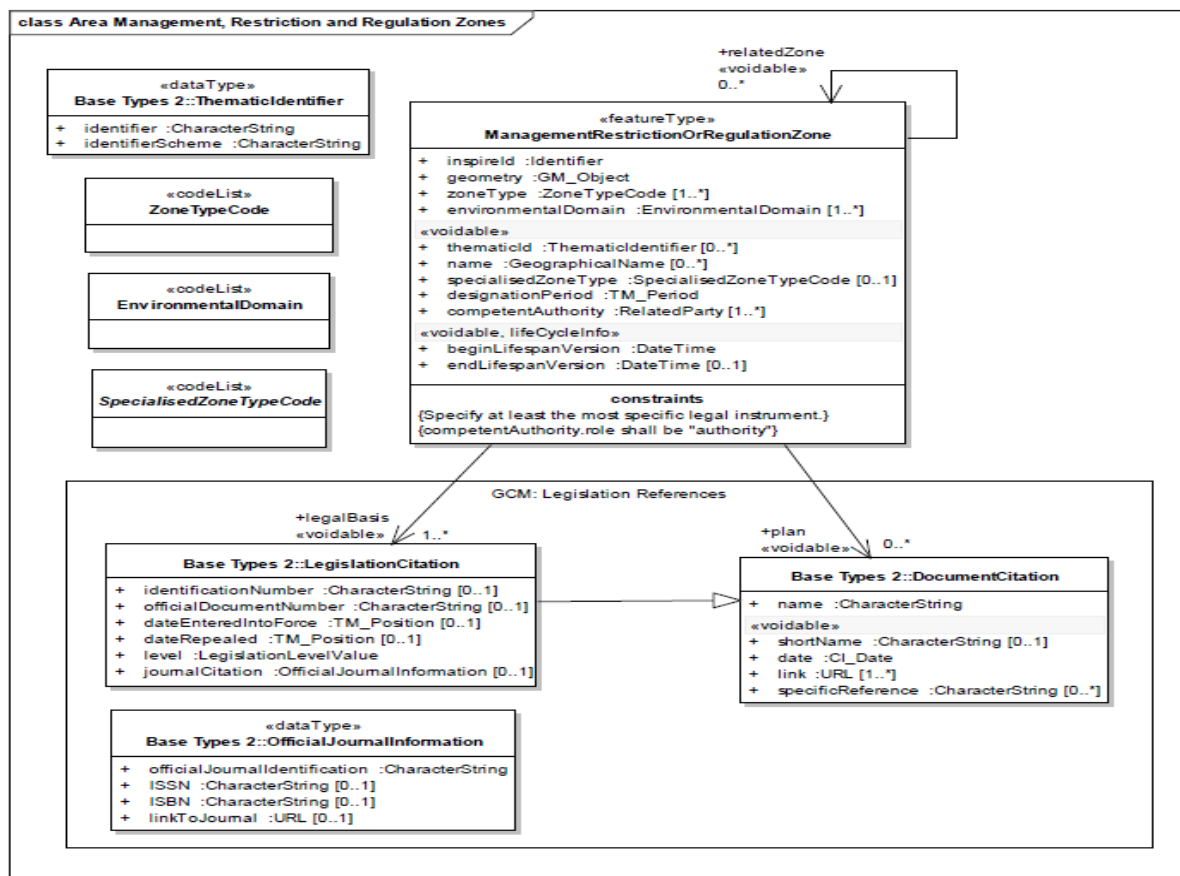
2   UWWT Sensitive areas in INSPIRE

INSPIRE directive aims to establish a spatial infrastructure in the European Union. It is focused on infrastructure components (metadata, spatial datasets and services) as well as on with defining the coherent approaches to data access and sharing to facilitate data exchange between public authorities of all levels.

INSPIRE data specification defines Sensitive areas as "*Water bodies identified as sensitive areas, as defined in Annex II to Directive 91/271/EEC (UWWTD)*". According to the INSPIRE, sensitive areas are regarded as Area Management, Restriction or Regulation Zones, i.e. zones that are established in accordance with *specific legislative requirements* to deliver specific environmental objectives related to any environmental media, for example, air, water, soil and biota (plants and animals).
The boundaries of the areas do not necessarily apply to the natural borders of geographic or natural phenomena and they could be based on a decision by the responsible authorities.

 Figure 2.1. shows the application schema of the areas management restriction/regulations zones in the INSPIRE Area management. This schema includes a main class "ManagementRestrictionRegulationZone" to model management areas, restrictions or regulations. This class includes the types of the zones defined by the attribute ZoneType. The values of this attribute are pre-defined in the code list ZoneTypeCode which includes different types of zones, for example: nitrate vulnerable zones, sensitive areas, air quality management zone, area for dumping of waste, coastal zone management area, drinking water protection area, flood unit of management, river basin district, water body under the WFD and others. The code list can be extended by the MS and data providers. The zone type code "sensitiveArea" means "water body designated as sensitive in terms of the Article 5 of the UWWTD and refers to the management areas related to the UWWTD".

Figure 2.1. UML class diagram: Overview of Area Management, Restriction and Regulation Zones application Schema[1]

Style Name	AM.SensitiveArea.Default
Default Style	yes
Style Title	Sensitive Area Default Style
Style Abstract	The geometry is rendered for points as a square with a size of 6 pixels, with a yellow (#FFFF66) fill and a black outline; for curves as a solid yellow line (#FFFF66) with a stroke width of 2 pixels; and for surfaces using a yellow (#FFFF66) fill with a transparency of 50% and a solid pale yellow (#FFFF66) outline with a stroke width of 2 pixels.
Symbology	The symbology is specified in 2 files: NamedLayer_AM_SensitiveArea.xml (definition of the layer) UserStyle_AM_SensitiveArea.xml (definition of the style)
Minimum & maximum scales	None
Example	

The data specification for sensitive areas is included in the draft technical guidelines D2.8.III.11, on "The Area management/restriction/regulation zones and reporting units "

2.1 Conformance of Sensitive areas data set with requirements of INSPIRE Technical guidance

The conformance of a data set can be tested against the INSPIRE Regulation (Commission Regulation, which is not adopted yet) or/and against the INSPIRE Technical Guidelines. In order to be conformant with the ISDSS regulation, the inspected data set needs to be conformant to **all** conformance classes in Part 1.

Part 1 includes conformance classes pertaining to the application schema, reference systems, metadata, information accessibility, data delivery and portrayal. Part 2 contains technical guidance conformance class comprising of test of multiplicity of attributes, tests pertaining to metadata (encoding, occurrence and consistency), encoding schema validations test and style test.

In order to be conformant with the Technical Guidelines, the dataset under inspection needs to be conformant to all conformance classes included both in Part 1 and 2. Finalized reference layer is based on spatial data reported by the member States under the 2011 data request. Conformance of reported spatial data was not checked upon submission, as conformance testing was still an issue under discussion in 2011-2012 and thus conformance classes could not be included in the spatial data specification provided to the Member States prior reporting exercise. That is why the finalized reference layer is not in full conformity. Nevertheless efforts were made to ensure conformity where possible, e.g. with regard to requirements on metadata and style.

3 Reference

The national borders of the EU Member States dataset are based on the Euro Regional Map (ERM) 1:250.000 boundaries (http://www.eurogeographics.org/products-and-services/euroregionalmap). This is also the case in many coastal areas unless the member state has decided to report differently.

ERM boundaries can be used by EEA to provide more harmonised data on the borders between the countries, and on internet in map viewers. Public download of the ERM boundaries is not allowed due to intellectual property rights.

4 Attributes

The attributes were specified in the set of reporting templates for each type of receiving area (except the normal area). All the attribute tables 4.1-9 link to the table "T_ReceivingAreas" in Waterbase UWWTD .

Table 4.1   Receiving areas (sensitive rivers) attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (line)
Name	NAME	Locally used name		String
MemberStateSARiverCode	MSCD_SA_RV	Unique code for Receiving area at Member State level		String
EuropeanSARiverCode	EUCDSA_RV*	Unique code for Receiving area at EU level	ISO3166 & MSCD _SA_RV	String
Length	LENGTHKM	Total length of the River		Double

Table 4.2   Receiving areas (catchments of sensitive areas) attribute fields

Attribute name	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (polygon)
Name	NAME	Locally used name		String
EuropeanSACatchmentCode	EUCDSA_CM*	Unique code for Receiving area at EU level	ISO3166 & MSCD_SA_CM	String
MemberStateSACatchmentCode	MSCD_SA_CM	Unique code for Receiving area at Member State level		String
AreaKM2	AREAKM2	Area in square kilometers		Double

Table 4.3   Receiving areas (sensitive lakes) attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (polygon)
Name	NAME	Locally used name		String
EuropeanSALakeCode	EUCDSA_LK*	Unique code for Receiving area at EU level	ISO3166 & MSCD_SA_LK	String
MemberStateSALakeCode	MSCD_SA_LK	Unique code for Receiving area at Member State level		String
AreaKM2	AREAKM2	Area in square kilometers		Double

Table 4.4   Receiving areas (sensitive coastline) attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (line)
Name	NAME	Locally used name		String
EuropeanSACoastlineCode	EUCDSA_CL*	Unique code for Receiving area at EU level	ISO3166 & MSCD_SA_CO	String
MemberStateSACoastlineCode	MSCD_SA_CL	Unique code for Receiving area at Member State level		String
Length	LENGTHKM	Total length of the coastline		Double

Table 4.5   Receiving areas (sensitive coastal area) attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (polygon)
Name	NAME	Locally used name		String
EuropeanSACoastareaCode	EUCDSA_CA*	Unique code for Receiving area at EU level	ISO3166 & MSCD_SA_CA	String
MemberStateSACoastareaCode	MSCD_SA_CA	Unique code for Receiving area at Member State level		String
AreaKM2	AREAKM2	Area in square kilometers		Double

Table 4.6   Receiving areas (transitional sensitive areas) attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (polygon)
Name	NAME	Locally used name		String

Attribute	FieldName	Definition	Values	Type
EuropeanSATransitionalwaterCode	EUCDSA_TW*	Unique code for Receiving area at EU level	ISO3166 & MSCD_SA_TW	String
MemberStateEuropeanSATransitionalwaterCode	MSCD_SA_TW	Unique code for Receiving area at Member State level		String
AreaKM2	AREAKM2	Area in square kilometers		Double

Table 4.7   Receiving areas (less sensitive transitional waters) attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (polygon)
Name	NAME	Locally used name		String
EuropeanLSATransitionalwaterCode	EUCDLSA_TW*	Unique code for Receiving area at EU level	ISO3166 & MSCD_LSATW	String
MemberStateLSATransitionalwaterCode	MSCD_LSATW	Unique code for Receiving area at Member State level		String
AreaKM2	AREAKM2	Area in square kilometers		Double

Table 4.8   Receiving areas (less sensitive coastline) attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (line)
Name	NAME	Locally used name		String
EuropeanLSACoastlineCode	EUCDLSA_CL*	Unique code for Receiving area at EU level	ISO3166 & MSCD_LSACL	String
MemberStateLSACoastlineCode	MSCD_LSACL	Unique code for Receiving area at Member State level		String
AreaKM2	AREAKM2	Area in square kilometers		Double

Table 4.9   Receiving areas additional attribute fields

Attribute	FieldName	Definition	Values	Type
shape	SHAPE			Geometry (polygon)
Name	NAME	Locally used name		String
Type of receiving area	TYPE	A=entire territory designated as sensitive area, S=sensitive area designated under art. N=Normal area.	A, N, S	
	CNTR_CD	Locally used name		
EuropeanSACatchmentCode	EUCDSA_CM*	Unique code for Receiving area at EU level	ISO3166 & MSCD_SA_CM	String
MemberStateSACatchmentCode	MSCD_SA_CM	Unique code for Receiving area at Member State level		String
AreaKM2	AREAKM2	Area in square kilometers		Double
EuropeanSACatchmentCode	RCACODE	Unique code for Receiving area at EU level	ISO3166 & MSCD_SA_CM	String
Parameters subjected to more stringent treatment	param1	Parameters subjected tomore stringent treatment in sensitive areas designated under Art. 5(8) + 5(2,3)	N, P, N and P, other	

Attribute	FieldName	Definition	Values	Type
Parameters subjected to more stringent treatment	Param2	Parameters subjected to more stringent treatment in sensitive areas designated under Art. 5(1) + 5(2,3)	N, P, N and P, other	
Sensitivity type of receiving areas	symbol	Parameters subjected to more stringent treatment in sensitive areas	N, P, N and P, other	

5   Processing

The creation of the GIS reference layers on UWWT Directive Sensitive Areas is based on the GIS data reported by countries under the 2007 UWWTD reporting and 2009 and 2011 updates. ETC/W carried out the quality assurance of the shape files and attributes reported in 2007 during summer 2008. To facilitate the 2009 reporting of UWWTD GIS data, ETC/W has updated the UWWTD GIS reporting guidance originally developed by UBA Vienna and prepared templates for all GIS layers on sensitive areas, which were made available for the member states together with the boundaries of each country. Same templates were used in 2011 reporting exercise.

Boundaries were extracted from EuroRegionalMap, scaled 1:250 000, which was also decided to be the reporting scale. Member states were kindly asked to use the templates for their reporting and to fit the data inside the boundaries. This has improved the comparability of GIS data reported in 2009 and 2011 and facilitated the updating of the GIS reference layer on UWWTD sensitive areas.

Each member state was given a set of templates for all sensitive area GIS layers which may be collected under UWWTD. Not all the layers are reported by all of the countries, therefore the countries were asked to use only layers which are relevant for them. Under UWWTD the following sensitive area GIS layers are collected:

Sensitive area – catchments (EU_SA_catchm)
Sensitive area – rivers (EU_SA_river)
Sensitive area – lakes (EU_SA_lake)
Sensitive area – transitional water (EU_SA_TW)
Sensitive area – coastline (EU_SA_coastL)
Sensitive area – coast area (EU_SA_coastA)
Less sensitive area – coastline (EU_LSA_coastL)

In 2011 additional layer (EU_SA_catchm sensitivity type) indicating the parameters subjected to the more stringent treatment per catchment of sensitive area was compiled.

Some member states have designated the entire area of their country as a sensitive area or they have applied Article 5(8) of the UWWT Directive. In that case no GIS layer needs to be reported by these countries as the entire country area is used for the resulting EU-wide GIS layer. The following tables give an overview of GIS data reported by countries during the 2007, 2009 and 2011 UWWTD reporting.

Table 5.1   Country GIS data availability overview for 2007 data reporting

	Application of Article (no need to report GIS data)	Entire country sensitive area (no need to report GIS data)	LSA – coastline	LSA – transitional waters	SA – coast area	SA – coastline	SA – lakes	SA – rivers	SA - transitional waters	SA - catchments
AT	x									
BE		X								
BG						x		x		X
CY					x		x			X
CZ										
DE	x									
DK	x									
EE	x									
ES										x
FI	x									
FR					x		x	x	x	x
GR										
HU										x
IE					x		x	x	x	x
IT					x		x	x	x	x
LT	x									
LU	x									
LV	x									
MT					x					x
NL	x									
PL	x									
PT			X				x	x	x	x
RO	x									
SE					x		x			x
SI					x	x	x	x		x
SK		X								
UK					x	x	x	x	x	x

LSA: Less sensitive areas
SA: Sensitive areas

In 2007 data request no member state declared transitional waters as a less sensitive area. The resulting EU layer for LSA transitional waters will therefore stay empty. The data for the Czech Republic and for Greece were not delivered in the required format.

Table 5.2: Country GIS data – 2009 UWWTD reporting updates and new delivery

	Application of Article (no need to report GIS data)	Entire country sensitive area (no need to report GIS data)	LSA – coastline	LSA – transitional waters	SA – coast area	SA – coastline	SA – lakes	SA – rivers	SA - transitional waters	SA – catchments
AT										
BE										
BG						xx		xx		xx
CY										
CZ	x									
DE										
DK										
EE										
ES					xx		xx	xx		xx
FI										
FR										
GR					x	x	x	x	x	x
HU										
IE					xx		xx	xx	xx	xx
IT					xx		xx	xx	xx	xx
LT										
LU										
LV										
MT										
NL										
NO		x			x	x	x	x		x
PL										
PT										
RO										
SE										
SI					xx	xx	xx	xx	xx	xx
SK										
UK					xx	xx	xx	xx	xx	xx

LSA: Less sensitive areas
SA: Sensitive areas
x – Newly reported in 2009 (layer not reported in 2007)
xx – Updated in 2009 (layer also reported in 2007)

In 2009 there were first time spatial data submissions by Greece, Norway and the Czech Republic, updates were delivered by Bulgaria, Spain, Ireland, Italy, Slovenia and the United Kingdom. No

member state declared transitional waters as a less sensitive area in 2009. The resulting EU layer for LSA transitional waters remained empty as it was after the 2007 reporting.

Table 5.3: Country GIS data – 2011 UWWTD reporting updates

	Application of Article (no need to report GIS data)	Entire country sensitive area (no need to report GIS data)	LSA – coastline	LSA – transitional waters	SA – coast area	SA – coastline	SA – lakes	SA – rivers	SA - transitional waters	SA – catchments	SA – catchments sensitivity type
AT											xx
BE											xx
BG						xx		xx		xx	xx
CY											xx
CZ											xx
DE											xx
DK											xx
EE											xx
ES					xx		xx	xx	xx	xx	xx
FI											xx
FR					xx	xx	xx	xx	xx	xx	xx
GR					xx	xx	xx	xx	xx	xx	xx
HU										xx	xx
IE					xx		xx	xx	xx	xx	xx
IT					xx		xx	xx	xx	xx	xx
LT											xx
LU											xx
LV											xx
MT											xx
NL											xx
NO					xx					xx	xx
PL											xx
PT		xx					xx	xx	xx	xx	xx
RO											xx
SE											xx
SI											xx
SK											xx
UK					xx	xx	xx	xx	xx	xx	xx

x – Newly reported in 2011 (layer not reported in 2007 nor 2009)

xx – Updated in 2011 (layer also reported in 2009 or in 2007)

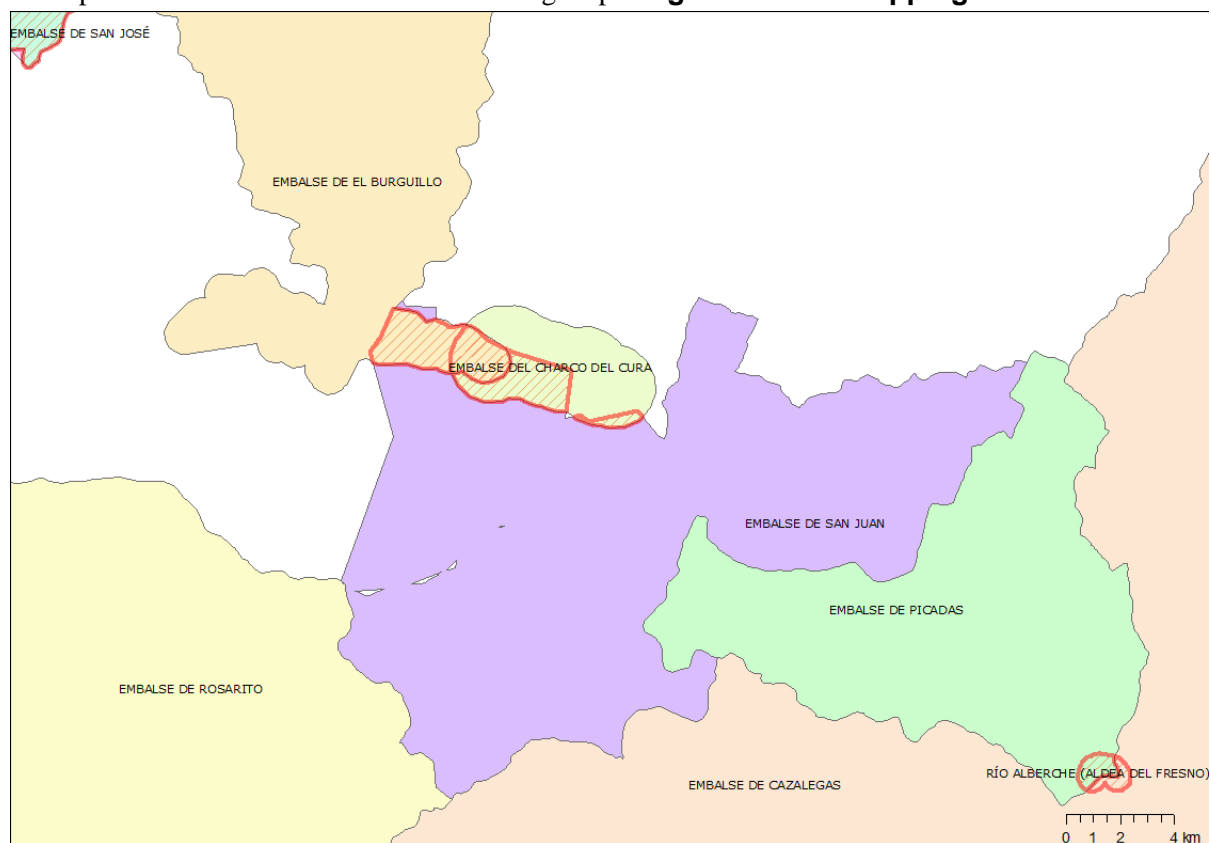LSA: Less sensitive areas, SA: Sensitive areas

5.1   Data inconsistencies-errors identified in 2007 datasets

Several types of errors were appearing in the national data. Most of the errors were common to several countries. The following table gives a general overview of the violations of rules defined by the UWWTD GIS reporting guidance, inconsistencies and logical errors.
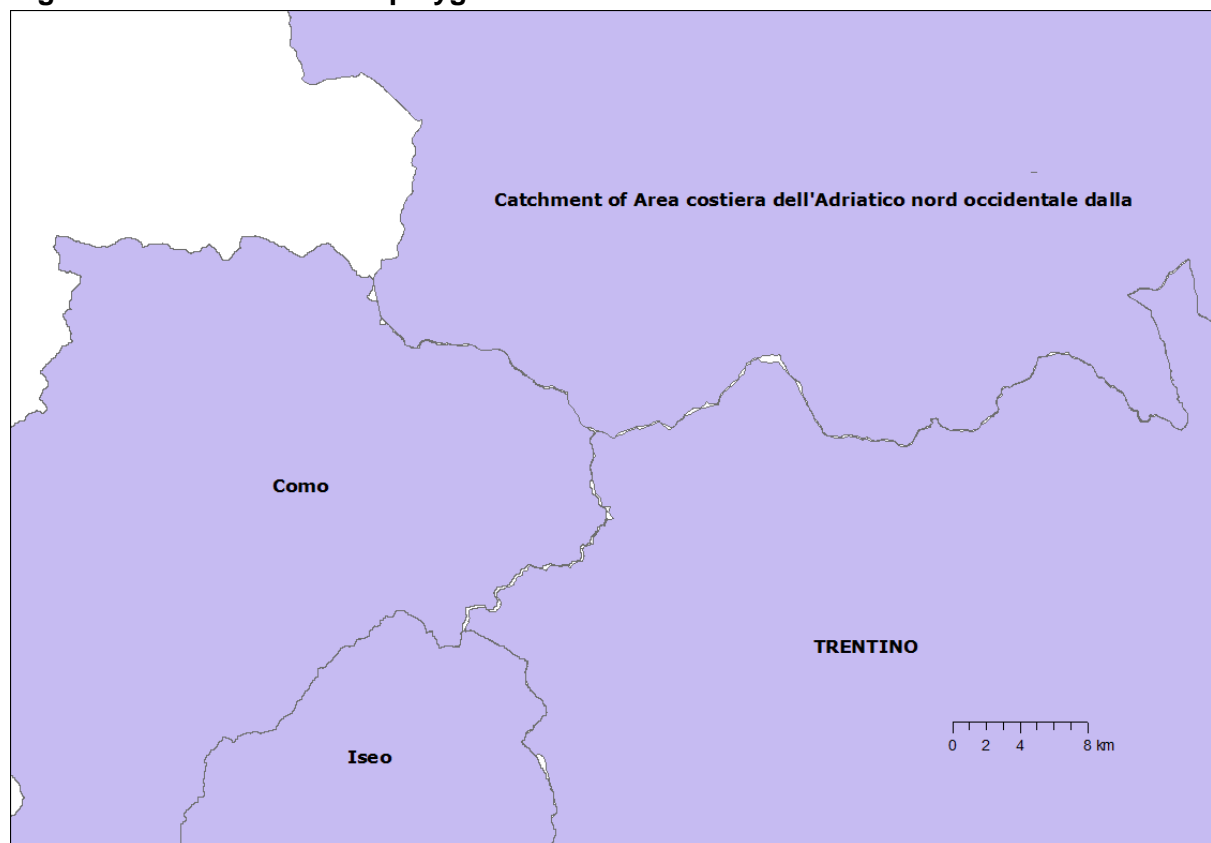
Table 5.4: 2007 UWWTD GIS data error overview table

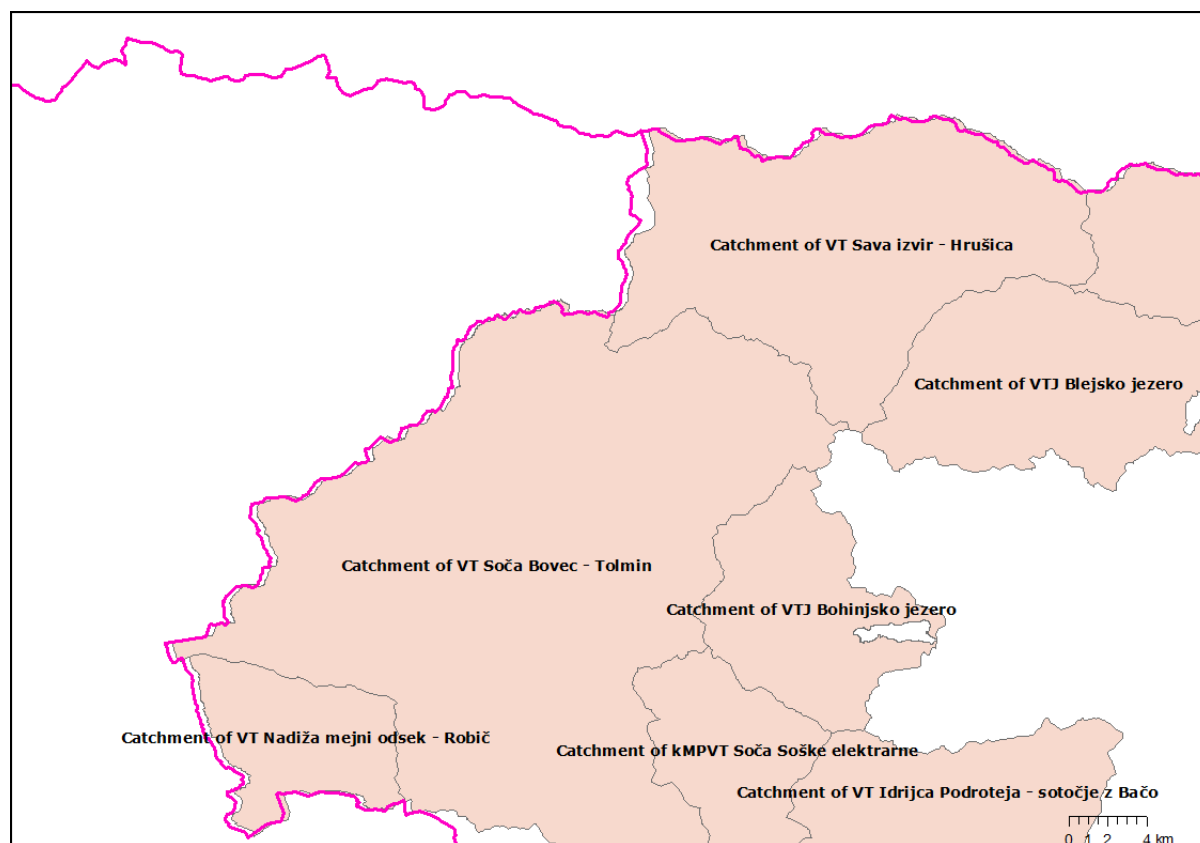| Error	Appearance
Features inside one layer are overlapping	Many countries
Features among several layers are overlapping	Almost all countries
Coordinate system different form ETRS89	ES (CGS1950), HU (ETRF)
Data too detailed for 1:250 000 scale	Almost all countries
Wrong declaration of coordinate system	UK (Northern Ireland – data is projected in Irish Grid, but ETRS89 is declared)
Non 7 bit ASCII characters in the names of features	FR, SI, ES
Broken national characters in names of features	FR
Code too long for the given column	SI (MSCD), FR (Name), PT (Name)
Different names of columns	FR
Features shifted	SI (ca. X by 360 m, Y by 60 m)
All data in one layer	CY
Wrong names of data files	Many countries
Wrong data format	FR (Mapinfo)
Wrong calculations of feature areas	Several countries

Examples of errors are shown in the following maps: **Figure5. 1: Overlapping features**

EMBALSE DE SAN JOSÉ
EMBALSE DE EL BURGUILLO
EMBALSE DEL CHARCO DEL CURA
EMBALSE DE SAN JUAN
EMBALSE DE PICADAS
EMBALSE DE ROSARITO
EMBALSE DE CAZALEGAS
RÍO ALBERCHE (ALDEA DEL FRESNO)

0 1 2   4 km

Figure 5.2 : Holes between polygons

Catchment of Area costiera dell'Adriatico nord occidentale dalla

Como

TRENTINO

Iseo

0 2 4   8 km

Figure 5.3: Shifted polygons, national characters

5.2 Data inconsistencies-errors identified in 2009 datasets

There were only some minor errors in the data reported. Data format, coordinate system and structure of attributes were mostly delivered according to the requirements. Exceptions were easily resolved and changed to the required format. Obviously the member states have already familiarized themselves with the UWWTD GIS data reporting procedure and requirements and finalized their deliveries in much higher quality.

5.3 Data inconsistencies-errors identified in 2011 datasets

The quality of updates of spatial datasets reported in 2011 was high. No major errors were identified, with exception of the dataset submitted by Italy. Almost 6000 errors were identified in the shapefile of catchments provided by Italy. The errors concern overlapping polygons. Minor overlaps of polygons found in the shapefiles of other Member States were corrected by ETC ICM.

Figure 5.4: Overlapping polygons, Italy
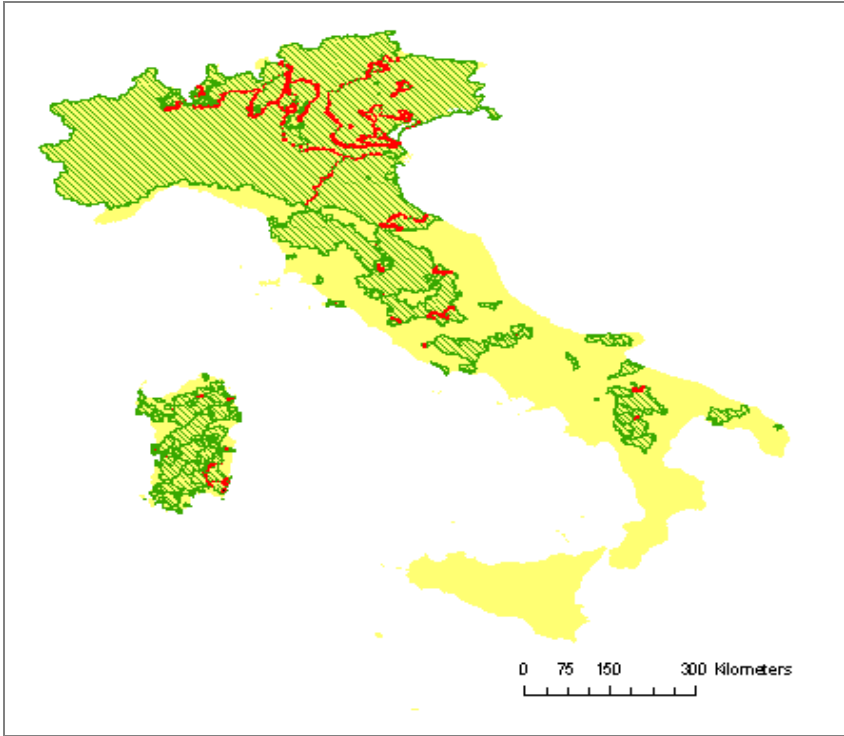
Figure 5.5: Overlapping polygons, Italy
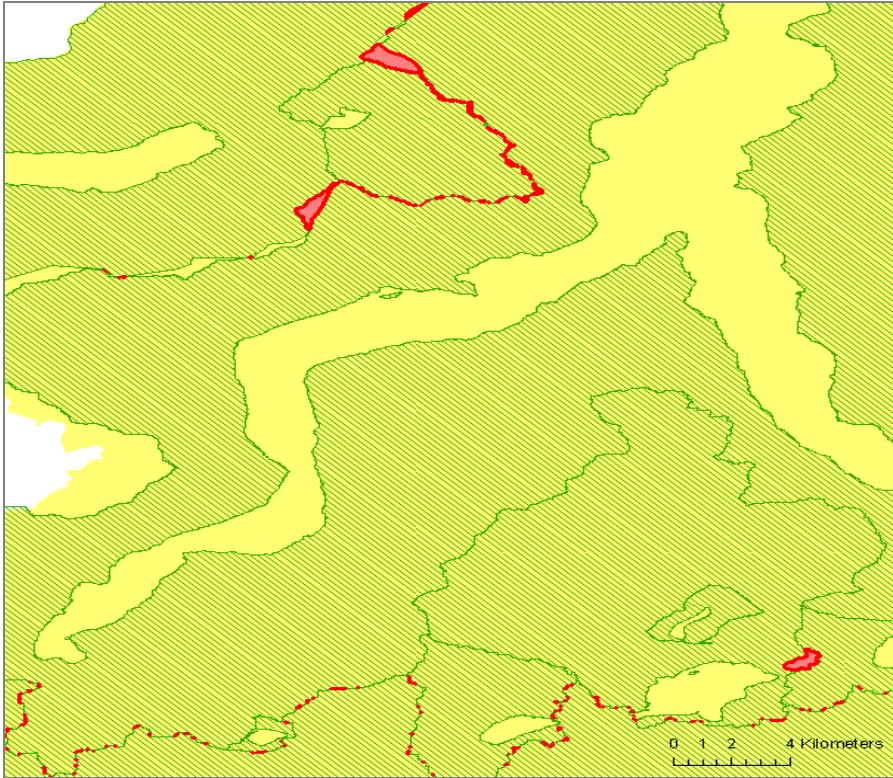
5.4   Compilation of the reference layer

The following EU layers were compiled from spatial datasets provided by the Member States:

- Sensitive area – catchments (EU_SA_catchm)
- Sensitive area – rivers (EU_SA_river)
- Sensitive area – lakes (EU_SA_lake)
- Sensitive area – transitional water (EU_SA_TW)
- Sensitive area – coastline (EU_SA_coastL)
- Sensitive area – coast area (EU_SA_coastA)
- Less sensitive area – coastline (EU_LSA_coastL)
- Sensitive area – catchments –sensitivity type (EU_SA_catchm sensitivity type) – additional layer compiled on the basis of 2011 data

Only the layer of the catchments of sensitive areas contains quality checked shape files, and thus it can be used as a reference layer.

Remaining layers shape files contain data "as reported". Numerous topological errors were identified in the remaining layers. The time and resources available did not allow the complete "cleaning" of the remaining layers. Moreover, when the Member states designated the sensitive rivers, lakes, coastal areas, coastlines and transitional waters, the appropriate EU reference layers (e.g. main rivers reference layer) over which the designation should be (ideally) made, were not available. The remaining layers are displayed in the UWWTD map viewer, however for the reasons mentioned above; they cannot be regarded as "reference layers"

The procedure of creating and updating a GIS reference layer on catchments of sensitive areas was the following:

1/ Investigating the data format used and transformation to shape file (where needed)
2/ Investigating the coordinate system used and projecting the data to ETRS89 coordinate system (where needed)
3/ Overlaying the data with the ERM 1:250 000 boundaries using the *update* function
4/ Fitting of SA catchments inside ERM boundaries using the *dissolve* and *eliminate* functions
5/ Creating of normal areas inside the countries as a supplement to sensitive areas
6/ Harmonization of attributes – re-naming of columns, changing column types
7/ Loading cleaned MS layer into the resulting EU layer. If the newly loaded member state layer is an update of an existing layer in the EU dataset, the old data for the country being updated is completely removed first
8/ Cleaning of the resulting EU layer using editing tools and the *repair geometry* function

The most important work was the trans-boundary harmonization and harmonization of attributes. There were huge numbers of inconsistencies in the 2007 datasets. Most of the topology requirements had to be neglected and reference layers were created, even though not being topologically clean. For the working scale of 1:250 000, most of the inconsistencies are not visible at all, especially for small polygons or lines. The rules on overlapping different layers had to be completely neglected. The biggest effort was put on the reference layer of catchments of sensitive areas, where the trans-boundary harmonization is crucial, as it is covering the whole of the EU area. The other layers are not covering the EU area continuously and they don't require such a level of harmonization. For these layers only the harmonization of attributes was done, any further work would require updates of the datasets by the member states.

All data reported in 2009 was included in the resulting reference layers. There was no need to remove any datasets due to not meeting the required quality standard as defined in the UWWTD GIS reporting guidance as what happened to the 2007 data from Italy.

Updates reported in 2011 were incorporated into the reference layer after a basic quality check addressing the overlapping polygons and alignment of the polygon with the country boundaries (where relevant). The only dataset that still needs to be amended is the one of Italy.
 Additionally a new layer was compiled; displaying type of sensitivity of the catchments of sensitive areas (e.g nitrogen-sensitive, phosphorus sensitive, etc.).

5.5   Visualisation of the reference layer

The following few illustrations demonstrate the UWWTD GIS data situation after the 2007 data delivery (Fig. 4.6), 2009 update (Fig 4.7), and 2011 update (Fig 4.8, 4.9). Due to scale constraints only catchments of sensitive areas are shown.
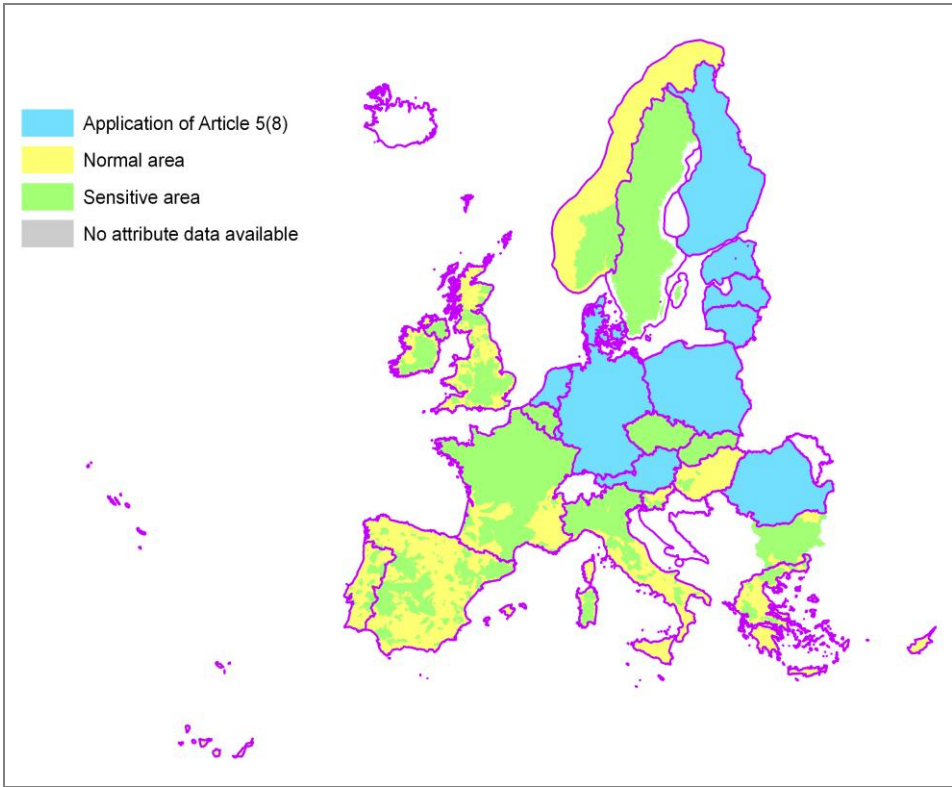
Figure 5.6: GIS reference layer on catchments of sensitive areas – 2007 data only
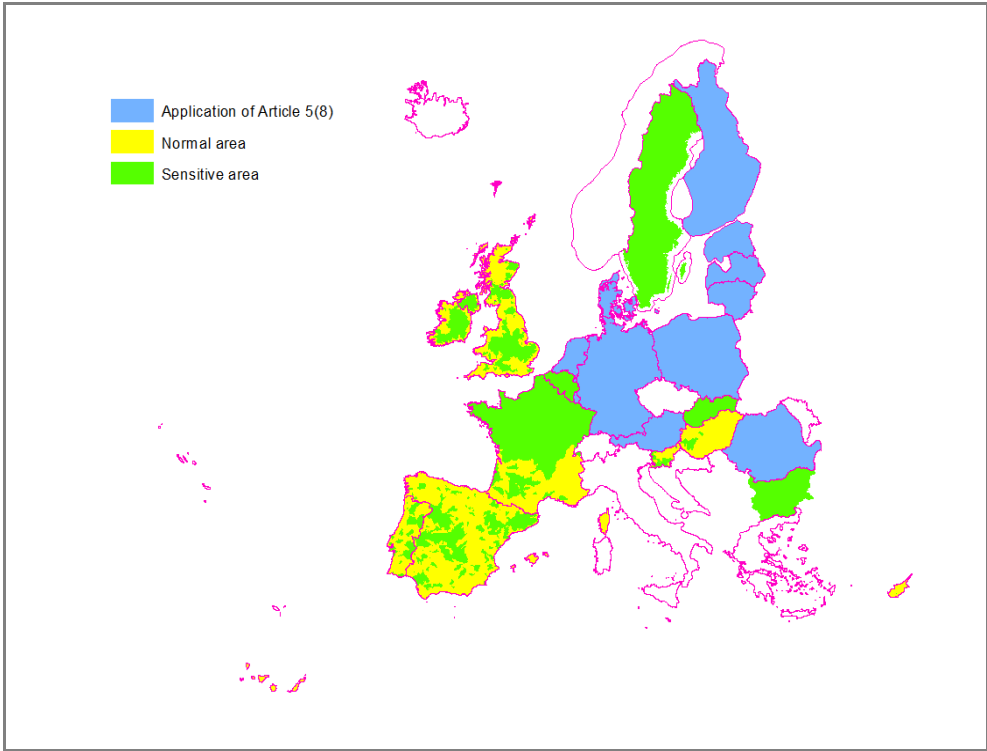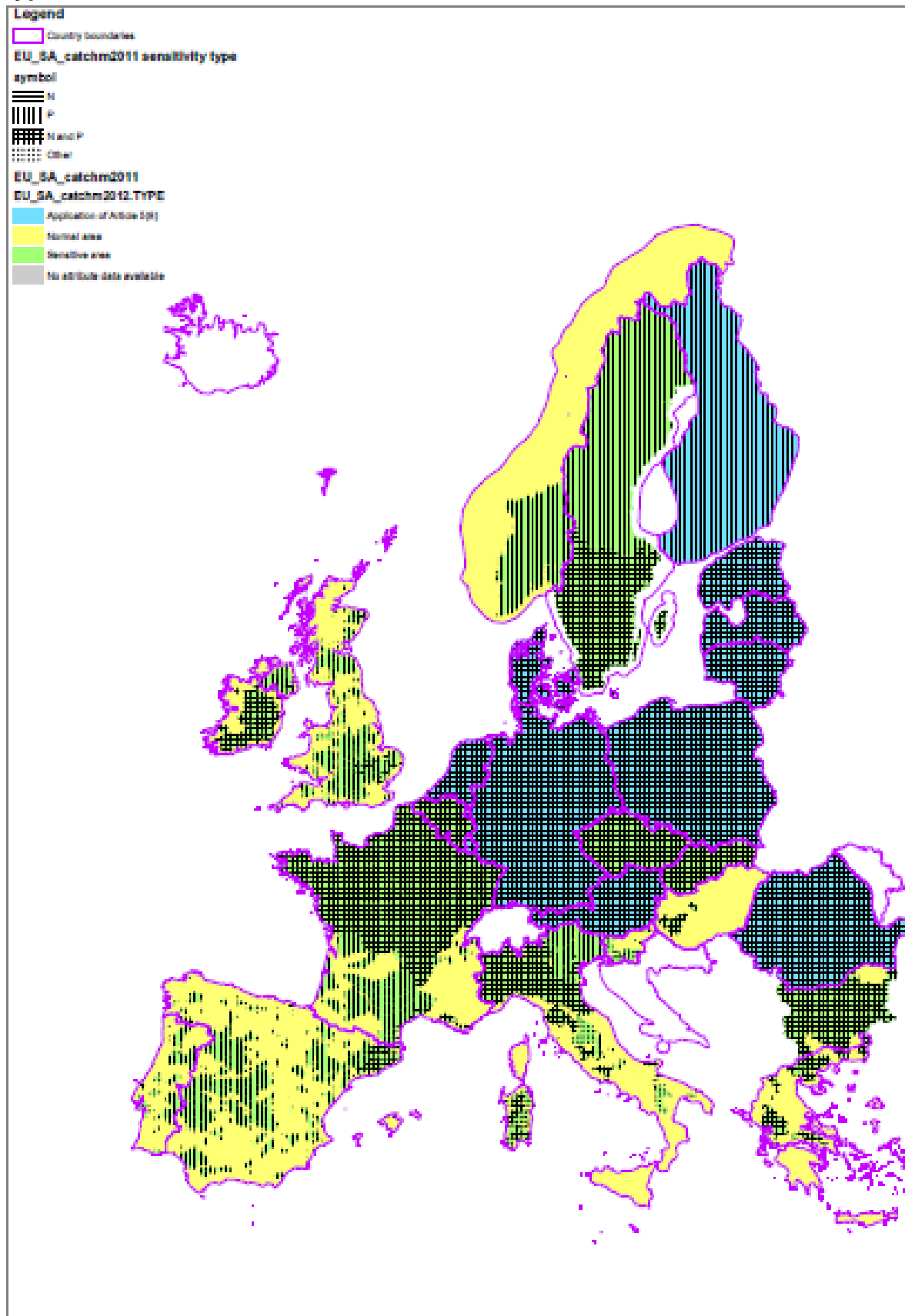
Figure 5.7: Finalized GIS reference layer on catchments of sensitive areas – 2007 and 2009 data
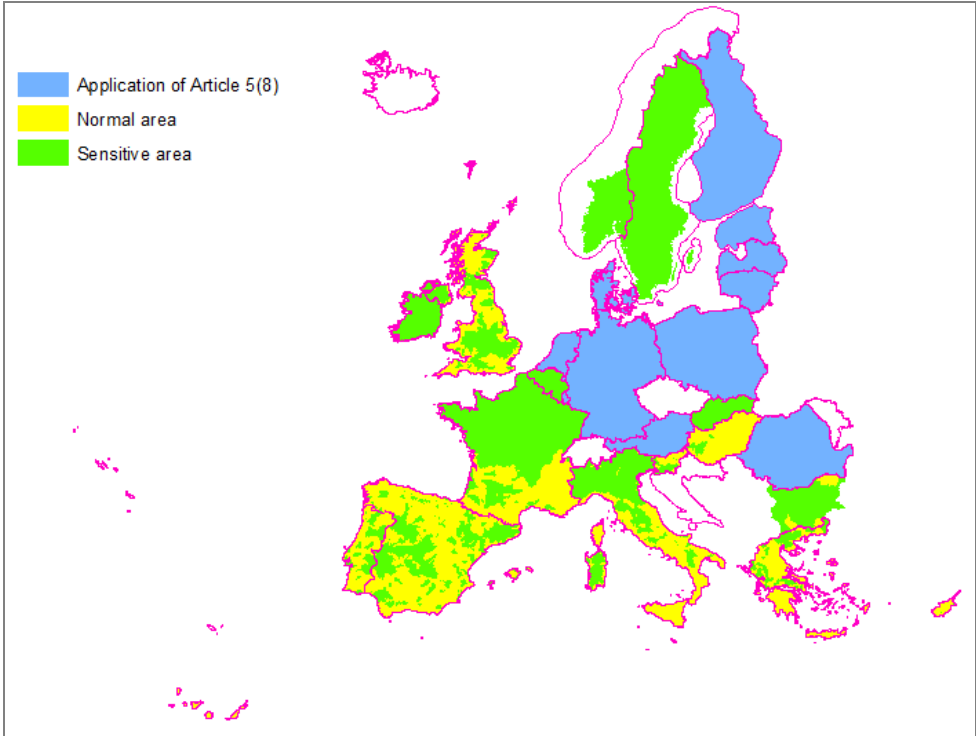
Figure 5.8: Finalized GIS reference layer on catchments of sensitive areas – with 2011 data

Figure 5.9: Finalized GIS reference layer on catchments of sensitive areas types – with 2011 data

6   Finalisation with Member States input

6.1   2009 dataset

During October 2010 Member States were asked to send their comments to newly compiled GIS reference layers v 2.0 based on the 2007 data and 2009 updates. Comments from several countries arrived and were explained or accepted (LT, NL, GR, UK), which was reflected in the updated GIS dataset v 2.1.

Comments received from several Member States on the 2009 version of the reference layer updated with 2011 data were reflected in the final version.

6.2   2011 dataset

The reference layer based on 2011 spatial data submission was sent to country comments in mid-December 2012. By the deadline, ETC ICM received replies from 6 Member States (AT, CY, MT, NL, SI and SK).

Austria confirmed that "it is correct that the GIS reference dataset on UWWTD sensitive areas for Austria covers the entire territory."

Slovakia pointed out that the scale 1:250 000 of ERM used for country boundaries is inaccurate.

Cyprus asked for amendment of the spatial object Kokkinochoria coastline (reported originally as a polygon and thus included in the layer of sensitive areas coastal areas, but not coastlines).

Slovenia emphasized that official GIS layer of Slovenian sensitive areas does not distinguish among sensitive areas due to nitrogen, sensitive areas due to phosphorous or sensitive areas due to both of them, and thus they do not agree with publishing of the additional layer of catchments of sensitive areas sensitivity type . The SI sensitive areas have been designated only due to eutrophication, or to bathing waters. ETC ICM explained that the attributes of the additional layer were taken from the tabular data reported by authorized SI UWWTD reporter and agreed with SI representative that an explanatory note would be provided together with the reference layer explaining that the sensitivity type was derived from the tabular data reported under the UWWTD and that the specification of sensitivity goes beyond the official designation of SA in the national (Slovenian) legislation.

Netherland notified the ETC ICM that for NL there is no restrictions with regard to the public use of the spatial data except that the layers may not be changed.

Member States that reported individual sensitive areas (i.e. all sensitive areas except areas under article 5(8) of the Directive) were asked to provide information on any restrictions with regard to the public use of the spatial data. Reporters of BG, CY, ES, FR, MT, NO, PT and SE confirmed that there are no restriction related to the public use of the spatial data. No replies were received from HU, IE and IT. Only UK informed ETC ICM that the catchments of sensitive areas, river SAs and coastal area SAs were all derived from third party data and therefore should not be made available for public download.

7   Conclusion

Compilation of EU-wide GIS reference layers on UWWTD catchments of sensitive areas was possible based on 2007 data, however many compromises had to be accepted. The overall outcome was

acceptable as a result of the first GIS data reporting exercise under UWWTD, but there was certainly a lot of space for further improvements during the next round of reporting.

Data collected under the 2009 UWWTD reporting finally enabled the possession of the complete EU coverage of catchments of sensitive areas together with Norway. Missing GIS data were added, some layers were updated.

Updates submitted in 2011 by Bulgaria, Spain, Greece, Hungary, France, Ireland, Italy, Norway, Portugal, and the United Kingdom were incorporated into the updated reference layer of the catchments of sensitive areas. The quality of reported data was good; the only exception was the spatial dataset of Italy, where further amendment is needed due to high number of topology errors (polygon overlapping). Only the layer of the catchments of sensitive areas contains quality checked shape files and thus it can be used as a reference layer. Remaining shape files contains data "as reported"; these are displayed in the UWWTD map viewer but cannot be regarded as reference layers. To provide further details to the reference layer of the catchments of sensitive areas, a new layer, displaying type of sensitivity of the catchments of sensitive areas, was created. It links the spatial data with the data on receiving areas reported in the tabular datasets. Specific comments of Cyprus and Slovenia were addressed in the amendment of the reference layer finalized in March 2013.