



*WFD - Common Implementation Strategy
GIS - Working Group*

Guidance Document on Implementing the GIS Elements of the WFD

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Structure of the GIS Guidance

Introductory sections

Common Understanding

Technical Specifications (*following practical needs*)

- *Timetable*
- *Layers*
- *Data Model*
- *Feature Coding*
- *Data Validation*
- *Reference System*
- *Metadata*
- *Data Exchange and Access*

Harmonisation, Co-ordination and Organisational Issues

Prototype Experiences

Conclusions and Recommendations

Appendices



Actions related to GIS	Related Map (App. II)	Year 20..													
		03	04	05	06	07	08	09	10	11	12	13	14	15	
Assign RBS, GWs, CWs to RBDs		⊗													
List of Competent Authorities	2		●												
GIS Layer of Main Rivers and Boundaries of RBDs	1		●												
Map of Geographical Location of SWB Types	4		●												
Summary report of the analyses required under art.5 (*)				● ¹											
Summary report of the analyses required under art.8 (*)						● ²									
Publishing of river basin management plans:								●							
Map of the location and boundaries of surface water bodies	3		⊗					● [*]							
Map of the ecoregions and surface water body types	4		⊗					● [*]							
Map of the location and boundaries of groundwater bodies	5		⊗					● [*]							
Summary of the register of protected areas (location and description of the legislation under which they have been designated)	11		⊗					●							
Map of the surface water monitoring networks	6				⊗			●							
Map of the groundwater monitoring network	10				⊗			●							
Map of the results of the monitoring programmes for protected areas	12							●							
Map for each river basin district illustrating the classification of the ecological status for each body of surface water	7							●							
Map for each river basin district illustrating the classification of the ecological potential for each body of surface water	7							●							



Maps and Layers

- 12 maps
- some 30 layers (vector or point)

Data Model

- shows the various objects in their context (relationships)
- data dictionary gives details on the attributes

“... provides the basis of development of a common understanding of which objects should feature in the geographic database, and how they should be represented. The model also aims to encourage consistency in data structures to facilitate data sharing.”



Summary of Maps and GIS Layers

Map Name	Layer Code	Layer Name	Feature Type	Availability and Reporting Dates ¹
1: RBD-Overview				
	SW1	River basin district (RBD)	polygon	12/2003 (RBD) 06/2004 (CEC)
	SW2	River basin, sub-basin	polygon	
	SW3	Main Rivers ²	line	
2: Competent Authorities				
	D7	District of competent authorities	polygon	12/2003 (RBD) 06/2004 (CEC)
3: Surface Water Bodies (SWB) – categories -				
	SW4	Surface water bodies - Rivers - Lakes - Transitional waters - Coastal waters if applicable, indicated as artificial SWB or heavily modified SWB	line polygon polygon polygon	12/2004 (RBD) 12/2009 (CEC)*



Maps and Layers (Appendix II)

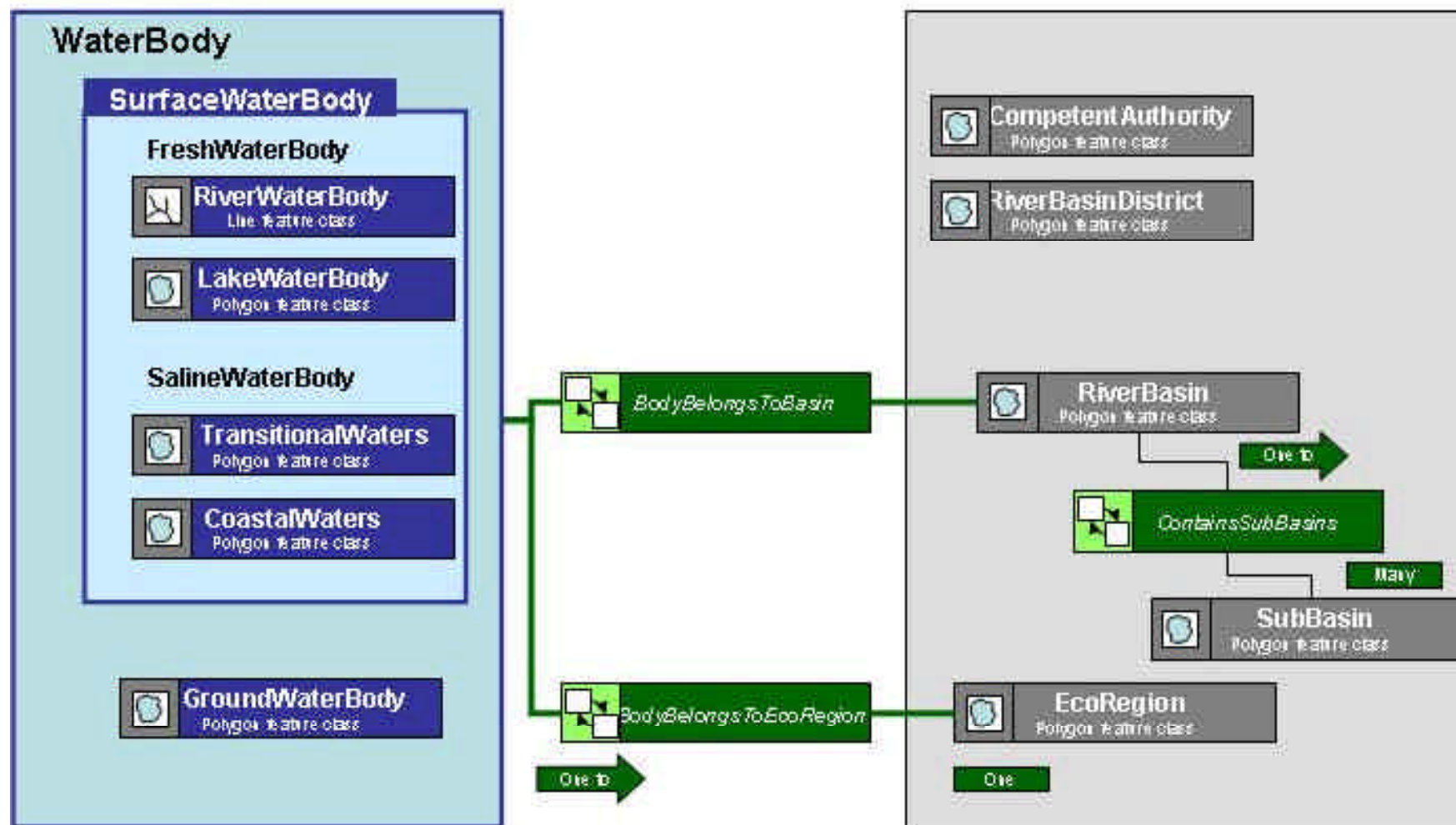
Map Number

Map Name	Layer Code	Layer	Other Layers	Definition	Attributes (see Data Dictionary for complete list)
River Basin District -overview -			D1, (D3)	annex I, ii) Geographical coverage of the river basin district- the names of the main rivers within the river basin district together with a precise description of the boundaries of the river basin district	
	SW1	River Basin District		art 2, annex I, ii) River basin district means the area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins.	Name of river basin district, European code
	SW2	River Basin, Sub-Basin		art 2, annex I, ii) River basin means the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta. Sub-basin means the area of land from which all surface run-off flows through a series of streams, rivers and, possibly, lakes to a particular point in a water course (normally a lake or a river confluence)	Name of the river basin district Name of the basin/sub basin National code European code

Positional Accuracy, Reporting Scale, Remarks, Reporting Date



Data Model





Data Dictionary

RiverWaterBody

Attribute	FieldName	Definition	Type	Length	Restrictions
Shape	SHAPE	Geometry (lines)	Geometry		Mandatory
EuropeanCode	EU_CD	Unique code for a waterbody at EU level	String	24	Mandatory. As per coding guidelines
Name	NAME	Locally used name	String	100	Mandatory
MSCode	MS_CD	Unique code for a waterbody within MS	String	22	As per coding guidelines
EcoRegionCode	REGION_CD	Ecoregion to which a waterbody belongs	String	2	Mandatory. Foreign Key to REGION_CD in EcoRegion
System	SYSTEM	Type of characterization of a waterbody	String	1	Mandatory {A, B}
InsertedWhen	INS_WHEN	Moment of insertion in the database	Date	YYYYM MDD	Mandatory
InsertedBy	INS_BY	Acronym of operator	String	15	Mandatory
RiverBasinCode	BASIN_CD	The code of the parent river basin (see coding system)	String		Mandatory. Foreign Key to EU_CD in RiverBasin



Data Validation

- follows ISO standards
- specifies most important quality elements

Reference System

- use European Terrestrial Reference System (ETRS89) as geodetic datum (seamless data)
- report data in ellipsoidal co-ordinates
- in addition, three map projections are proposed (depending on scale and application)



Metadata

- follows ISO 19115 standard
- creation of a specific metadata profile is expected for mid 2003 (INSPIRE)

Standards for Data Exchange

- proposes a common data exchange format
- short-term: centralised system (shapefiles)
- long-term: de-centralised system
- recommended File Names (Data Dictionary)

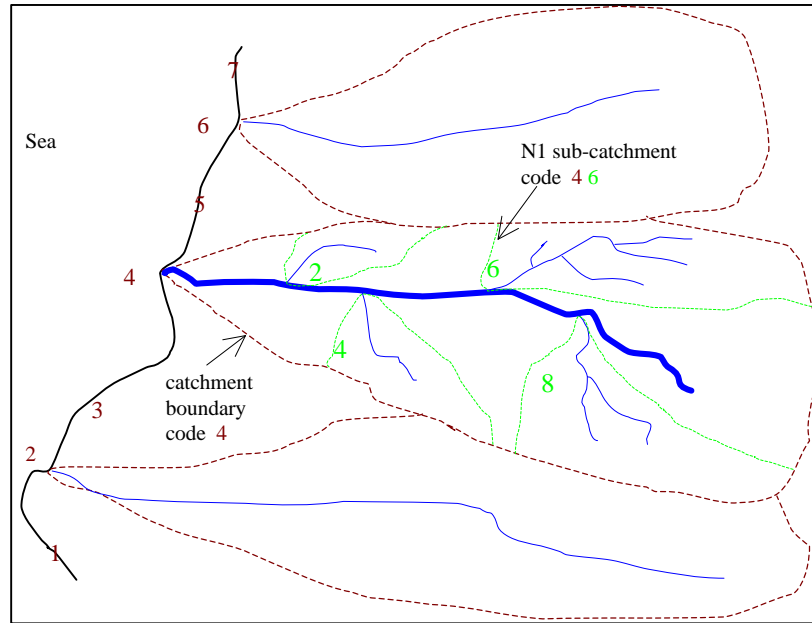


Feature Coding

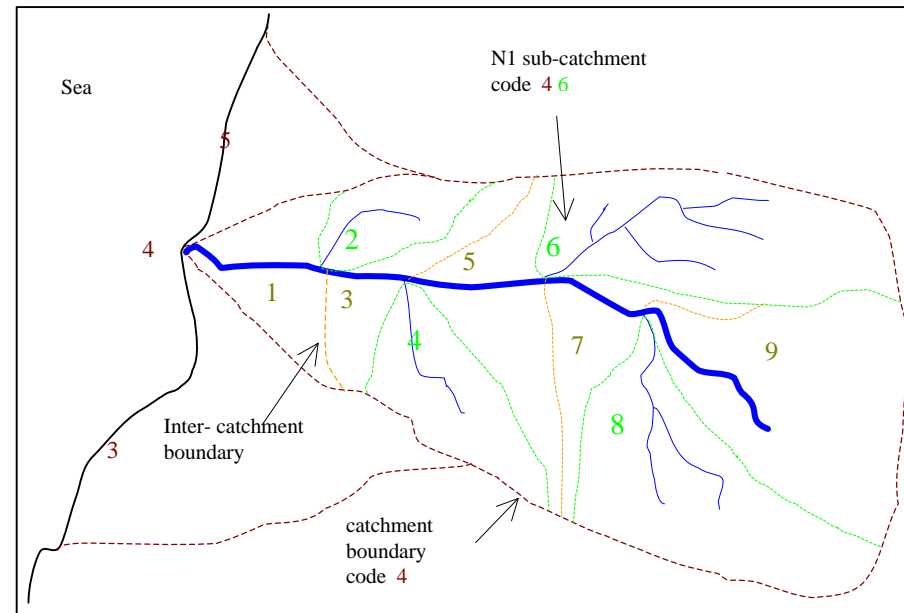
- **important: unique European feature identifiers**
- **short-term: system, which builds on national systems**
- **long-term: development towards a more intelligent feature coding system (intermediate: Pfaffstetter)**



Pfaffstetter Codes



A: Main Rivers



B: Inter Basins



Recommendations

- 1. Install an office in charge of the short-term receiving, handling and validating of GIS layers and maps (Data Custodian).**
- 2. Install an office in charge of investigating the user requirements and of supporting the long-term implementation and maintenance of a de-centralised reporting system.**



Recommendations

3. Install a dedicated Thematic Working Group under or linked to the INSPIRE initiative, to

- (a) follow the developments under INSPIRE,**
- (b) ensure a close liaison with the upcoming Framework Directive on Reporting,**
- (c) ensure a link to the Pilot River Basins and integrate their feedback,**
- (d) follow-up the work of the GIS Working Group:**
 - contribute to the development of a dedicated metadata profile,**
 - propose details for the data harmonisation process,**
 - follow emerging standards for data exchange and access,**
 - prepare for the long-term implementation of a European hydrological feature coding system.**
- (e) investigate problems related to the analysis of impacts and pressures and the analysis of underlying data (subject to a request by the SCG).**



- **The GIS Guidance Document is available on the WFD Web Site of DG Environment * and on the JRC Eurolandscape Web Site ****
- **If you have further questions, you can always refer to DG Environment or your national representative in the GIS WG**

* http://europa.eu.int/comm/environment/water/water-framework/index_en.html

** <http://eurolandscape.jrc.it/watershed/ccm.html>