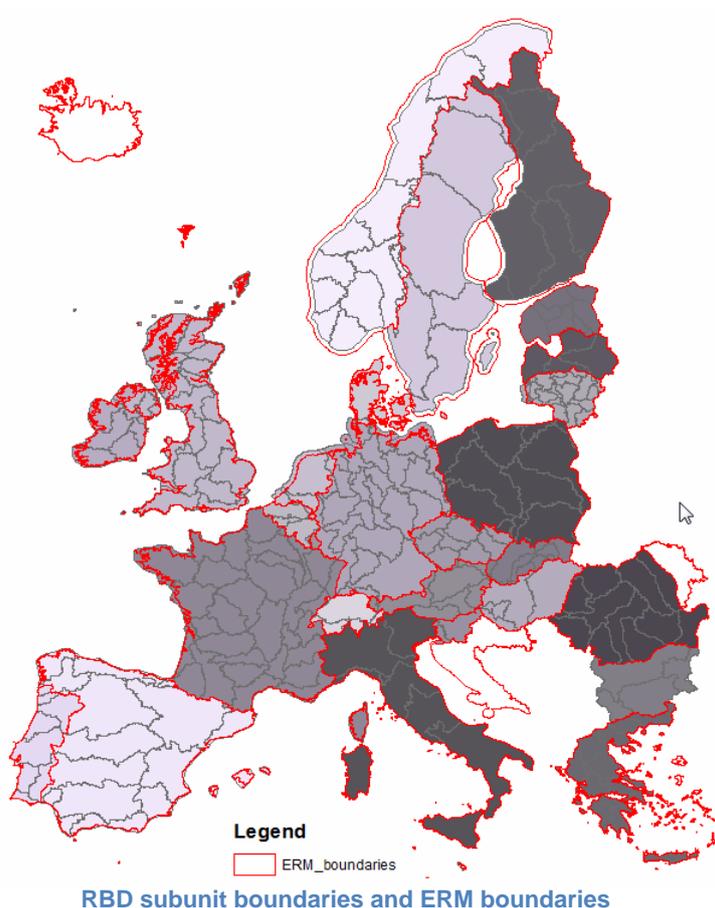


River Basin Districts and subunits

Description of dataset and processing

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Definition

River Basin Districts (RBD) and/or their subunits (SU) are the main units for the management of river basins and have been delineated by Member States under Article 3 of the Water Framework Directive. The geographic area of most RBD's are contained completely within a country and are known as National RBDs. Others span more than one country (such as the Danube) and these are known as International RBDs. River basin districts are defined as the area of land and sea, made up of one or more neighbouring river basins together with their associated ground waters and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins. Coastal waters are defined as one nautical mile from the baseline and extending, where appropriate, up to the outer limit of transitional waters. Coastal waters are included in RBDs, but this is not consistently reported by Member States. Transitional waters are defined as bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows. For more information about European waters, please visit the WISE portal (<http://water.europa.eu/>).

Reference data

The national borders of the RBD/RBDSU 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. This is the case for instance in Sweden, Norway, United Kingdom, Germany, and The Netherlands.

Attributes

Since the last version f1v3 in order to make the administrative districts more uniform regarding size the European Commission decided to split up the large RBDs into subunits. RBDs exceeding the threshold of 50,000 km² should be divided into subunits (SU). The recommended size of SU is between 5000 and 50000 km² (but smaller are inevitable and larger are possible). Therefore the dataset now includes more attributes related to the subunits. The attributes in the current version are:

RBD Subunits f1v4 attribute fields

Attribute name	Field name	Description of the attribute	Values and codelists
Database Internal Key	OBJECTID		Automatic value
Country Code	C_CD	Code for the country the part of the river basin district is lying in	ISO3166 ¹
EU RBD Code	EURBDCode	Unique RBD code submitted by MS via WFD Art. 3 reporting, national RBD code. national code prefixed by country code	ISO3166 & [EUCD_RBD]

¹ The country code refers to ISO3166 in accordance with the CIS GIS guidance document 22 http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents/guidance-no22-nov08pdf_1/ EN_1.0_&a=d. For display in documents published by European institutions, the inter-institutional style guide: <http://publications.europa.eu/code/pdf/370000en.htm> should be followed, which implies the exceptions for Greece (Hellenic Republic) and the United Kingdom (United Kingdom for Great Britain and Northern Ireland), for which the abbreviations EL and UK are recommended.

MS RBD Code	RBD_MS_CD	Unique RBD code submitted by MS via WFD Art. 13 reporting, national RBD code	
RBD Name	RBDName	Name of RBD (english language)	
RBD Name NL	RBDNameNL	Name of RBD (native language)	
International RBDs	International	Identification of national and international RBDs	Yes / No
International Name	InternationalName	International name of RBD	
European Subunit Code	EUSubUnitCode	Unique subunit code, identifying national subunits (laying completely within a MS) and national parts of international subunits (including the country code)	
MS Subunit Code	MS_SubUnitCode	Unique subunit code submitted by MS via WFD Art. 3 reporting, national subunit code	
Subunit Name	SubUnitName	Name of subunit (english language)	
Subunit Name NL	SubUnitNameNL	Name of subunit (native language)	
International Code	intCode	RBD codes for non EU countries	
EuropeanRBDCode	EUCD_RBD	A code assigned at EU level according to the international RBD the national RBD is part of.	
Shape Length	Shape_Length	Length calculated automatically by ArcGIS in meters	
Shape Area	Shape_Area	Area calculated automatically by ArcGIS in square meters	
RBD Area	RBD_Area	Area calculated in ArcGIS in square kilometers	
Subunit Area	SubUnit_Area	Area calculated in ArcGIS in square kilometers	

Processing

The dataset is a composition of individual submissions of RBDs/RBDSUs from Member states and few other countries available at EIONET Central Data Repository: <http://cdr.eionet.europa.eu/>. Each country submits polygon shape files, representing the geography, and xml-files with attributes that are joined to each polygon. All countries are thus merged together as one big dataset. Since the version f1v3, the dataset has been through an overall quality control and cleaning where all internal as well as external gaps and overlaps have been eliminated.

Internal inconsistencies

The GIS Working Group under WISE recommended that the required positional accuracy for reported data should be better than 125 metres. Many overlaps and gaps between adjacent RBD's and RBDSU's were thus eliminated by using a corresponding cluster tolerance. Obvious reported errors were detected mainly by using the topology rules 'must not have gaps' and 'must not overlap'. In those cases Member states were contacted in order to solve the problems.

External inconsistencies

The external inconsistencies (i.e. between countries) were eliminated using the following procedures:

Eliminating overlaps:

- Splitting up ('Split' tool) the RBDSU into the different ERM countries (only areas inside ERM polygons as results)

- Selecting ('Select' tool) creating a new feature class using a where-clause that selects where C_CD = the current country
- Merging ('Merge' tool) all the 'overlap-clean' feature classes
- Dissolving on EU RBDSU code

Eliminating gaps:

- Comparing against the ERM layer by using the tool 'Symmetrical Difference'. This tool fills out the gaps by creating polygons everywhere where there is no overlap between RBDSU and ERM. The output feature class contains the attributes of the ERM layer (country codes). Make sure choosing 'only FID' attribute in order to keep all little polygons as individual features.
- Splitting up all gap-multipolygons using 'Multipart to single part' tool
- Merging the "gap-layer" with the RBDSU (free of overlaps).
- Once again splitting up into separate ERM countries
- To getting rid of/ integrating the gap features the following were done:
 - Selecting all little gap-polygons for each country (some manual work, important to check that the right polygons are selected)
 - Merging the selected gap-polygons with the nearest RBD subunit using the 'Eliminate' tool
 - Checking for all countries where two RBDSU adjoin the country borders and correcting if a previous gap fill out caused a problem (some manual work like cutting and merging polygon parts)
- Merging together again into one feature class after all countries were cleaned
- Last step were merging all areas outside the ERM polygons to the cleaned part inside the ERM polygons. This were done by:
 - First cutting out ('Erase' tool) from the non-cleaned RBD SU layer what's outside the cleaned feature class using the cleaned RBDSU as erase feature class
 - The output was then all RBD areas outside the ERM. However there were also a lot of small areas along the outer side of the ERM border that due to inaccuracy had been overlapping the ERM. These areas were selected manually and deleted.
 - Merging the outside areas with the inside
 - Dissolving on RBDSU code
 - Final checking for gaps using the 'Union' Tool by setting it to filling out empty space.

Changes from previous version of dataset (f1v3)

- 1) Inclusion of sub-units;
- 2) Data model has changed to reflect updated reporting structure of Water Framework Directive and streamlining;
- 3) Non-EU parts of international River Basin Districts have been removed from the dataset (available separately);
- 4) West Balkans is not included as there are missing mandatory parameters in the 2-letter country code, in EURBDCode or RBD_MS_CD;
- 5) Norway split RBD NO5104 into NO5105 and NO5106, and split NO5103 into NO5103 and NO5104;
- 6) Sweden split SE1 into SE1 and SE1TO;
- 7) UK – Northern Ireland RBD codes have been prefixed with 'UK';
- 8) Spain split RBD ES062 into ES063 and ES064;
- 9) Czech Republic updated RBD codes (boundaries remain same);
- 10) Luxembourg updated RBD codes (boundaries remain same).

Release with and without subunits

The RBD layer is a derived layer of the RBDSU where all subunits are aggregated. Creating the RBD layer has been done by using the ArcGIS 'Dissolve' tool. When fields related to the subunits only are un-ticked in the tool wizard all subunit polygons will be aggregated within their parent RBD. The River basin Districts and subunits are therefore released as two layers, one with and one without subunits:

- 1) WFD_RBDSU_f1v4
- 2) WFD_RBD_f1v4