Country fiche: Spain

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1. Introduction

The European Environment Agency (EEA) manages water data and information reported either voluntarily by EEA member countries (water quality in groundwater, rivers, lakes; emissions of pollutants and water quantity); and data reported via REPORTNET under EU water directives: Water Framework Directive (WFD); Bathing Water Directives (BWD) and Urban Waste Water Treatment Directive (UWWTD), Nitrate Directive (NiD) and Drinking water Directive (DWD). Reported data are processed at EEA and stored in water data center. They can be also accessible on EEA home page. Data reported under Nitrate Directive (NiD) and Drinking water Directive (DWD) are not yet available at EEA water data center home page.

The aim of the country fiches is both to clean-up and correcting errors in the data member countries now have reported for 15-20 years. Some errors have been introduced by the EEA and its Topic Centres handling of the reported data; others is due to errors introduced in member countries reporting.

Another aspect is to improve the spatial and temporal coverage and to ensure that the relevant determinands are reported.

- In some cases member countries will be asked for more stations to increase the spatial coverage or density of stations; or questions on why data have not been reported from some of the RBDs.

- EEA water quality indicators are for trend assessments based on consistent time series with some gap filling. For a single country consistent time series are established for the defined period (e.g. 1992-2012; or 2000-2012) with some gap filling(e.g. up to 3 years) and only stations with values for all years in the defined period are used. This ensure that any trend is because of change in the observations and not in the stations included.

- In the current data set the reporting of some high priority determinands has stopped or there has been change in the determinands in the database e.g. cadmium changed to dissolved cadmium. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. nitrate or orthophosphate) have as complete coverage as possible.

The last part is on ensuring linkage between the different Waterbases by having a common coding system (Water Body ID) and linked to different reference layers such as the RBDcodes.

2. Reporting obligations from European Water Directives

Spain reporting of data in relation to EU water directives have in the last years took place via the Central Data Repository (CDR Spain), a part of REPORTNET. Below is listed an overview of Spain's reporting as found at present at CDR. Spain may have reported by other format directly to the European Commission).

- Bathing Water Directive (2006/7/EC) Link – Spain's reporting under the Bathing Water Directive is further described in the annual national report published by EEA available at Link and the data is available here Link
- Drinking Water Directive Report (98/83/EC) - Link. Data related to two "3 yearly report on quality of water for human consumption" are available for the period 2005-2007 and 2008-2010.
- Floods Directive Preliminary flood risk assessment

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- Floods Directive Unit of Management and Competent Authorities. Link, Spanish Competent Authority and Units of Management,
- Preliminary flood risk assessment Link.

- Nitrates Directive (91/676/EEC) - Link. Report/data related to the Nitrate Directive reporting period 2004-2007 and 2008-2011.
- Urban Waste Water Treatment Directive
  - Monitoring (91/271/EEC) [Art 15] - Link. 2011 UWWT data plus archive over previous reporting.
  - Article 16 - Situation report – Link. *No data in CDR yet*.
  - Article 17 - National Implementation Programme – Link. *No data in CDR yet*.
- Water Framework Directive
  - Art. 3 reporting (River Basin Districts and Competent Authorities) – Link.
  - Art. 5 reporting – Link.
  - Art. 8 (Monitoring programmes) – Link.
  - Art. 13 (River Basin Management Plans) – Link.
  - Art. 15.3 Progress on implementation of programmes of measures – Link.

3. Overview on WFD reporting in Spain

In this chapter a short overview on reporting under the Water Framework Directive in Spain is given.

Figure 1.1: *Map of River Basin Districts*
International River Basin Districts (within EU)
International River Basin Districts (outside EU)
National River Basin Districts (within EU)
Countries (outside EU)
Coastal Waters
Source: *WISE, Eurostat (country borders)*

Source: Spanish WFD implementation report

http://ec.europa.eu/environment/water/water-framework/pdf/CWD-2012-379_EN-Vol3_ES.pdf

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RBD	Name	Size (km^2)	International	Countries sharing RBD
ES010	Minho-Sil	17574	✓	PT
ES014	Galician Coast	16372		-
ES017	Cantábrico Oriental	6412	✓	FR
ES018	Cantábrico Occidental	19003		
ES020	Duero	78859	✓	PT
ES030	Tagus	55772	✓	PT
ES040	Guadiana	55453	✓	PT
ES050	Guadalquivir	57731		-
ES060	Andalusia Mediterranean Basins	20021		-
ES063	Guadalete and Barbate	6468		-
ES064	Tinto, Odiel and Piedras	4930		-
ES070	Segura	20122		-
ES080	Jucar	45118		-
ES091	Ebro	85914	✓	AD, FR
ES100	Internal Basins of Catalonia	17980		FR
ES110	Balearic Islands	8741		-
ES120	Gran Canaria	2097		-
ES122	Fuerteventura	2871		-
ES123	Lanzarote	2106		-
ES124	Tenerife	2827		-
ES125	La Palma	973		-
ES126	La Gomera	525		-
ES127	El Hierro	520		-
ES150	Cueta	60		MA
ES160	Melilla	32		MA

Table 1.1: *Overview of Spain's River Basin Districts*[1]
Source: *River Basin Management Plans reported to WISE*[2]*:* *http://cdr.eionet.europa.eu/es/eu/wfdart13*

The WISE-WFD database contains data from River Basin Management Plans reported by EU Members States according to article 13 of the Water Framework Directive. A number of aggregation queries provide an overview on number and statistics of water bodies, on status assessments and pressures and impacts for both surface water bodies and groundwater bodies.

The following queries are available:

- Numbers and statistics of surface water bodies
- Ecological and chemical status of surface water bodies
- Significant pressures affecting surface water bodies
- Impacts on surface water bodies
- Numbers and statistics of groundwater bodies
- Chemical and quantitative status of groundwater bodies

The information is aggregated at country, river basin district (RBD) or in some cases even RBD-subunit level and can be downloaded here.

4. Eionet priority data flows – SoE data (Waterbase)

The EEA Eionet priority data flows identify a set of agreed, stable, well-defined objectives to provide a focus for countries when they are putting procedures in place for regular reporting. Spain has in the period from 2000 to 2014 reported on water quality in rivers, lakes and groundwater. Some years data for lake and groundwater quality were not delivered. Information on water quantity has been reported in 2005 and 2006, and from 2010 to today, but not in the requested format; Emission data are inserted from E-PRTR.

Spain – performance of EEA priority inland data flows

Data flow name	Status	Progress 2012-2013	Progress 2013-2014	Remark
EWN1: River quality	2014-02-25			Data delivered on time and in the requested format. Feedback to reported issues provided. Monitoring stations with coordinates provided. Data on 5 preferred SoE nutrient delivered. Hazardous substances data delivered. Proxy pressures data provided. Some long time series on preferred SoE nutrients available. Biology data not delivered but explanation provided.
EWN2: Lake quality	2014-02-27			Data delivered on time and in the requested format. No reply to critical QA issues on previously reported data. Monitoring stations with coordinates provided. Data on 5 preferred SoE nutrient delivered. Hazardous substances data delivered. Proxy pressures data provided. Short time series on preferred SoE nutrients available. Biology data delivered.
EWN3: Groundwater quality	2014-02-04			Data delivered on time and in the requested format. Data for 4 of the 5 requested chemical substances provided but only in aggregated form. Monitoring sites with coordinates and links to GW bodies provided. GIS data for GW bodies and list of GW bodies with most important attributes and pressure data provided.
EWN4: Water quantity [1]	2014-02-07			Data delivered on time but not in the requested format.
WISE1: Emissions to water [1]	2014-02-03			No data delivery under WISE-SoE data collection 2013, data from E-PRTR inserted.

Note: Further information and scoring criteria is available here:
http://www.eionet.europa.eu/dataflows/pdf2013/history?country=ES
http://www.eionet.europa.eu/dataflows/pdf2013/country_summary?country=ES

4.1 Rivers and Lakes

Remark: all queries (which are still under development) and outcomes on rivers and lakes can be found here: http://www.tcvode.si/wise_soe_country_fiche/#

In Chapters 2.1.1 and 2.1.4 reporting on nutrients, organic matter and general physico-chemical determindands is illustrated. For simplification only the term nutrients is used in the descriptions.

Rivers – Nutrients, Organic Matter and General Physico-Chemical Determinands

Issues to be clarified:

- Have data for all SoE nutrients of highest priority[1] been reported consistent over the years?
- Are stations with monitoring of highest priority nutrients covering all RBDs?
- Are longer time series (since 1992) for preferred nutrients available?
- Are stations codes consistent and is it possible to link the stations with WFD water bodies?
- Member State specific issues, if such occur

Spain has been reporting data on nutrients in rivers from 1990 on. Table 1 below provides an overview by determinands (highest priority nutrients) of the number of river stations per year for the period 1992 to 2012.

In some cases Spain didn`t report nutrients in the last years (Total oxidised nitrogen, CODMn), and there are gaps in some years, e.g. Total nitrogen in 2007 or 2011 or Total Ammonium in 2007. In 2011 there is a gap in TOC reporting, but a value for DOC has been submitted. In general there seems to be a change in reporting from 2007 to 2008.

Table 1: Number of river stations per determinand/year (nutrients of highest EEA priority)

Determinand_Nutrients	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nitrate	154	147	226	214	268	291	266	271	496	576	581	572	580	554	307	607	1152	1185	1474	814	746
Total oxidised nitrogen	0	0	61	61	157	190	202	197	201	222	200	380	389	377	229	0	1110	1193	1391	0	0
Total nitrogen	0	0	53	39	60	86	94	91	80	82	88	144	150	151	76	0	123	277	509	0	137
Orthophosphates	146	149	248	254	228	220	177	202	311	258	237	237	237	233	193	515	1077	1045	1401	726	703
Total phosphorus	0	0	43	58	59	1	1	1	1	15	151	197	227	232	210	562	897	823	1062	441	453
BOD5	155	163	231	211	297	352	327	338	506	553	581	539	528	464	272	494	713	738	1002	336	375
Total organic carbon (TOC)	0	0	0	0	8	11	10	9	10	69	70	56	53	94	9	75	330	395	434	0	325
Dissolved organic carbon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	336	0
CODMn	155	159	149	57	124	153	133	126	159	168	162	164	262	369	209	163	170	0	0	0	0
CODCr	11	60	165	144	112	142	113	143	331	193	220	323	285	274	171	354	550	569	742	403	391
Total ammonium	121	118	437	409	491	322	286	304	508	490	505	546	485	480	287	0	1016	1313	1479	757	711

Note: In the current data set the reporting of some high priority determinands has stopped or there has been a change in the determinands in the database, e.g. TOC to dissolved organic carbon. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. nitrate or orthophosphate) have as complete coverage as possible.

Table 2 shows the number of river stations by River Basin Districts which reported on nutrients for the period from 1992 – 2012. Spain reported data from around 3100 river stations for nutrients in 15 RBDs in this period, but in Spain there are 25 RBDs at all (see reporting under WFD). For the smaller

[1] Determinands of highest priority in terms of EEA`s needs are determinands which are or will be used in EEA assessments (e.g. CSI).

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RBDs no data were submitted. In 2012 there was a change in RBD codes ES015 and ES016 to ES017 and ES018 (this change will be introduced into the Waterbase for rivers and lakes soon). In some RBDs the reporting stopped in 2011 and 2012, sometimes there are gaps in reporting or bigger changes in the number of river stations with reporting on nutrients. The number of river stations for nutrients has changed significantly in the course of the years. There was a generally increasing trend from 158 stations in 1992 to 627 stations in 2007, in 2008 to 2010 about twice the number of stations have been reported, with a decreasing trend for the next two years.

Table 2: Number of river stations for nutrients by River Basin Districts for the period 1992 – 2012

RBDcode	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
ES010	3	3	6	7	21	17	17	15	21	21	21	21	21	21	17	16	0	0	44	29	40
ES014	0	0	1	4	4	0	0	0	4	4	4	4	4	4	0	41	39	37	27	0	0
ES015	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	18	37	42	39	28	28
ES016	6	6	17	13	34	39	34	38	50	50	50	50	50	50	41	31	39	32	205	187	80
ES020	26	26	44	44	79	63	63	61	81	82	80	99	100	101	82	82	92	90	95	103	102
ES030	28	28	72	50	51	81	80	72	87	103	96	95	99	102	79	81	255	263	278	0	0
ES040	8	7	45	45	56	12	11	11	58	57	57	56	58	57	12	12	46	60	54	51	15
ES050	14	13	33	30	47	39	40	40	63	64	65	68	68	68	49	68	127	131	124	0	0
ES060	0	0	14	14	14	0	0	0	14	14	14	14	15	0	0	0	25	28	30	29	24
ES063	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	26	23	0	0
ES064	0	0	2	7	4	0	0	0	8	8	8	8	8	8	0	0	12	20	23	0	0
ES070	0	0	6	6	0	1	1	1	7	7	7	7	7	7	1	2	8	6	69	7	4
ES080	20	20	84	81	81	47	48	47	82	84	86	86	82	87	0	66	101	83	112	81	81
ES091	52	61	98	100	103	73	44	75	106	106	122	116	117	118	98	235	269	267	208	163	139
ES100	0	0	55	55	52	0	0	0	0	58	60	46	46	0	0	0	175	232	274	227	226
total	**158**	**165**	**478**	**457**	**547**	**374**	**340**	**362**	**583**	**660**	**672**	**672**	**677**	**625**	**381**	**652**	**1244**	**1317**	**1605**	**905**	**739**

Note: One aspect of the country fiches is to improve the spatial coverage and ensure that stations are reported for all RBDs.

The figure below illustrates the river stations with nutrient reporting in 2013 (covering the year 2012) in Spain. From this it can be seen that big parts of Spain have not been covered with reporting in 2012 and that some RBDs have a higher density of stations than others.

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Figure 1: SoE river stations with nutrient data reported in 2013 in Spain RBDs

For the period 1992 to 2012 Spain has reported around 2900 river stations with monitoring of nitrate, but most of the stations have only a few years of observation and only less than 100 stations have more than 15 years of data (Table 3). Explanation may be that there is a break in the station codes around 2006-2008 (see also Table 4 and Table 5), the time series runs from 1992 to 2005/2007 and are not connected to similar stations from 2008 onwards.

Table 3: Length of nitrate time series in Spain for period 1992 – 2012 (value in the table fields is number of stations with x years' time series)

	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr	7 yr	8 yr	9 yr	10 yr	11 yr	12 yr	13 yr	14 yr	15 yr	16 yr	17 yr	18 yr	19 yr	20 yr	21 yr
No of stations with time series with x years length	839	432	480	416	237	220	19	16	36	9	28	26	21	19	3	70	24	0	0	0	0

Note: EEA water quality indicators are used for trend assessments based on consistent time series with some gap filling. For a single country consistent time series are established for the defined period (e.g. 1992-2012; or 2000-2012) with some gap filling (e.g. up to 3 years) and only stations with values for all years in the defined period are used. This ensures that any trend is because of change in the observations and not in the stations included.

Spain reports data for many river stations. In Table 4 and Table 5 the number of nutrients measurements per station and year for a section of River Basin District ES010 can be seen as an example. For some RBDs sometimes the RBD name and no (or seldom) the waterbody name has been reported, otherwise waterbody name has been reported, but no RBD name. In case RBD name was reported, values are available for the years 2000 – 2007, when water name is reported, values are available for 2010 – 2012. In the next table the data have been sorted by River name, and from that it appears that sometimes the national station name is the same, but the national station ID is differing.

The main issue for Spain is that there up to 2005/2007 (depending of RBD) was one station coding and this station coding is different from the station coding after 2009 – therefore the time series are broken. If the time series are connected – many Spanish stations would again be useful as consistent timeseries; however when they are connected there will besome missing years – e.g. 2006-2009 CABRERA or 2008-2009 for MIÑo/LUGO (SAICA).

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Table 4: Number of nutrients measurements per station/year (sorted by RBDname): example RBDES010 (only a section of the data is illustrated in the table)

RBDcode	RBDname	RiverName	WaterBodyID	WaterBodyNa	NationalStationID	NationalStationName	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
ES010	NORTHERN SPAIN	ARNOYA	20027	FRIEIRA	ES110283	PTE ARNOIA	4	5	6	6	5	12	9	9	0	0	0	0	0
ES010	NORTHERN SPAIN	ASMA	12596		ES110216	CHANTADA	7	9	7	6	8	9	9	10	0	0	0	0	0
ES010	NORTHERN SPAIN	BOEZA	12601		ES110239	BEMBIBRE	7	8	9	7	8	8	9	9	0	0	0	0	0
ES010	NORTHERN SPAIN	CABE	12602		ES110218	**EST. AFOROS RIBASALTAS**	9	10	11	11	9	8	9	9	0	0	0	0	0
ES010	NORTHERN SPAIN	CABRERA			ES01734	**EST. AFOROS P.D. FLOREZ**	7	7	8	9	9	7	0	0	0	0	0	0	0
ES010	NORTHERN SPAIN	CARVALLO	12719		ES110299	**EL ROSAL**	6	6	5	5	7	6	7	8	0	0	0	0	0
ES010	NORTHERN SPAIN	CUA			ES01724	**LA RANA**	7	8	8	10	10	9	0	0	0	0	0	0	0
ES010	NORTHERN SPAIN	LADRA	12522		ES110163	PONTENOVO	5	9	6	6	6	6	7	8	0	0	0	0	0
ES010	NORTHERN SPAIN	LOR	12597		ES110252	**PARADA**	9	5	9	7	8	8	6	9	0	0	0	0	0
ES010	NORTHERN SPAIN	LOURO	12696		ES110284	**PTE N-550**	12	12	12	12	13	13	13	10	0	0	0	0	0
ES010	NORTHERN SPAIN	MIÑO	12534		ES110168	**LUGO (SAICA)**	9	13	12	11	12	11	12	11	0	0	0	0	0
ES010	NORTHERN SPAIN	MIÑO	12649		ES110243	OURENSE (SAICA)	10	10	11	12	12	11	9	11	0	0	0	0	0
ES010	NORTHERN SPAIN	MIÑO	13312		ES110292	SALVATIERRA (SAICA)	11	12	12	12	12	11	12	10	0	0	0	0	0
ES010	NORTHERN SPAIN	QUIROGA	20041	SAN ESTEBAN	ES110253	QUIROGA	4	4	4	5	4	6	5	9	0	0	0	0	0
ES010	NORTHERN SPAIN	SAN MARTIN	12526		ES110164	MOURENZE	6	6	5	5	7	6	7	8	0	0	0	0	0
ES010	NORTHERN SPAIN	SELMO	12615		ES110229	FRIERA	7	6	6	8	7	7	5	0	0	0	0	0	0
ES010	NORTHERN SPAIN	SIL			ES01709	EMBALSE DE BARCENA	9	7	8	11	11	10	0	0	0	0	0	0	0
ES010	NORTHERN SPAIN	SIL			ES01769	EMBALSE DE SAN PEDRO	7	7	8	8	10	9	0	0	0	0	0	0	0
ES010	NORTHERN SPAIN	SIL	12729		ES110228	REQUEJO-VALIÑA (SAICA)	8	9	8	9	10	10	10	9	0	0	0	0	0
ES010	NORTHERN SPAIN	TEA	12669		ES110274	FREIXA	7	8	8	7	7	10	8	10	0	0	0	0	0
ES010	NORTHERN SPAIN	TEA	12732		ES110291	FILLABOA	7	7	10	9	5	9	5	9	0	0	0	0	0
ES010		ARENTEIRO	NP		ESNO01870001	A GRANXA	0	0	0	0	0	0	0	0	0	0	16	10	15
ES010		ARNOYA	ES010MSPFES4	RÍO ARNOIA II	ESNO02260001	ABUIN	0	0	0	0	0	0	0	0	0	0	16	10	15
ES010		BARBAÑA	ES010MSPFES4	RÍO BARBAÑA	ESNO01870003	OURENSE	0	0	0	0	0	0	0	0	0	0	13	0	10
ES010		BARBAÑA	ES010MSPFES4	RÍO BARBAÑA	ESNO02250008	AGUAS ABAJO ESTACION	0	0	0	0	0	0	0	0	0	0	9	0	11
ES010		BIBEY	ES010MSPFES4	RÍO BIBEI III	ESNO02660002	EMBALSE DE SAN AGUSTÍN	0	0	0	0	0	0	0	0	0	0	11	9	13
ES010		CABE	ES010MSPFES4	RÍO CABE II	ESNO01560002	**EST. AFOROS RIBASALTAS**	0	0	0	0	0	0	0	0	0	0	12	8	12
ES010		CABRERA	ES010MSPFES4	RÍO CABRERA II	ESNO01910006	**EST. AFOROS P.D. FLOREZ**	0	0	0	0	0	0	0	0	0	0	12	7	9
ES010		CADONES	ES010MSPFES5	RÍO CADONES	ESNO02630003	IGLESIA CALVOS	0	0	0	0	0	0	0	0	0	0	11	9	13
ES010		CARVALLO	ES010MSPFES5	RÍO CARBALLO	ESNO02990001	**EL ROSAL**	0	0	0	0	0	0	0	0	0	0	13	9	13
ES010		CASELAS	ES010MSPFES5	RÍO CASELAS	ESNO02610016	MI155	0	0	0	0	0	0	0	0	0	0	11	7	12
ES010		CONSETO	ES010MSPFES4	RÍO CONSELO	ESNO02610013	O MARCO LONGO	0	0	0	0	0	0	0	0	0	0	9	7	8
ES010		COUSO DEL	ES010MSPFES4	ARROYO DEL	ESNO01580024	MI757	0	0	0	0	0	0	0	0	0	0	9	0	11
ES010		CUA	NP		ESNO01000001	MI057	0	0	0	0	0	0	0	0	0	0	12	7	10
ES010		CUA	ES010MSPFES4	RÍO SIL V	ESNO01580006	**LA RAÑA**	0	0	0	0	0	0	0	0	0	0	12	7	10
ES010		DEVA	ES010MSPFES4	RÍO DEVA V	ESNO02620005	ARBO	0	0	0	0	0	0	0	0	0	0	16	10	15
ES010		LADRA	ES010MSPFES3	RÍO MIÑO IV	ESNO00720002	EST. AFOROS BEGONTE -	0	0	0	0	0	0	0	0	0	0	12	8	12
ES010		LIMIA	ES010MSPFES5	RÍO LIMIA III	ESNO02630002	PTE. LINARES	0	0	0	0	0	0	0	0	0	0	18	9	15
ES010		LOR	ES010MSPFES4	RÍO LOR II	ESNO01890001	**PARADA**	0	0	0	0	0	0	0	0	0	0	13	9	13
ES010		LOURO	ES010MSPFES5	RÍO LOURO I	ESNO02610001	**PTE N-550**	0	0	0	0	0	0	0	0	0	0	14	0	13
ES010		LOURO	ES010MSPFES5	RÍO LOURO I	ESNO02610018	MI753	0	0	0	0	0	0	0	0	0	0	9	0	10
ES010		MACEDA	ES010MSPFES4	RÍO MACEDA	ESNO02260002	MACEDA	0	0	0	0	0	0	0	0	0	0	11	9	12

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Table 5: Number of nutrients measurements per station/year (sorted by NationalStationName): example RBDES010 (only a section of the data is illustrated in the table)

RBDcode	RBDname	RiverName	WaterBodyID	WaterBodyName	NationalStationID	NationalStationName	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
ES010		ARENTEIRO	NP		ESNO01870001	A GRANXA	0	0	0	0	0	0	0	0	0	0	16	10	15
ES010		ARNOYA	ES010MSPFES48	RÍO ARNOIA II	ESNO02260001	ABUIN	0	0	0	0	0	0	0	0	0	0	16	10	15
ES010		MIÑO	ES010MSPFES37	RÍO MIÑO VII	ESNO00720007	AGUAS ABAJO	0	0	0	0	0	0	0	0	0	0	18	0	13
ES010		BARBAÑA	ES010MSPFES46	RÍO BARBAÑA	ESNO02250008	AGUAS ABAJO ESTACION	0	0	0	0	0	0	0	0	0	0	9	0	11
ES010			12729		ESNO01580013	AGUAS ABAJO VERTIDOS	0	0	0	0	0	0	0	0	0	0	2	0	0
ES010		DEVA	ES010MSPFES49	RÍO DEVA V	ESNO02620005	ARBO	0	0	0	0	0	0	0	0	0	0	16	10	15
ES010	NORTHERN SPAIN	BOEZA	12601		ES110239	BEMBIBRE	7	8	9	7	8	8	9	9	0	0	0	0	0
ES010			12606		ESNO01580005	CARRACEDO DEL	0	0	0	0	0	0	0	0	0	0	12	0	0
ES010	NORTHERN SPAIN	ASMA	12596		ES110216	CHANTADA	7	9	7	6	8	9	9	10	0	0	0	0	0
ES010	NORTHERN SPAIN	CARVALLO	12719		ES110299	EL ROSAL	6	6	5	5	7	6	7	8	0	0	0	0	0
ES010		CARVALLO	ES010MSPFES50	RÍO CARBALLO	ESNO02990001	EL ROSAL	0	0	0	0	0	0	0	0	0	0	13	9	13
ES010	NORTHERN SPAIN	SIL			ES01709	EMBALSE DE BARCENA	9	7	8	11	11	10	0	0	0	0	0	0	0
ES010		BIBEY	ES010MSPFES43	RÍO BIBEI III	ESNO02660002	EMBALSE DE SAN	0	0	0	0	0	0	0	0	0	0	11	9	13
ES010	NORTHERN SPAIN	SIL			ES01769	EMBALSE DE SAN PEDRO	7	7	8	8	10	9	0	0	0	0	0	0	0
ES010		LADRA	ES010MSPFES37	RÍO MIÑO IV	ESNO00720002	EST. AFOROS BEGONTE -	0	0	0	0	0	0	0	0	0	0	12	8	12
ES010			12534		ESNO00720001	EST. AFOROS CELA	0	0	0	0	0	0	0	0	0	0	13	0	0
ES010	NORTHERN SPAIN	CABRERA			ES01734	EST. AFOROS P.D.	7	7	8	9	9	7	0	0	0	0	0	0	0
ES010		CABRERA	ES010MSPFES43	RÍO CABRERA II	ESNO01910006	EST. AFOROS P.D.	0	0	0	0	0	0	0	0	0	0	12	7	9
ES010	NORTHERN SPAIN	CABE	12602		ES110218	EST. AFOROS	9	10	11	11	9	8	9	9	0	0	0	0	0
ES010		CABE	ES010MSPFES46	RÍO CABE II	ESNO01560002	EST. AFOROS	0	0	0	0	0	0	0	0	0	0	12	8	12
ES010		TEA	ES010MSPFES50	RÍO TEA III	ESNO02620004	FERREIROS	0	0	0	0	0	0	0	0	0	0	12	0	13
ES010	NORTHERN SPAIN	TEA	12732		ES110291	FILLABOA	7	7	10	9	5	9	5	9	0	0	0	0	0
ES010		TEA	ES010MSPFES50	RÍO TEA III	ESNO02620001	FILLABOA	0	0	0	0	0	0	0	0	0	0	12	8	12
ES010	NORTHERN SPAIN	TEA	12669		ES110274	FREIXA	7	8	8	7	7	10	8	10	0	0	0	0	0
ES010	NORTHERN SPAIN	SELMO	12615		ES110229	FRIERA	7	6	6	8	7	7	5	0	0	0	0	0	0
ES010		CADONES	ES010MSPFES51	RÍO CADONES	ESNO02630003	IGLESIA CALVOS	0	0	0	0	0	0	0	0	0	0	11	9	13
ES010	NORTHERN SPAIN	CUA			ES01724	LA RANA	7	8	8	10	10	9	0	0	0	0	0	0	0
ES010		CUA	ES010MSPFES42	RÍO SIL V	ESNO01580006	LA RAÑA	0	0	0	0	0	0	0	0	0	0	12	7	10
ES010			ES010MSPFES51	RÍO DE LA LAGOA	ESNO02640004	LI013	0	0	0	0	0	0	0	0	0	0	9	0	11
ES010	NORTHERN SPAIN	MIÑO	12534		ES110168	LUGO (SAICA)	9	13	12	11	12	11	12	11	0	0	0	0	0
ES010		MIÑO	ES010MSPFES37	RÍO MIÑO V	ESNO00720003	LUGO (SAICA)	0	0	0	0	0	0	0	0	0	0	16	9	13
ES010		MACEDA	ES010MSPFES48	RÍO MACEDA	ESNO02260002	MACEDA	0	0	0	0	0	0	0	0	0	0	11	9	12
ES010			ES010MSPFES37	RÍO ANLLO	ESNO00480003	MI006	0	0	0	0	0	0	0	0	0	0	11	7	12
ES010		CUA	NP		ESNO01000001	MI057	0	0	0	0	0	0	0	0	0	0	12	7	10
ES010		CASELAS	ES010MSPFES50	RÍO CASELAS	ESNO02610016	MI155	0	0	0	0	0	0	0	0	0	0	11	7	12

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Questions to Spain regarding the reporting on Nutrients, Organic Matter and General Physico-Chemical Determinands in rivers:

- Does data exist for determinands to fill the gaps in reporting (e.g. total ammonium in 2007, CODMn after 2008)?
- Are there more stations with time series for the listed determinands (in particular the priority ones) available that have so far not been reported?
- Can the data be resubmitted for RBDs / stations / years / which have not been reported so far?
- Can more stations be reported to increase spatial coverage?
- Could a list of station IDs which actually represent the same station be resubmitted to explain changes after 2007 reporting?
- Could the water body IDs be updated if not the same as the one given in the WFD reporting?

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Rivers – hazardous substances

Issues to be clarified:

- Have data for all SoE preferred[2] hazardous substances which are monitored in the Member State been reported and consistent for the years in which data are available?
- Are stations with monitoring of SoE preferred hazardous substances covering all RBDs?

Spain has been reporting data on hazardous substances in rivers since 2009. In Table 6 there is an overview on the reporting of the preferred hazardous substances only (examples: metals and some other preferred hazardous substances; more substances have been reported in Spain). Many data have been reported on pesticides, PAH and metals. For many substances data in some years have not been reported. Another issue is that until 2009 there was no distinction between total and dissolved forms of metals in the data dictionary code list for rivers and lakes. After 2009 it could be distinguished between the forms of metals. In the first rows of Table 6 reporting on metals is included. From this can be seen that there was a change in reporting in 2011 in Spain.

Table 6: SoE preferred hazardous substances (examples) in rivers by number of stations and year

Determinand_HazSubs	2009	2010	2011	2012
Arsenic	194	908	184	0
Arsenic dissolved	0	0	0	187
Cadmium	188	3	0	0
Cadmium dissolved	0	0	424	360
Chromium	49	677	0	0
Chromium 6+	0	287	0	0
Chromium dissolved	0	0	227	231
Copper	200	183	0	0
Copper dissolved	0	0	490	296
Lead	50	963	0	0
Lead dissolved	0	0	391	383
Mercury	46	97	0	0
Mercury dissolved	0	0	412	357
Nickel	196	950	0	0
Nickel dissolved	0	0	191	219
Zinc	194	242	0	0
Zinc dissolved	0	0	508	265
Selenium and its compounds	0	252	0	0
Tributyltin compounds	0	0	46	0
Nonylphenol	0	65	0	0
Di (2-ethylhexyl) phthalate (DEHP)	5	70	46	54
4-nonylphenol	0	12	35	34
PBDE154 (2,2',4,4',5,6'-hexabromodiphenyl ether)	0	133	0	0

[2] The lists of preferred substances are based on legislation, spatial and temporal availability. Preferred substances are also covered by Hazardous substances report regularly.

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PBDE99	0	164	0	0
Diphenyl ether, pentabromo derivative	0	170	0	0
Fluorine	0	791	0	0
Hexachlorocyclohexane (HCH)	0	8	0	0
M-xylene	0	276	0	0
Cyanides (as total CN)	0	70	0	0
1,1,2,2-tetrachloroethene	148	272	186	129

Note: In the current data set the reporting of some high priority determinands has stopped or there has been change in the determinands in the database e.g. cadmium changed to dissolved cadmium. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. priority substances) have as complete coverage as possible.

- An overview of reporting on supportive determinands will be added in final versions of country fiches -

Table 7 shows the number of river stations by River Basin Districts which reported on preferred hazardous substances for the period from 2009 – 2012. In this period Spain reported data from around 1190 river stations for the 15 RBDs. For some smaller RBDs no data were submitted. In some RBDs there are gaps in reporting or bigger changes in the number of river stations with reporting.

Table 7: Number of stations by River Basin Districts for preferred hazardous substances

RBDcode	2009	2010	2011	2012
ES010	0	32	30	30
ES014	5	27	0	0
ES015	0	39	29	27
ES016	5	76	69	25
ES020	12	78	100	94
ES030	9	260	0	0
ES040	0	7	7	15
ES050	6	33	0	0
ES060	0	9	20	24
ES063	0	23	0	0
ES064	0	23	0	0
ES070	0	60	2	4
ES080	0	107	92	77
ES091	24	87	77	56
ES100	143	157	119	93

Questions to Spain regarding the reporting on hazardous substances in rivers:

- Does data exist for determinands to fill the gaps in reporting?
- Can reporting for metals be clarified?
- Are data from 1992 to 2008 available?
- Are there more stations for the determinands available that have so far not been reported?

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- Can the data be resubmitted for stations / years which have not been reported so far?

Rivers – Biology

Issues to be clarified:

- Are status classes reported? If not, why not?
- Are EQR values reported? If not, why not?
- Can reported EQR values be normalised? If not, why not?
- Are stations with monitoring covering all RBDs of the Member States?

Spain is encouraged to continue the geographically representative reporting, providing data from all their WFD monitoring stations the year they become available.

Neither status classes nor EQR values are reported from Spain, because the national classification system is not yet fully developed, as explained in cover letters from Spain. The intention stated in the cover letter is to finalise the classification system by the end of 2014 for use in the 2nd RBMPs in 2015. When the classification system is completed, EQR values and status class can be calculated for all data reported.

Spain reported data on biology in rivers for 2010-2012 (see Table 8). The data are delivered for all 3 years of regular reporting, but fewer for 2012 than for 2010, and even fewer for 2011. InvertebrateEQR_G are reported only for 2012.

Table 8: Number of river biology records per determinand, aggregation period and year.

BQE	DeterminandBiology	Aggregation Period	2010	2011	2012
PB	PhytobenthosEQR_E	Annual	841	159	248
MI	InvertebrateEQR_E	Annual	1276	137	263
MI	InvertebrateEQR_G	Annual			16

Only some of the RBDs with data from 2010 are still represented with data from 2012, and mostly with fewer stations, although some with more stations. Two new RBDs are included in 2012 (see Table 9). Biological data are reported from most of the RBDs on the Spanish mainland (Iberian peninsula), which will provide a geographically representative picture of the ecological status for phytobenthos and macroinvertebrates in Spanish rivers (once the classification system becomes fully developed).

Table 9: Number of river biology records per BQE, RBD and year.

BQE	RBDcode	2010	2011	2012
PB	ES015	76		
PB	ES020	30	84	79
PB	ES030	253		
PB	ES040	48	48	
PB	ES050	108		

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PB	ES060	22	24	15
PB	ES063	42		
PB	ES064	34		
PB	ES070	34		1
PB	ES080	1		73
PB	ES091			68
PB	ES100	192	3	
PB				12
MI	ES010			16
MI	ES015	76		27
MI	ES016			2
MI	ES020	30	58	70
MI	ES030	254		
MI	ES040	102	48	
MI	ES050	225		
MI	ES060	29	24	17
MI	ES063	38		
MI	ES064	32		
MI	ES070	35	5	4
MI	ES080	78		74
MI	ES091			65
MI	ES100	376	1	
MI				4

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Questions to Spain regarding the reporting on biology in rivers:

- InvertebrateEQR_G are reported only for 2012 (see table 8). Could these instead be reported as InvertebrateEQR_E, or do they really represent a different pressure?
- Clarification would be appreciated concerning why the number of stations in the different RBDs vary with an order of magnitude (see table 9). Would it be possible to increase the number of stations in the RBDs with a low number of stations?
- Care should be taken to ensure that the stations reported also are representative in terms of the whole range of ecological status classes found in Spanish rivers, and that all major river types are included.

Some more comments on different QA issues:

- *All records are in the wrong scale (original metric instead of EQR) and missing status class, but the country is aware of the problem and has explained the reason in cover letters uploaded together with the data. EEA has accepted the data because there is a possibility that they can be converted to EQR values in the future (when a WFD-compliant classification system is ready).*
- *All records reported in 2013 have QA_MVissues 185 (DeterminandStatusClass is not reported and cannot be calculated).*
- *Records reported in 2011-2012 have additional QA issues such as errors in WaterCategory, WaterbodyTypeNCS and WaterbodyTypeIC, which have been corrected.*

Lakes/Reservoirs – Nutrients, Organic Matter and General Physico-Chemical Determinands

Issues to be clarified:

- Have data for all SoE nutrients of highest priority[3] been reported consistent over the years?
- Are stations with monitoring of highest priority nutrients covering all RBDs of the Member States?
- Are longer time series (since 1992) for preferred nutrients available?
- Are stations codes consistent and is it possible to link the stations with WFD water bodies?
- Member State specific issues, if such occur

Spain has been reporting data from nutrients in reservoirs since 2008. The table 10 below provides an overview by determinands of the number of lake/reservoirs stations per determinand/year for the period 2008 to 2012. In the last years Spain didn`t report nutrients in some cases (CODMn) In general fewer stations have been reported in 2011 and 2012 than in previous years. There are gaps in some years, e.g. in 2009. Also Secchi depths may become a relevant determinand for lakes and reservoirs, which has been seldom reported.

Table 10: Number of lake/reservoir stations per determinand/year (nutrients of highest priority)

Determinands	2008	2009	2010	2011	2012
Nitrate	278	210	308	113	111
Orthophosphates	214	39	302	105	101
Total phosphorus	268	292	276	88	103
BOD5	161	0	221	77	75
Total organic carbon (TOC)	23	0	63	23	16
CODMn	32	0	0	0	0
CODCr	129	0	163	53	51
Total ammonium	180	232	322	111	108
Secchi depth	0	0	0	0	16

Note: In the current data set the reporting of some high priority determinands has stopped or there has been a change in the determinands in the database. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. nitrate or orthophosphate) have as complete coverage as possible.

Table 11 shows the number of lake stations by River Basin Districts which reported nutrients for the period from 2008 – 2012. The reported data presents 14 RBDs out of 25.. In some RBDs the

[3] Determinands of highest priority in terms of EEA`s needs are determinands which are or will be used in EEA assessments (e.g. CSI).

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reporting stopped in 2011 and 2012, sometimes there are gaps in reporting. The number of stations reported for reservoirs decreased in 2011 and 2012.

Table 11: Number of lake/reservoir stations for nutrients by River Basin Districts

RBDcode	2008	2009	2010	2011	2012
ES010	0	8	6	5	6
ES014	20	0	4	4	0
ES016	1	3	14	14	10
ES020	51	56	56	56	52
ES030	73	71	83	0	0
ES040	11	47	20	1	8
ES050	34	35	38	0	0
ES060	12	12	13	12	12
ES063	5	0	15	0	0
ES064	7	2	14	0	0
ES070	2	16	20	18	18
ES080	17	28	29	1	1
ES091	64	90	0	0	0
ES100	9	0	13	13	5
total	**306**	**368**	**325**	**124**	**112**

Note: One aspect of the country fiches is to improve the spatial coverage and ensure that stations are reported for all RBDs.

Questions to Spain regarding the reporting on nutrients, organic matter and general physico-chemical determinands in lakes/reservoirs:

- Does data exist for determinands to fill the gaps in reporting? In particular for the priority determinands (e.g. CODMn after 2008).
- Could a list of station IDs which actually represent the same station be resubmitted to explain changes after 2007 reporting (same as for rivers)?
- Are there more stations with time series for the listed determinands (in particular the priority ones) available that have so far not been reported?
- Can the data be resubmitted for RBDs / stations / years which have not been reported so far?
- Can more stations be reported to increase spatial coverage?
- Could a list of station IDs which actually represent the same station be resubmitted to explain changes in reporting?
- Could the water body IDs be updated if not the same as the ones given in the WFD reporting?

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Lakes/Reservoirs – Hazardous Substances

Issues to be clarified:

- Have data for all SoE preferred[4] hazardous substances which are monitored in the Member State been reported and consistent for the years in which data are available?
- Are stations with monitoring of SoE preferred hazardous substances covering all RBDs?

Spain has been reporting data on hazardous substances in lakes since 2010. In Table 12 there is an overview on the reporting of the SoE preferred hazardous substances (examples: metals and some other preferred hazardous substances). For many determinands there was only one year of reporting. The data for many substances have not been reported in some years. Another issue is that until 2009 there was no distinction between total and dissolved forms of metals in the data dictionary code list for rivers and lakes. After 2009 it could be distinguished between the forms of metals, so there was some change in reporting, as can be seen in the first rows of Table 12.

Table 12: SoE preferred hazardous substances (examples) in lakes by number of stations and year

Determinand_HazSubs	2010	2011	2012
Arsenic	217	0	63
Arsenic dissolved	0	59	0
Cadmium	0	0	31
Cadmium dissolved	0	84	0
Chromium	182	0	54
Chromium 6+	62	0	0
Chromium dissolved	0	73	0
Copper	15	0	59
Copper dissolved	0	86	0
Lead	142	0	63
Lead dissolved	0	79	0
Mercury	8	0	35
Mercury dissolved	0	76	0
Nickel	187	0	53
Nickel dissolved	0	65	0
Zinc	24	0	59
Zinc dissolved	0	87	0
PBDE47 (2,2',4,4'-tetrabromodiphenyl ether)	8	0	0
PBDE100 (2,2',4,4',6-pentabromodiphenyl ether)	8	0	0
M-xylene	30	0	0
PBDE99	16	0	0
4-nonylphenol	18	1	2

[4] The lists of preferred substances are based on legislation, spatial and temporal availability. Preferred substances are also covered by Hazardous substances report regularly.

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PBDE153 (2,2',4,4',5,5'-hexabromodiphenyl ether)	5	0	0
Tributyltin cation	0	0	1
Para-tert-octylphenol	0	0	1
Diphenyl ether, pentabromo derivative	16	0	0
Cyanides (as total CN)	3	0	0
Fluorine	193	0	0
PBDE154 (2,2',4,4',5,6'-hexabromodiphenyl ether)	5	0	0
Di (2-ethylhexyl) phthalate (DEHP)	14	14	3

Note: In the current data set the reporting of some high priority determinands has stopped or there has been change in the determinands in the database e.g. cadmium changed to dissolved cadmium. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. priority substances) have as complete coverage as possible.

- An overview of reporting on supportive determinands will be added in final versions of country fiches -

Table 13 shows the number of river stations by River Basin Districts which reported on preferred hazardous substances for the period from 2010 – 2012. In this period Spain reported data from 234 lake stations in 12 RBDs. In some RBDs there are gaps in reporting.

Table 13: Number of lake/reservoir stations by River Basin Districts for preferred hazardous substances

RBDcode	2010	2011	2012
ES010	3	3	3
ES016	8	8	2
ES020	28	32	27
ES030	77	0	0
ES040	19	8	8
ES050	18	0	0
ES060	10	12	12
ES063	15	0	0
ES064	14	0	0
ES070	20	18	9
ES080	0	1	1
ES100	8	7	5

Note: One aspect of the country fiches is to improve the spatial coverage and ensure that stations are reported for all RBDs.

Questions to Spain regarding the reporting on hazardous substances in lakes/reservoirs:

- Does data exist for determinands to fill the gaps in reporting?

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- Are data from 1992 to 2009 available?
- Are there more stations for the determinands available that have so far not been reported?
- Can the data be resubmitted for stations / years which have not been reported so far?

Lakes/Reservoirs – Biology

Issues to be clarified:

- Are status classes reported? If not, why not?
- Are EQR values reported? If not, why not?
- Can reported EQR values be normalised? If not, why not?
- Are stations with monitoring covering all RBDs of the Member States?

Neither status classes nor EQR values are reported from Spain, because the national classification system is not yet fully developed, as explained in cover letters from Spain. The intention stated in the cover letter is to finalise the classification system by the end of 2014 for use in the 2nd RBMPs in 2015. When the classification system is completed, EQR values and status class can be calculated for all data reported.

Spain reported data on biology in lakes for 2010 and 2012 (see Table 14). For phytoplankton many data are delivered for 2010, less data for 2012 and no data for 2011. Data on macrophytes are delivered only for 2010. Additional data are reported only for phytoplankton (not macrophytes). Many data are delivered for Chlorophyll for 2010, less data for 2012 and no data for 2011. Data for CyanobacteriaProportion are delivered only for 2010.

Table 14: Number of lake biology records per determinand, aggregation period and year. (a) EQR values and/or status class. (b) Additional metrics in original scale.

a)

BQE	DeterminandBiology	Aggregation Period	2010	2011	2012
PP	PhytoplanktonEQR_E	Annual	275		75
PP	PhytoplanktonEQR_G	Annual	261		74
MP	MacrophyteEQR_G	Annual	46		

b)

BQE	DeterminandBiology	Aggregation Period	2010	2011	2012
PP	Chlorophyll_a	Annual	278		72
PP	CyanobacteriaProportion	Annual	245		

Only a few of RBDs with data from 2010 are still represented with data from 2012, and mostly with fewer stations (and only for phytoplankton). The reporting of phytoplankton from 2010 covered most of the RBDs on the Spanish mainland, and should be continued to provide a geographically representative picture of ecological status of Spanish lakes (or reservoirs) (once the classification system becomes fully developed, see QA issues below). One RBD (ES020 Duero) has a much higher number of stations than the other RBDs. The reporting done after 2010 is not geographically

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representative. For macrophytes, the reporting covered only 5 of the Spanish RBDs, and may not be representative of ecological status for this BQE in Spanish lakes. One RBD (ES020 Duero) has a much higher number of stations than the other RBDs. However, macrophytes are only relevant in natural lakes, so there is a need to clarify whether the 5 RBDs reported for this BQE are the only RBDs with natural lakes in Spain.

Table 15: Number of lake biology records per BQE, RBD and year. (a) EQR values and/or status class. (b) Additional metrics in original scale.

a)

BQE	RBDcode	RBDname	2010	2011	2012
PP	ES016				6
PP	ES020		211		95
PP	ES030		12		
PP	ES030	TAGUS	82		
PP	ES040		21		
PP	ES050		26		
PP	ES050	GUADALQUIVIR	39		
PP	ES060		19		20
PP	ES063		22		
PP	ES064		26		
PP	ES070		20		26
PP	ES080		36		2
PP	ES100		22		
MP	ES014		8		
MP	ES020		22		
MP	ES030	TAGUS	4		
MP	ES040		8		
MP	ES060		4		

b)

BQE	RBDcode	2010	2011	2012
PP	ES014	8		
PP	ES016			3
PP	ES020	189		52
PP	ES030	12		
PP	ES030	82		
PP	ES040	28		
PP	ES050	16		
PP	ES050	22		
PP	ES060	35		
PP	ES060	2		
PP	ES063	26		
PP	ES064	26		
PP	ES070	16		16
PP	ES080	39		1
PP	ES100	22		

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Questions to Spain regarding the reporting on biology in lakes/reservoirs:

- If natural lakes/reservoirs occur also in other RBDs, could this BQE be reported also from those?
- Clarification would be appreciated concerning why the number of stations for one RBD (ES020) is so much higher than in the other RBDs. Would it be possible to increase the number of stations in the other RBDs to the same level?
- Care should be taken to ensure that the stations reported also are representative in terms of the whole range of ecological status classes found in Spanish lakes/reservoirs and that all major lake types are included.
- Additional phytoplankton data from 2010 should be continued from all the RBDs to allow assessment of ecological status in lakes/reservoirs across the Spanish mainland, as well as construction of time series and links to the nutrient data.

Some more comments on different QA issues:
EQR data:
- *All records are in the wrong scale; see further comments under River - Biology.*
- *All records reported in 2013 have QA_MVissues 185 (DeterminandStatusClass is not reported and cannot be calculated).*
- *Records reported in 2011-2012 have additional QA issues such as errors in WaterCategory, WaterbodyTypeNCS and WaterbodyTypeIC, which have been corrected.*

4.2 Groundwater quality

Issues to be clarified:

- Have data for all SoE nutrients of highest priority (in terms of EEA`s needs) in groundwater been reported consistent over the years?
- Have disaggregated data for all highest priority SoE nutrients in groundwater been reported consistent over the years?
- Are all RBDs in the MS covered with reporting on highest priority SoE nutrients in groundwater?
- Have data on preferred hazardous substances, if monitored by Member State, in groundwater been reported for all years in which they are available?
- Are all RBDs in the MS covered with reporting on preferred SoE hazardous substances in groundwater?

Groundwater - Nutrients, Organic Matter and General Physico-Chemical Determinands

Spain reported data aggregated[5] on water body level on preferred groundwater nutrients from 2003 to 2012. In 2003, 2004 and 2005 there was less reporting. In 2003 and 2005 disaggregated data were

5 For Eionet-Water data are reported at different levels of aggregation:

- Disaggregated: concentrations in each sample and date of sample taken at each monitoring site in the groundwater body;
- Aggregated: annual average concentrations for the groundwater body.

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delivered. After 2005 no disaggregated data have been reported. It is difficult to prepare time series on basis of aggregated data, because these data series will not be entirely consistent, as the number of stations reported per groundwater body may vary between years.

Table 16: (Highest priority) nutrients aggregated (value = number of stations per country in which given determinand was reported)

DeterminandName	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nitrate	231	204	111	489	561	495	524	415	408	281
Ammonium	227	194	94	429	399	493	504	453	270	278
Nitrite	191	124	97	311	280	304	382	383	402	220
Dissolved Oxygen	36	41	51	139	158	258	208	198	204	200

Table 17: (Highest priority) nutrients disaggregated (value = number of stations per country in which given determinand was reported)

DeterminandName	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nitrate	124	1	250	0	0	0	0	0	0	0
Ammonium	73	1	154	0	0	0	0	0	0	0
Nitrite	70	1	89	0	0	0	0	0	0	0
Dissolved Oxygen	56	0	27	0	0	0	0	0	0	0

Note: In the current data set the reporting of high priority determinands has stopped or nutrients have been reported as aggregated data only. The aim is to ensure that the high priority determinands (preferably disaggregated data) have as complete coverage as possible.

Table 18: Number of groundwater stations for highest priority nutrients (data aggregated by country and disaggregated data) by River Basin Districts

RBDcode	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
ES010	0	0	0	0	41	41	40	51	3	46
ES015	4	4	4	4	6	6	6	6	6	6
ES016	1	0	0	10	14	12	12	9	7	11
ES020	52	52	63	62	71	69	69	56	0	0
ES030	0	0	51	57	57	57	55	54	52	49
ES040	36	36	34	36	37	42	40	25	41	13
ES050	0	0	65	71	71	44	69	7	56	0
ES070	17	0	16	17	19	15	14	17	14	11
ES080	84	0	0	67	85	84	33	94	120	67
ES091	91	34	42	90	44	20	94	39	28	36
ES100	67	72	73	65	97	109	81	97	74	52
ES120	7	6	8	11	19	7	17	0	6	0

Note: One aspect of the country fiches is to improve the spatial coverage and ensure that stations are reported for all RBDs.

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Data for 12 RBDs (out of 25 Spanish RBDs) were reported up to now. Missing RBDs on the continental part of Spain are ES014 (Galician coast), ES060 + ES063 + ES064 (Andalusia and surrounding). These 4 RBDs cover together ca 5-8% of the area of continental part of Spain (see the map below). All remaining missing RBDs are on islands (Balearic + Canary Islands, or in Africa (Ceuta, Melilla). That means, ca 90% of area of Spain is represented by existing data (even this is one half of RBDs only), which is very good status.

Groundwater - Hazardous substances

Spain didn't report data on hazardous substances in groundwater.

Questions to Spain regarding the reporting on groundwater:

- Could disaggregated nutrients data be reported instead of data aggregated by groundwater bodies? Disaggregated data have been reported only in 2003 and 2005 so far.
- Data for 2 coastal regions (Galicia, Andalusia) and for Balearic + Canary Islands are missing. Could they be resubmitted?
- Data for few RBDs are missing (or reduced) in 2010 - 2012 (2010: ES050, ES120, 2011: ES020, 2012: ES020, ES050, ES120). Could they be resubmitted?
- Concentrations of hazardous substances were not reported up to now at all. Are these substances monitored? If yes, could you start reporting of these data at least for most representative areas (in disaggregated data structure)?

- SubUnits of RBDs are not available for Spain in EEA datasets. Were any SubUnits delineated? If yes, could you provide these spatial data?
- Could the water body ID be updated if not the same as the one given in the WFD reporting?

4.3 Emissions

Issues to be clarified:

- Does Member State report data on emissions or are the tables prefilled from E-PRTR reporting?
- What type of source apportionment has been reported?
- Which determinands have been reported for the different emissions categories (nutrients from point and diffuse sources, hazardous substances from point and diffuse sources)
- Have data been reported from all RBDs (if relevant)?

For Spain records only records from E-PRTR are present. Spain has never reported emissions under SoE. In the following tables there is an overview on the reporting of nutrients and hazardous substances from point sources and the groups of emission sources which have been used. The value in the table fields is the number of RBDs in which the determinands were reported.

The E-PRTR is limited to point sources of pollution and to specific types of facilities. Although to each facility the main activity is assigned, which allows to distinguish between industrial and urban waste water emissions, this apportionment is very rough (there could be more than one activity assigned to each facility). The table shows also that there might be some gaps in the spatial coverage of the country. From E-PRTR those pollutants were selected which were available and could be unambiguously linked to the determinands in SoE data dictionary.

Table 19: Nutrients emissions from point sources (value means the number of spatial units in which the determinand was reported for that year)

Determinand_Nutrients	2006	2007	2008	2009	2010	2011	2012
Total Nitrogen					14	15	
Total Organic Carbon (TOC)					12	13	
Total Phosphorus					15	14	

Sources of emissions reported:

I Industrial Waste Water Discharges total

U2 Urban Waste Water Treated Discharges total

Table 20: Hazardous substances emissions from point sources (value means the number of spatial units in which the determinand was reported for that year)

Determinand_HazSubs	CASNumber	2007	2008	2009	2010	2011	2012
Arsenic	7440-38-2				9	13	
Cadmium	7440-43-9				6	6	
Copper	7440-50-8				12	14	
Chromium	7440-47-3				11	9	

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Lead	7439-92-1				10	11	
Mercury	7439-97-6				11	11	
Nickel	7440-02-0				13	13	
Zinc	7440-66-6				14	12	

Sources of emissions reported:

I	Industrial Waste Water Discharges total
U2	Urban Waste Water Treated Discharges total

Questions to Spain regarding the reporting on emissions:

- Are other data than E-PRTR available for point sources?
- Are any data available for diffuse sources?

4.4 Waterbase Water Quantity

Spain has declared 10 RBDs and reported exclusively point data, i.e. reservoir inflow and outflow and stream flow data. Spain's reports were delivered on time but the reported format (MS-Access) was not the requested one (XML). This complicated the compilation and use of the Spanish data. Custom routines had to be developed by the ETC/ICM Data Manager in order to extract the data from the provided file. Missing mandatory fields in the provided dataset e.g. region code (RBD or SU) in which the reservoir is located and indication of natural and man-made reservoirs, prevented the ETC/ICM from making use of all submitted information. Useful data were reported in monthly and annual scales and refer to the years 2008 to 2012 (see Table 21). Reporting of additional point (groundwater level) and areal data (water abstraction, water balance and water use) would be welcomed.

Table 21: Number of reported time series (of any time scale) per parameter

Parameter	Number of time series
Reservoir inflow	47
Reservoir outflow	47
Stream flow	42

The location of the reported stations projected on the map is shown on Figure 2, where

- Reservoir
- Stream flow station

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Figure 2: Location of stations

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5. Matching of stations/water bodies

For the integrated assessment with the Water Framework Directive as well as other Water Directives it is a prerequisite that SoE stations can be linked to stations or water bodies from the other reporting streams. That was often not possible in former assessments and should be improved in the future, especially with regards to the next assessment of WFD reporting.

All the datasets reported to WISE have different fields to identify the stations or water bodies. The WISE-WFD database with data reported for the first RBMPs has the **water body code** (Surface or Groundwater) as one of the main codes. The WISE-SoE Groundwater, Rivers and Lake databases have a field with the **water body codes** (WaterBodyID/ GWBcode_WFD).

Database	Water Body Code
WISE-WFD database	*Surface water bodies* EUSurfaceWaterBodyCode SWB_MS_Code SWB_NAME
WISE_SoE rivers	WaterBodyID WaterBodyName
WISE_SoE lakes	WaterBodyID WaterBodyName
Bathing water database	WBID WBName
UWWT database Discharge point	dcpWaterbodyID
WISE-WFD database	*Groundwater bodies* EUGroundWaterBodyCode SWB_MS_Code SWB_NAME
WISE_SoE groundwater bodies Groundwater stations	 GWBcode_WFD GWBcode_WFD

The following overview shows some statistics of the availability of WaterBodyID for SoE surface water stations or WaterBodyCode for SoE groundwater stations and groundwaterbodies and their matching with WFD EUSurfaceWaterBodyCode and WFD SWB_MS_CD.

WISE-SoE rivers

Spain has generally reported WaterBodyID for most of its WISE-SOE river stations (3381 of 3676); however, there are only match between 993 of 3676 river stations and the WFD water bodies EUSurfaceWaterbody CODE(see Table 22 and examples in Table 23), and less (291) if SWB_MS_CD is used. Around 60 % of the river stations with observation after 2009 (active stations) have matching WaterBodyCodes.

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Table 22 WISE SoE rivers water quality dataset - statistics of the availability of rivers monitoring stations and their attributes (waterbody ID) and the results of the matching of the SoE rivers waterbody ID with WFD EUSURFACEWATERBODYCODE and SWB_MS_CD

COUNTRYCODE	SOE_STATIONS_TOTAL	SOE_WATERBODYID_EXISTS	MATCH_EUSURFACEWATERBODY CODE	MATCH_SWB_MS_CD
ES	3676	3381	993	291

Table 23: Example for matched WaterBodyID with EUSurfaceWaterBodyCode

Co	WaterbaseID	RiverName	NationalStationName	WaterBodyName	WaterBodyID	EUSurfaceWaterBodyCode	SWB_MS_CD	SWB_Name	RBDcode
ES	ES_RV_ESNO02260002	MACEDA	MACEDA	RÍO MACEDA	ES010MSPFES482MAR002030	ES010MSPFES482MAR002030	ES482MAR002030	Río Macedа	ES010
ES	ES_RV_ESNO02630001	ORILLE	SAN VICENTE	RÍO ORILLE	ES010MSPFES482MAR002050	ES010MSPFES482MAR002050	ES482MAR002050	Río Orille	ES010
ES	ES_RV_ESNO02260001	ARNOYA	ABUIN	RÍO ARNOIA II	ES010MSPFES482MAR002080	ES010MSPFES482MAR002080	ES482MAR002080	Río Arnoia II	ES010
ES	ES_RV_ESNO02620005	DEVA	ARBO	RÍO DEVA V	ES010MSPFES494MAR002150	ES010MSPFES494MAR002150	ES494MAR002150	Río Deva V	ES010
ES	ES_RV_ESNO02240005	TEA	PASEO TRONOCOSO	RÍO TEA II	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	ES496MAR002220	Río Tea II	ES010

Many of the Spanish river stations have been reported with a five digit numeric code e.g. 10001, 10002, 10003, 10012 or 10016; this code do not fit with the reported EUSurfaceWaterBodyCode e.g. ES010MSPFES482MAR002030.

WISE-SoE lakes

Spain has generally reported WaterBodyID for most of its lakes/reservoirstations (1125 of 1137); however, there are only match between 15 of 1137 lake stations and the WFD water bodies, if EU SURFACE WATER BODY CODE is used, and 427, if SWB_MS_CD is used as identifier (Table 24).

Similar to the river stations many of the Spanish lake/reservoir stations have been reported with a 5-6 digit numeric code (e.g. 20655, 400009, 20651, 20619, 20628, or 20657) that do not match with the EUSurfaceWaterBodyCode (e.g. ES020MSPF000101114).

Table 24: WISE SoE lakes water quality dataset - statistics of the availability of lakes monitoring stations and their attributes (water body ID) and the results of the matching of the SoE lakes waterbodyID with WFD EUSURFACEWATERBODYCODE and SWB_MS_CD

SOE_STATIONS_TOTAL	SOE_WATERBODYID_EXISTS	MATCH_EUSURFACEWATERBODYCODE	MATCH_SWB_MS_CD
1137	1125	15	427

WISE-SoE groundwater

The majority of Spanish WISE-SoE groundwater bodies (443 of 602) and WISE-SoE groundwater stations (829 of 855) have GWB codes. However there are no match between the reported WISE SoE GWBcode_WFD and the WFD EUGroundWaterBodyCode (Table 25; Table 26).

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Table 25: WISE SoE groundwater quality dataset - statistics of the availability of groundwaterbodies and their SOE_GWBCODE_WFD and the results of the matching of the SoE groundwater SOE_GWBCODE_WFD with WFD EUGROUNDWATERBODYCODE and GWB_MS_CD

SOE_GWB_TOTAL	SOE_GWBCODE_WFD_EXISTS	MATCH_EUGROUNDWATERBODYCODE	MATCH_GWB_MS_CD
602	443	0	0

Table 26: WISE SoE groundwater quality dataset - statistics of the availability of groundwater monitoring stations and their attributes (SOE_GWBCODE_WFD) and the results of the matching of the SoE groundwater SOE_GWBCODE_WFD with WFD EUGROUNDWATERBODYCODE and GWB_MS_CD

SOE_GW_STATIONS_TOTAL	SOE_GWBCODE_WFD_EXISTS	MATCH_EUGROUNDWATERBODYCODE	MATCH_GWB_MS_CD
855	829	0	0

The table below illustrates that the reported WISE-SoE GWBCODE_WFD do not fit with the codes reported under WISE-WFD.

Table 27: Example for not fitting WFD GroundWaterBodyCode with SoE GWBcode or stations

WISE-WFD EUGroundWaterBodyCode	WISE_Soe GW bodies GWBcode_WFD	WISE_Soe GW stations GWBcode_WFD
ES030MSBT030.015	ES30126	ES30328
ES030MSBT030.016	ES30127	ES30331
ES030MSBT030.017	ES30128	ES30355
ES030MSBT030.018	ES30129	ES080.166

Questions to Spain:

- Different codes are used in Spain: for rivers there is a better match of SoE stations with EUSurfaceWaterBodyCode than with MS_CD_WB, for lakes it is vice versa.
- Can the waterbody code as defined in the WFD guidance (EUSurfaceWaterBodyCode) be reported for all stations and waterbodies?
- Could stations that are not active and where the station information is from before 2007 be updated with WBCode?

Spain bathing water sites

Most of the Spanish bathing water sites have a WBID (water body code) and around two-thirds of the WDIDs can be matched with the WFD EUSurfaceWaterBodyCode (examples can be seen in the table below). Often WFD waterbodies have more than one bathing water sites.

Database	Water Body Code	Coverage	Match between WBcode
Bathing water database	WBID WBName	1916/2163 1916/2163	1349/2163

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The reasons for not match between the remaining approx. 850 bathing waters sites are missing waterBodyCode (WBID) for 250 bathing water sites and for the remaining 600 sites the match have to be explored further.

CO	BWName	WBName	WBID	EUSurfaceWaterBodyCode	SWB_Name
ES	RIO ORILLE BOLA (A) PM1	Río Orille	ES010MSPFES482MAR002050	ES010MSPFES482MAR002050	Río Orille
ES	RIO TEA PONTEAREAS 04 PM1	Río Tea II	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	Río Tea II
ES	RIO TEA PONTEAREAS 03 PM1	Río Tea II	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	Río Tea II
ES	RIO TEA PONTEAREAS 02 PM1	Río Tea II	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	Río Tea II
ES	RIO TEA MONDARIZ PM3	Río Tea II	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	Río Tea II
ES	RIO TEA MONDARIZ 02 PM1	Río Tea II	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	Río Tea II
ES	RIO EIROA BLANCOS (OS) PM1	Río Nocelo I	ES010MSPFES509MAR002342	ES010MSPFES509MAR002342	Río Nocelo I
ES	RIO CIRVIDA PORQUEIRA PM1	Río Firbeda	ES010MSPFES511MAR002390	ES010MSPFES511MAR002390	Río Firbeda

Spain Urban Waste Water Treatment discharge points

Of the 2554 discharge points Spain has reported in the UWWT databases the majority (2263 of 2554) has WaterBodyCode (dcpWaterbodyID). Nearly all of the 2263 (2100) discharge points with WaterBodyCode can be matched with the WFD waterbodies (see examples in the Table).

Database	Water Body Code	Coverage	Match between WBcode
UWWT database Discharge point	dcpWaterbodyID	2263/2554	2100/2554

CO	dcpName	dcpWaterbodyID	EUSurfaceWaterBodyCode	SWB_Name
ES	PUNTO DE VERTIDO DE LA EDAR DE MACEDA	ES010MSPFES482MAR002030	ES010MSPFES482MAR002030	Río Maceda
ES	PUNTO DE VERTIDO DE LA EDAR DE MOURILLOS (CELANOVA)	ES010MSPFES482MAR002050	ES010MSPFES482MAR002050	Río Orille
ES	PUNTO DE VERTIDO DE LA EDAR DE BANOS DE MOLGAS	ES010MSPFES482MAR002080	ES010MSPFES482MAR002080	Río Arnoia II
ES	PUNTO DE VERTIDO DE LA EDAR DE ALLARIZ	ES010MSPFES482MAR002080	ES010MSPFES482MAR002080	Río Arnoia II
ES	PUNTO DE VERTIDO DE LA EDAR DE MONDARIZ-BALNEARIO	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	Río Tea II
ES	PUNTO DE VERTIDO DE LA EDAR DE PONTEAREAS	ES010MSPFES496MAR002220	ES010MSPFES496MAR002220	Río Tea II
ES	PUNTO DE VERTIDO DE LA EDAR DE TUI	ES010MSPFES502MAR002291	ES010MSPFES502MAR002291	Río Louro I
ES	PUNTO DE VERTIDO DE LA EDAR DE VILALBA	ES010MSPFES381MAR000070	ES010MSPFES381MAR000070	Río Tamoga I

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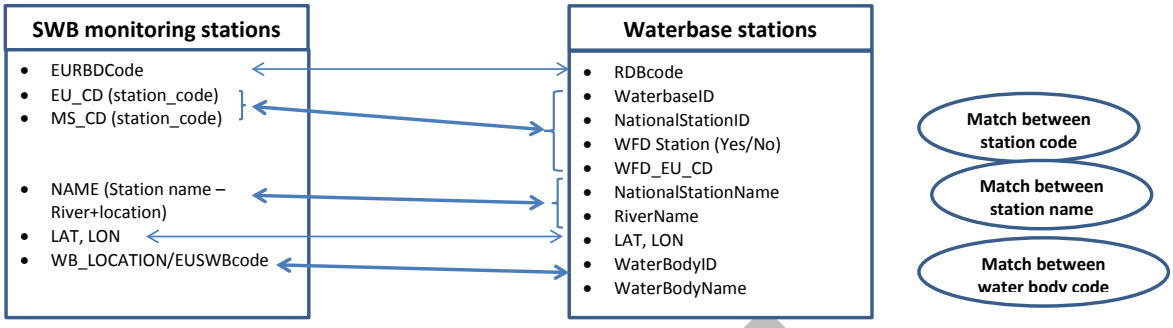
Common station code



EU_CD	LTR1514
MS_CD	R1514
NAME	Venta auksciau Kursenu
WB_LOCATION	LT3001000015
LON	22.95087
LAT	55.98028

WaterbaseID	LT_RV_R1514
NationalStationID	R1514
WFDstation	yes
WFD_EU_CD	LTR1514
NationalStationName	ABOVE KURSENAI
RiverName	VENTA
WaterBodyID	LT3001000016
WaterBodyName	
Longitude	22.9509
Latitude	55.9803

Spain match between reported WFD surface water monitoring sites and station codes in WISE-SoE rivers and lakes. Spain has in the RBMPs reported 2523 surveillance and 1393 operational monitoring stations. Of the 3676 WISE SoE river stations only 264 had reported with WFD_EU_CD (WFD monitoring station code) and similar only 245 of the 1137 WISE SoE lake Stations had WFD_EU_Code.

Database	Water Body Code	Coverage	Match between station code
WISE-WFD database SWB Monitoring stations	EU_CD MS_CD Name	2523 Surv. 1393 Oper.	
WISE_SoE rivers	WFD_EU_CD NationalStationID NationalStationName	264/3676	No match between station codes
WISE_SoE lakes	WFD_EU_CD NationalStationID NationalStationName	245/1137	

The mismatch between the stations codes are due to different station codes when reporting to WISE-WFD and to WISE-SoE.

WISE-WFD mon. stations EU_CD	WISE_SoE rivers WFD_EU_CD	WISE_SoE lakes WFD_EU_CD
ES010ESPFMS102FQ ES010ESPFMS111FQ ES010ESPFMS120FQ ES010ESPFMS207FQ	110150 110248 DU02740003 DU02740002	ES_SW_510097 ES_SW_510098 ES_SW_510099 ES_SW_510100

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