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Third River Basin Management Plans
Second Flood Hazard and Risk Maps and Second Flood Risk Management Plans
Member State: Spain

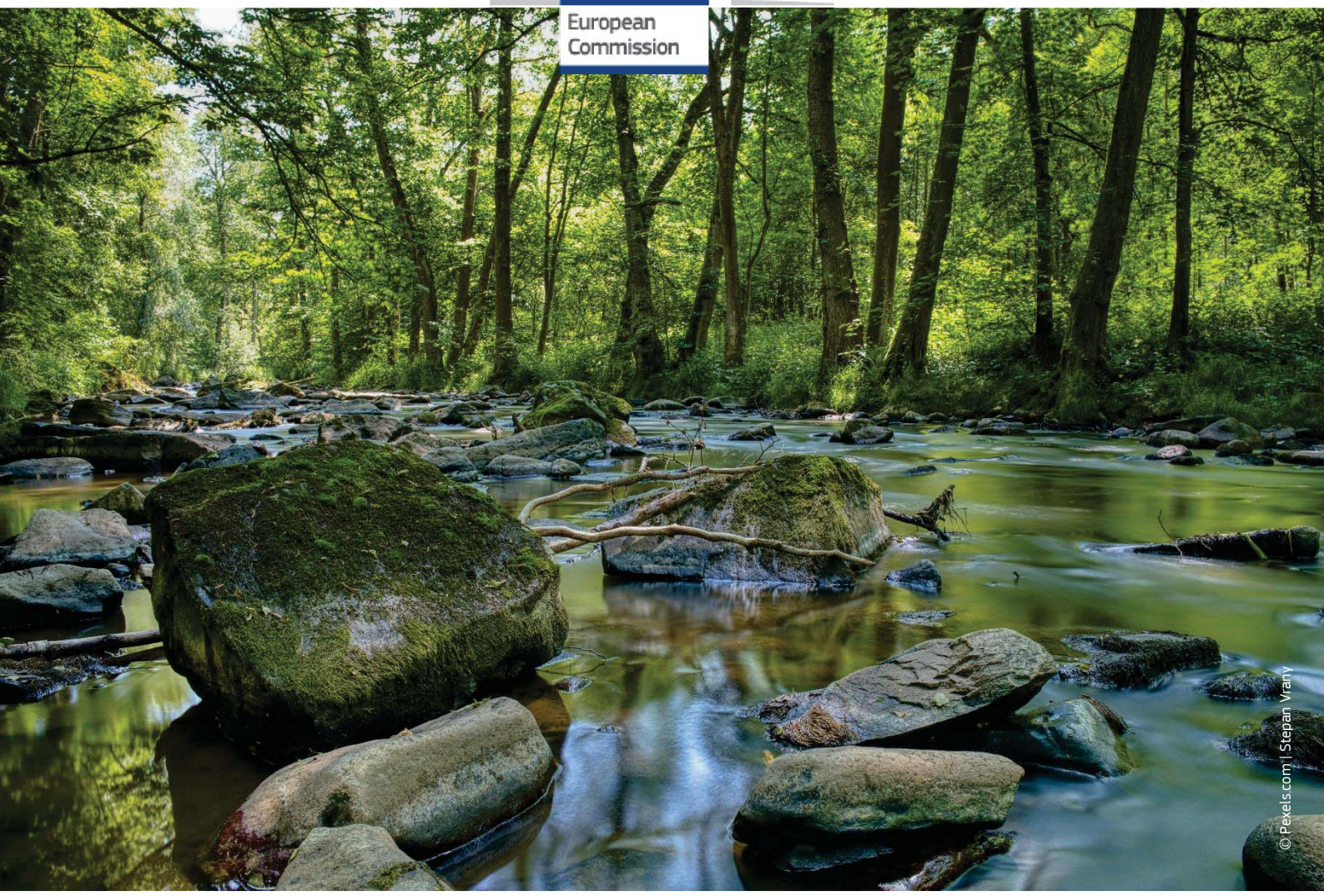
Accompanying the document

REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC)
Third River Basin Management Plans
Second Flood Risk Management Plans

{COM(2025) 2 final} - {SWD(2025) 13 final} - {SWD(2025) 14 final} - {SWD(2025) 15 final} - {SWD(2025) 16 final} - {SWD(2025) 17 final} - {SWD(2025) 18 final} - {SWD(2025) 19 final} - {SWD(2025) 20 final} - {SWD(2025) 21 final} - {SWD(2025) 22 final} - {SWD(2025) 23 final} - {SWD(2025) 25 final} - {SWD(2025) 26 final} - {SWD(2025) 27 final} - {SWD(2025) 28 final} - {SWD(2025) 29 final} - {SWD(2025) 30 final} - {SWD(2025) 31 final} - {SWD(2025) 32 final} - {SWD(2025) 33 final} - {SWD(2025) 34 final} - {SWD(2025) 35 final}

European Commission



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Country specific staff working document

Spain

ENVIRONMENT

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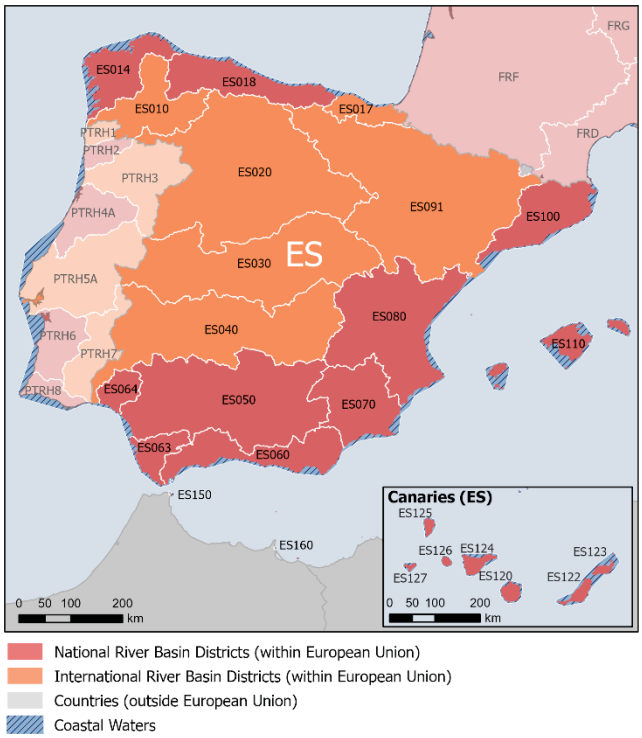
Content

SECTION A:

WATER FRAMEWORK DIRECTIVE

1. General info, member state characterisation

Spain is the second largest country by area in the EU, with 506,000 km^2, hosting 48,592,909 inhabitants in 2024 and a population density of over 93 per km^2, a bit below EU average. Spain features a very large set of coasts having approximately 8,000 kilometres of coastline, including its 11 major islands and a marine area exceeding 1 million km^2, divided between the Atlantic and the Mediterranean. It comprises the mainland peninsula, along with the volcanic Atlantic Canary Islands and the Mediterranean Balearic Islands. With a relatively high average altitude over 600 metres above sea level, Spain has a very large diversity of rivers, climatic zones and topographic features. The natural fluvial regime of Spain's rivers mainly depends on the pattern of precipitation, where rainwater is transformed into surface water or groundwater. A sharp contrast of precipitations can be observed: the north and northwest, which are directly influenced by the Atlantic, have abundant rainfall and no distinguishable dry season. This area is sometimes known as the España Húmeda, or Wet Spain, with annual precipitation exceeding 600 mm and rising occasionally to 2,000 mm. The remainder of the country is predominantly dry, with an annual precipitation of less than 600 mm. The southeast of Spain is semi-arid, with annual precipitation below 300 mm and a semi-desert landscape that at places is reminiscent of the Sahara. Thus, 74% of the country is at risk of desertification. Agriculture uses almost half of the territory and it is highly varied, with significant differences in types of farming between territories. The share of organic farming is around 11 %, slightly above the EU average of 9%. Spain is responsible for half of the EU's production of olives and for one third of fruit. Agriculture is the biggest water user in the country and highly dependent on irrigation (20% of farmland). Urban wastewater treatment and very high tourism also pose a significant challenge in the country. In terms of natural capital, Spain is an outstanding reference within EU and hosts a very rich biodiversity. Currently, 28% of the country's terrestrial land is designated as protected areas, which is slightly above the EU value of 26.4%.

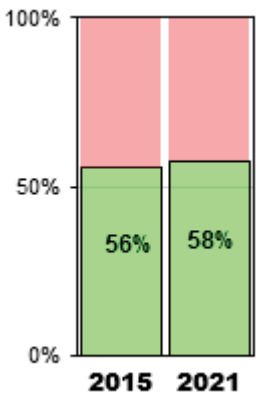


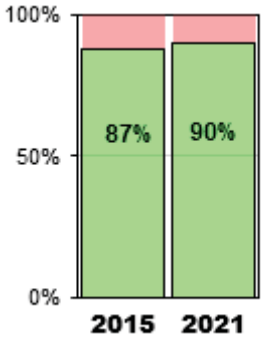
Reporting

The deadline for reporting the 3rd RBMPs was in March 2022. The Commission and the (European Environment Agency) EEA together with Member States developed an electronic reporting system in WISE (Water Information System for Europe). Its use was voluntary. Some Member States used it to fulfil their obligations, others reported the plans in pdf format. The cut-off date for the WISE e-reporting was September 2023 and the Member States (MS) were assessed based on the datasets available by this date. By September 2023, Spain submitted the electronic reporting of RBMPs except for 3 Canary Islands (i.e. Lanzarote, Fuerteventura and La Palma) and therefore the assessment is based on this dataset (detail in section 2.1). To date, Spain has not yet adopted the RBMP of La Palma. Despite the cut-off dates for the production of this report, reporting continued and, for the State of Water report, the EEA aggregated the results available by July 2024 in their products and dashboards available at WISE Freshwater web portal, which might have left some minor discrepancies when comparing numbers.

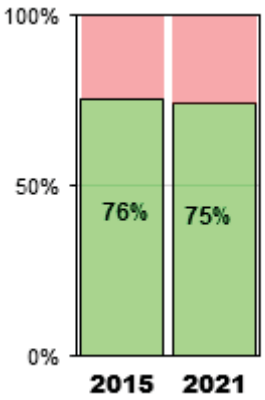
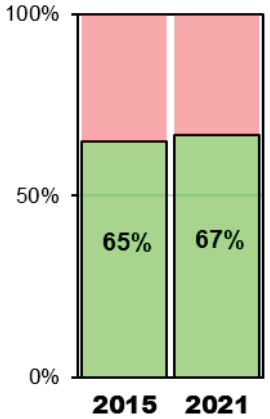
In order to supplement the electronic reporting, a selection of 5 River Basin Management Plans (RBMPs) have been reviewed in further depth and details for this assessment. These are River Basin Districts (RBDs): Ebro RBD, Guadalquivir RBD, Jucar RBD, Segura RBD and Guadiana RBD.

Changes in Status, Pressures, Exemptions & Measures

Surface Water Bodies	Trend (% good status/potential)	Main Pressures & Changes & Exemptions
The total number of SWBs has increased from 5162 to 5470.		
ECOLOGICAL STATUS		The overall ecological status/potential remains broadly the same. Spain is expecting that 97.7 % of SWBs should be in at least good status/potential by 2027. Diffuse nutrient pollution from agriculture, point pollution from urban wastewater and altered habitats due to morphological changes are significant, but lower compared to previous cycle. While water abstraction continues to be very significant for a large part of the Spain, predictions suggest a risk of desertification and prolonged droughts associated with climate change. All water bodies have been evaluated regardless of the risk assessment. Some quality elements across biological, hydromorphological, and physico-chemical quality elements are not monitored in all SWB categories. Exemptions for ecological status were applied under Article 4(4) for technical feasibility to 35.1%, for disproportionate cost to 2.9%, and for natural conditions to 5.4% of Surface Water Bodies (SWBs). Article 4(5) exemptions were applied to 0.5% of SWBs for infeasibility and to 0.2% of SWBs for disproportionate cost, but the reasons are not specified and explained for each individual water body specifically. Article 4(7) exemptions were applied to 0.2% of SWBs for new modifications.

CHEMICAL STATUS		The overall chemical status remains broadly the same with some improvement, and it is expected that 98 % of surface water bodies will be in good chemical status. It is not clear if ES has improved the overall monitoring network or whether all priority substances have been included in the monitoring programs of all RBDs. The number of surface water bodies classified without a confidence rating has increased drastically (from 7 % to 30 %). Failure to achieve good chemical status is mainly linked to metals, Perfluorooctanesulfonic acid (PFOS) and pesticides, with a limited role for ubiquitous Persistent Bioaccumulative and Toxic (uPBT). Exemptions for chemical status of SWBs are applied under Article 4(4) for technical feasibility to 6.4%, for disproportionate cost to 0.2%, and for natural conditions to 0.6% of SWBs. Article 4(5) exemptions were applied to 0.75% of SWBs for infeasibility and to 0.75% of SWBs for disproportionate cost, but the reasons are not specified and explained for each individual water body specifically.

Ground Water Bodies	Trend (% good status/potential)	Main Pressures & Changes & Exemptions
The number of GWBs has increased from 762 to 804.		

QUANTITATIVE STATUS		The overall quantitative status of Groundwater Bodies (GWBs) remains roughly the same with a slight decrease and at least 28.5 % of total GWBs are at risk of failing to achieve good quantitative status by 2027. Most of the GWBs fail good status mainly due to over-abstraction. The most common use of water is for agriculture (65.0 %) followed by cooling water in electricity generation, households and services and industry. Since 2016, total water abstraction has decreased in all sectors by 23.3 % in total. GWAAEs, GWDTEs and saline or other intrusions are not considered, or only partially, in the groundwater quantitative status assessment of all RBDs. Exemptions for quantitative status were applied under Article 4(4) for technical feasibility to 16.2%, for disproportionate cost to 1.4%, and for natural conditions to 12.6% of SWBs. Article 4(5) exemptions were applied to 0.5% of SWBs for infeasibility and to 1% of SWBs for disproportionate cost, but the reasons are not specified and explained for each individual water body specifically. Article 4(7) exemptions were applied to 0.2% of GWBs for new modifications.
CHEMICAL STATUS		ES reports that the chemical status of GWBs has slightly improved, while 43 % of total GWBs are at risk of failing to achieve good quantitative status by 2027. The assessment of the general chemical situation of a GWB is not conducted homogeneously across different RBDs. Not all substances causing risk of deterioration in chemical status are monitored in all RBDs, e.g. pesticides are not monitored in 80% of RBDs. Impact on Groundwater Associated Aquatic Ecosystems (GWAAEs) and Groundwater Dependent Terrestial Ecosystems (GWDTEs), saline/other intrusions and impacts on drinking water protected areas are not considered in all RBDs. As in the previous cycle, the pressures and impacts affecting the highest percentage of GWBs are related to diffuse nutrient pollution from agriculture. Exemptions for chemical status were applied under Article 4(4) for technical feasibility to 15.3% and for natural conditions to 21.8% of SWBs. Article 4(5) exemptions were applied to 0.1% of SWBs for infeasibility, but the reasons are not specified and explained for each individual water body specifically.

2. Horizontal aspects

2.1 Governance

Depending on the type of RBD, Spain has different competent authorities:

- for river basins that cross several Regions, the competent authorities are the River basin authorities (Confederaciones hidrográficas), which are attached to the Ministry for the Ecological Transition[1]
- for river basins entirely located within one region, the competent authorities are regional hydrological entities.

Special regimes are applied in the islands: all the Balearic Islands form a single RBD whilst each of the 7 Canary Islands is an individual RBD. This means that the decision making for the management of the water in Spain is divided between the national and the regional administrations depending on the RBD. This has a bearing in the development of the RBMPs.

In that context, it must be noted that some RBMPs for the Canary Islands (i.e. Lanzarote, Fuerteventura and La Palma) had not been formally adopted by the cut-off date on September 2023, and this is subject to an infringement procedure referred to the European Court of Justice. Thus, this assessment does not include the data from these RBDs as no officially adopted data was reported. However, since the designation of the number of national waterbodies remains fairly constant, all figures appearing in this report are expressed considering the totality of water bodies for the whole Spanish territory.

All draft RBMPs were available for public consultation for at least six months. There have been important improvements in terms of communication and transparency, with consultation portals containing comments and replies from public authorities. There has been an increased use of informative tasks, creation of registers of stakeholders as well as organisation of thematic workshops, territorial days and online meetings and webinars. Overall, the public participation channels have significantly been broadened and more time and resources have been allocated to the consultation. However, more feedback should have been provided on how the comments received were taken on board.

As regards the coordination with the Floods Directive and the Marine Strategy Framework Directive, although some measures included in some RBMPs are coherent with the aims of both Directives, there does not seem to have been a fully coordinated development of the planning tools of these laws nor concurrent or jointly organised public participation processes. Such coordination should be improved in the future to enhance synergies between these Directives.

Cross-border and international cooperation

Spain shares RBDs with 4 countries (France, Portugal, Andorra and Morocco with Ceuta and Melilla) Spanish international RBDs do not have International RBMPs (like the Danube has for instance). For

[1] https://www.miteco.gob.es/es.html

the four International RBDs that Spain shares with Portugal there is international agreement and a permanent co-operation body in place: the Albufeira Convention since 1998.[2,3] For the two international RBDs shared with France, there is the Toulouse Agreement since 2006.[4] Coordination efforts between Spain and Andorra are also in place to manage shared interests and responsibilities within the Ebro RBD. For Ceuta and Melilla, international cooperation including management of water resources with the Kingdom of Morocco is established through the "Treaty of Friendship, Good Neighbourhood and Cooperation between the Kingdom of Spain and the Kingdom of Morocco" since 1991.[5]

2.2 Characterization of River Basin District

Spain has a very large number or River Basin Districts, that is 25. Some of the rivers flow to the Atlantic and some to the Mediterranean. The country has delineated 5470 Surface Waterbodies (SWB) which represents an increase of 308 of compared to the previous cycle. It has delineated 804 Groundwater bodies (GWB) which represent 42 more than in the previous cycle. The total length of river water bodies decreases by 4.9%, the total area of lake water bodies increases by 270%[6] and the total GWB area increases by 3%.

Table 1: Overview of Spain's River Basin Districts (RBDs)

RBD	Name	Rivers	Lakes	Transitional Waters	Coastal waters	Groundwater bodies
ES010	Miño-Sil	248	35	2	2	24
ES014	Galicia-Coast	412	24	22	29	18
ES017	Eastern Cantabrian	109	13	14	4	20
ES018	Western Cantabrian	241	18	21	15	20
ES020	Duero	646	62	0	0	64
ES030	Tagus	343	169	0	0	26
ES040	Guadiana	241	129	4	2	20

[2] https://www.cadc-albufeira.eu/es.html
[3] https://www.boe.es/eli/es/ai/1998/11/30/(1)
[4] https://www.boe.es/eli/es/ai/2006/02/15/(2)
[5] https://www.boe.es/eli/es/ai/1991/07/04/(1)
[6] The vast majority of Spanish lakes are reservoirs (HMWB). In the 2nd cycle, these lakes were reported as heavily modified rivers, but following recommendations of the CIS Working Group DIS and the requirements of the reporting database (see 'WFD Reporting Guidance 2022' section 2.2.3.1.), in the 3rd RBMPs it was decided that the most suitable format to report these reservoirs was as lakes.

RBD	Name	Rivers	Lakes	Transitional Waters	Coastal waters	Groundwater bodies
ES050	Guadalquivir	344	95	13	3	86
ES060	Andalusian Mediterranean Basins	122	25	7	27	67
ES063	Guadalete-Barbate	59	17	10	12	14
ES064	Tinto, Odiel and Piedras	41	13	11	4	4
ES070	Segura	77	19	1	17	63
ES080	Jucar	313	51	4	22	105
ES091	Ebro	619	176	16	3	105
ES100	Catalan Basins	250	40	25	33	44
ES110	Balearic Islands	70	2	36	41	87
ES120	Gran Canaria	0	0	0	8	10
ES122	Fuerteventura	0	0	0	6	4
ES123	Lanzarote	0	0	0	6	2
ES124	Tenerife	0	0	0	8	4
ES125	La Palma	0	0	0	5	5
ES126	La Gomera	0	0	0	4	5
ES127	El Hierro	0	0	0	3	3
ES150	Ceuta	0	0	0	3	1

RBD	Name	Rivers	Lakes	Transitional Waters	Coastal waters	Groundwater bodies
ES160	Melilla	1	0	0	3	3
TOTAL		**4136**	**888**	**186**	**260**	**804**

Source: WISE Electronic reporting

To benchmark and determine the status of water bodies, boundary values are set for the high/good (establishment of reference conditions) and good/moderate status classes. Good ecological status of water bodies is established by comparing assessed monitoring data to these two boundary values.

Regarding status assessment, all SWBs in Spain have been classified for ecological status/potential and the "one-out all-out" principle is applied. However, there are still many quality elements and RBSPs that are not used when classifying status or potential of SWBs.

It is welcomed that for river types, the establishment of type-specific hydromorphological and physico-chemical conditions has slightly improved, since about one third of river types have now conditions established for all relevant hydromorphological and physico-chemical quality elements. The situation is very different for lakes: for 93.8% of them, the competent authorities do not use hydromorphological quality elements and for more than half (54.7%) they do not use general physico-chemical quality elements,[7] This is probably the consequence of an increased number of lake Heavily Modified Water Bodies (HMWBs) (reservoirs) but which is of particular importance given the strong pressures from agricultural (nutrient) pollution.

A similar concerning situation can be found for transitional and coastal water body types which do not yet have any type-specific conditions established for hydromorphological quality elements.

When it comes to biological quality elements the situation seems to have worsened, since a higher percentage of river types have now no type-specific biological reference conditions established compared to previous cycle. Although most biological assessment methods for the national classification system have been intercalibrated with fixed class boundaries, some national types are not linked to common intercalibration types so it remains to be clarified how these water bodies have been classified. It is welcomed that Spain provides information on how reference conditions have been coordinated between neighbouring Member States.[8]

It is worth noting that the fish fauna has not been considered in the status assessment of lakes, since this biological quality element is considered "not applicable" on the basis of the justifications provided by Spain and accepted in the intercalibration decision.[9] Regarding transitional waters, the intercalibration of reference conditions is flawed for benthic fauna and phytoplankton in estuaries of Catalonia and Valencia, as well as for aquatic species (macroalgae/angiosperms) and fish fauna. As regards to the coastal waters, specifically Mar Menor coastal lagoon, the intercalibration of reference conditions for angiosperms is in progress, and also the revision of the boundaries for Chlorophyll-a,

[7] Physico-chemical elements include thermal conditions, oxygenation conditions, acidification status and nutrient conditions.
[8] Transboundary coordination
[9] The 4th intercalibration decision was adopted 27 February 2024.

benthic fauna (macroinvertebrates) and macroalgae are in progress. Also, there is a gap in the intercalibration of macrophyte method in rivers for on geographic group (Central/Baltic).

It can be concluded that Spain shows some clear progress in the establishment of type-specific reference conditions for some river types, but it needs to swiftly advance in developing these conditions for all.

Gaps to be filled to achieve environmental objectives are reported for 42 chemical substances. However, there are differences between RBDs regarding the number of chemical substances for which indicator gaps have been reported. There is certain ambiguity whether emission inventories[10] have indeed been established, affecting all relevant substances. Despite a reported methodology related to the inventory of emissions, discharges and losses for the 3rd RBMPs have been completed, there has not been a legally mandated inventory in Spain.

Regarding the setting of environmental objectives, in most of the RBDs significant pressures on both SWBs and GWBs are defined in terms of thresholds and linked with failure of status. On that basis, Spain reports that 49.7% of SWBs and 46.7% of GWBs are affected by no significant impacts.

Surface waters

The pressures affecting the highest percentage of SWBs in Spain come from diffuse sources of agriculture and point sources from urban wastewater. As regards agriculture, Spain's surface used for agriculture amounts to 47.5% of the total land area,[11] 12.8% of this utilized agricultural area is irrigated at least once a year,[12] with major outputs from four groups of crops including cereals, olive trees, non-citric fruits and vineyards, accounting for 67.5% of the total irrigated area of the country.[13] The landscape is also subject to intense livestock farming practices with a very high production of slurries.[11]

In that context, it is worth mentioning that Spain has just been condemned by the European Court of Justice (ECJ) for failing to apply some of the provisions of the Nitrates Directive. Equally, Spain has, over the years, encountered difficulties implementing the Urban Waste Water Treatment Directive (UWWTD). Despite the improvement in compliance over the years, for which the use of EU funding has been essential, the incomplete implementation of the UWWTD has led to several rulings of the ECJ against Spain. According to the last available data, the overall compliance rate in Spain is 84%, which is higher than the EU average of 76%.[14]

On the other hand, is it important to highlight that Spain is one of the top Member States in the field of wastewater reuse, although it is focussed mainly on some Spanish regions and there is still a high potential to be tapped.

As in the previous cycle, SWBs continue to have the most significant impacts from nutrient pollution and altered habitats due to morphological changes.

As regards hydromorphological pressures, hydropower accounted for 17% of Spain's total installed power generation capacity and the share of electricity from hydropower is 20% of total electricity

[10] Article 5 of the Environmental Quality Standards Directive (2008/105/EC) of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02008L0105-20130913

[11] Commission Report on the implementation of Directive 91/676/EC on 2016-2019 time period.

[12] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Agri-environmental_indicator_-_irrigation" \t "_blank"

[13] https://www.mapa.gob.es/en/desarrollo-rural/temas/gestion-sostenible-regadios/regadio-espanya/default.aspx

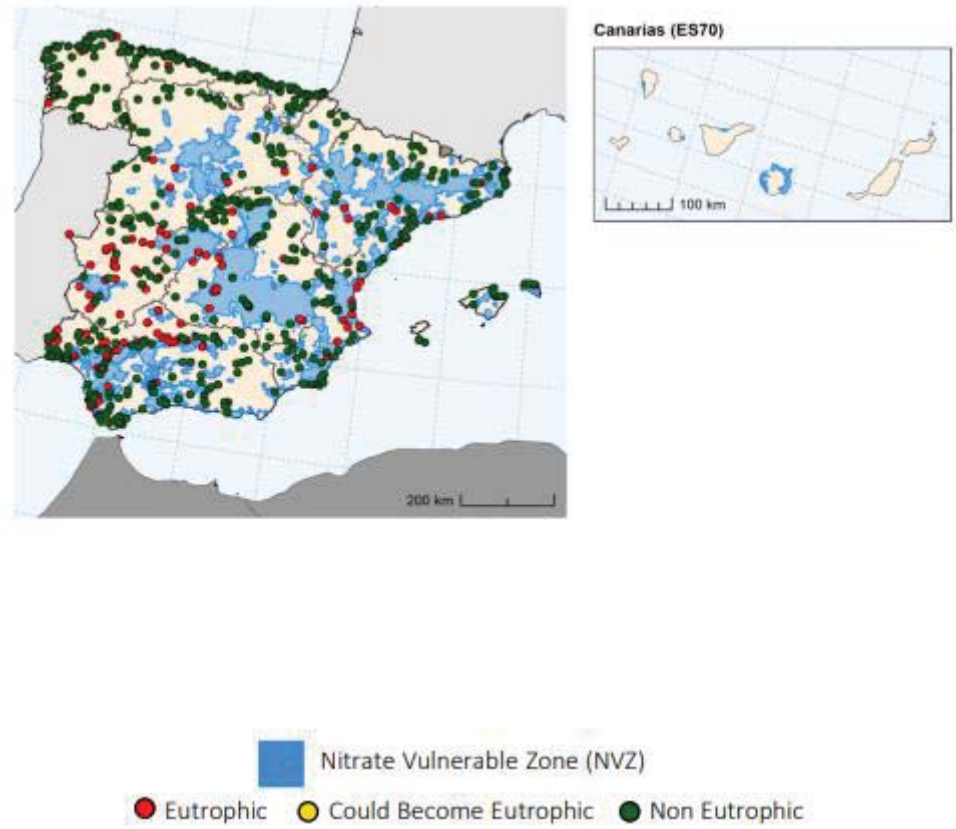
[14] https://water.europa.eu/freshwater/countries/uwwt/data-visualisation/uwwt-figure-4-folder/uwwt-figure-4-es

production in 2023.[15] With over 20 000 MW capacity, Spain is the third larger hydropower EU producer after France and Italy,[16] and currently there are more than 1,300 hydropower plants using 40% of the total capacity of the reservoirs (i.e. 55 000 hm3). Of those, 450 were built before 1960 and more than 100 already existed in 1915. SWBs are significantly affected by pressures from hydropower with impacts on the interruption of the hydromorphological continuity of watercourses, preventing migratory fish of reaching their spawning grounds, direct damage to organisms by hydropower turbines, and habitat changes affecting water levels downstream.

Given the variety of conditions and habitats, Spain is quite vulnerable to the establishment of a number of invasive alien species. Several aquatic invasive species are already posing significant pressures on endemic aquatic ecosystems. Around 28 invasive alien species of EU concern[17] create pressures for freshwaters in Spain. From those the following invasive aquatic plants have an specific impact: alligator weed (*Alternanthera philoxeroides*), floating pennywort (*Hydrocotyle ranunculoides*), African elodea (*Lagarosiphon major*), Large-flower primrose-willow (*Ludwigia grandiflora*), floating primrose-willow (*Ludwigia peploides*), parrot's feather (*Myriophyllum aquaticum*), broadleaf watermilfoil (*Myriophyllum heterophyllum*), water lettuce (*Pistia stratiotes*), water hyacinth (*Pontederia crassipes*) and african payal (Salvinia molesta). For example, in the Guadiana river more than 900 000 tonnes of water hyacinth were removed over 15 years with a cost of more than MEUR 40.[18] In addition, animal species such as wels catfish (*Silurus glanis*), zebra mussels (*Dreissena polymorpha*) and some alien crayfish, also create local problems.

[15] https://cuervaenergia.com/es/comunidad/sostenibilidad/central-hidroelectrica-en-espana/
[16] Statistics | Eurostat (europa.eu)
[17] EASIN - European Alien Species Information Network (europa.eu)
[18] https://lifeinvasaqua.com/exposicion-invasoras-mncn/

Figure 1: Map of the monitoring points showing eutrophication assessment in Spain, according to the reporting of the Nitrates Directive



Source: Joint Research Center of European Commission (n.d.). JRC NITRATES DIRECTIVE - Reporting Period 7 (2016-2019) Trophic Status. [online] water.jrc.ec.europa.eu. Available at: https://water.jrc.ec.europa.eu/portal/apps/dashboards/cb6034c2a75e4df282f8a62f90c16caa

Note: 0% of the monitoring stations are above the threshold of 50mg/l

Groundwaters

In the3rd RBMPs, the pressures on GWBs come mainly from agriculture by diffuse sources and abstractions lowering water table. According to the information provided, overall, since the 2nd RBMPs all pressures and impacts seem to have a decreasing trend. In this context, it is worth mentioning that although the RBMPs do not refer to problems of illegal abstractions of water, in the context of the ongoing infringement case for the Doñana National Park, the competent authorities have recognised a large-scale problem of groundwater illegal abstractions in some river basins. While efforts to stop such illegal activities are underway, they remain a very big pressure on water bodies and dependent terrestrial ecosystems. The ruling of the European Court of Justice on this case, highlighted the need for Spain to better control the abstractions and enhance its knowledge of the use of water.

3. Policy elements contributing to biodiversity and climate change adaptation

3.1 Surface Water: what is their ecological status or potential

Monitoring

It is welcomed that, compared to the previous cycle, Spain has enhanced its diagnosis capacity by increasing the number of monitoring sites (approximately +26% for surveillance and +20% for operational monitoring).[19] In this 3rd RBMPs, surveillance monitoring covers 53.7% of river length, 67% of lake area, 83.5% of transitional water area and 83.7% of coastal water area; while operational monitoring covers 58.1%, 79.0%, 27.5% and 60.9%, respectively.

It is noted positively that overall, monitoring for most of the quality elements has increased compared to the previous cycle, but as mentioned earlier, some quality elements are not monitored among all SWBs, especially physico-chemical quality elements. Compared to 2nd RBMPs, monitoring has: i) decreased for macrophytes and benthic invertebrates in lakes; ii) reduced to a minimum for phytoplankton in rivers; phytobenthos and fish in lakes; angiosperms, macroalgae and hydrological and tidal regimes in transitional waters and other aquatic flora in lakes and coastal waters; and iii) not been measured at all for morphological conditions in lakes.

As regards River Basin Specific Pollutants (RBSPs), Spain is monitoring them in all water categories and a national guide including a list of 46 recommended RSBPs has been adopted. It is applicable to all RBDs,[20] which use this list as a starting point and add other RBSPs based on their own analysis. The monitoring frequencies for quality elements appears to be in line with the minimum requirements of the Water Framework Directive (WFD(.

State assessment

Figure 3.1 depicts the evolution of the ecological status over the different planning cycles. It shows a nuanced picture. Indeed, compared to the previous cycle there is an increase in the share of SWBs in good or better ecological status/potential from 56% to 58% (i.e. expected to increase to 98% by 2027). In addition, there are less water bodies in less than good ecological status from 42% to 41%.[21]

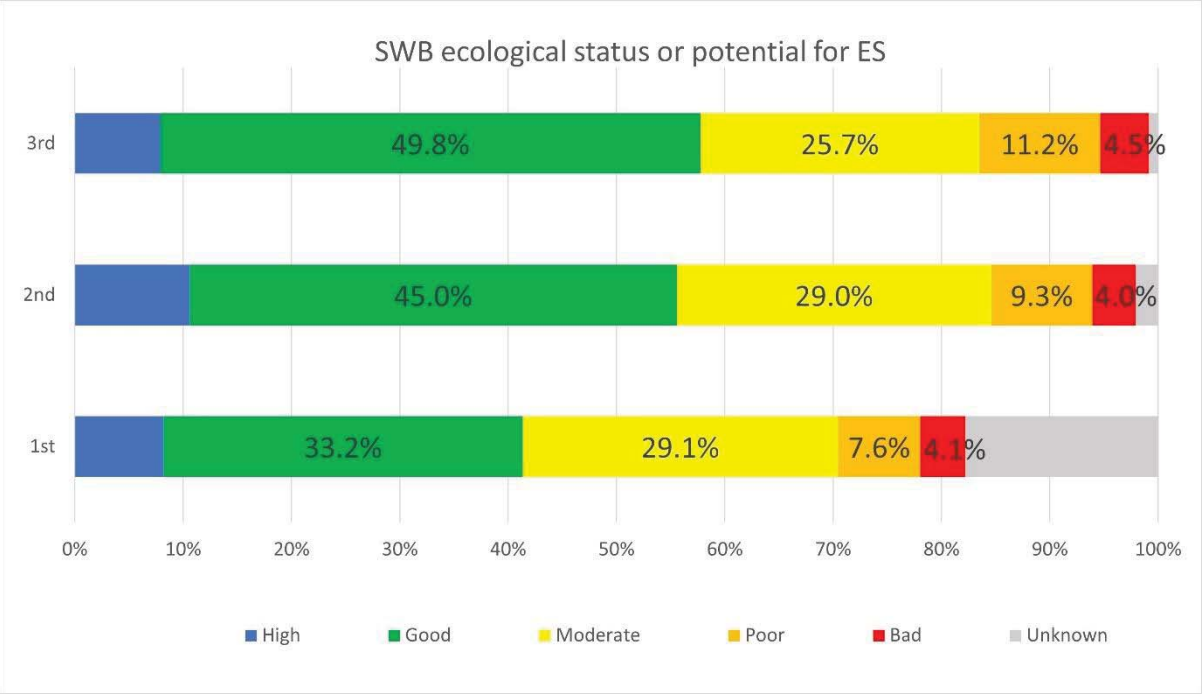
Despite these improvements, there are less water bodies in high ecological status or maximum ecological potential. These may have deteriorated from high to good which may explain partly the higher number in good status/potential stated above, whilst decreased for moderate ecological status/potential and increased for both poor and bad ecological status/potential.

[19] There are two types of monitoring: i) operational monitoring to determine the status and which covers all water bodies at risk and ii) surveillance monitoring aimed rather at identifying impacts and long-term changes and design monitoring programmes.

[20] Real Decreto 817/2015, por el que se establecen los criterios de seguimiento y evaluación del estado de las aguas superficiales y las normas de calidad ambiental.

[21] Spain has created a web portal showing further granularity at RBD level Hydrological Plans and Programme of Measures (mapama.gob.es)

Figure 2: Ecological status or potential of SWBs, as reported in 2009, 2015 and 2021.



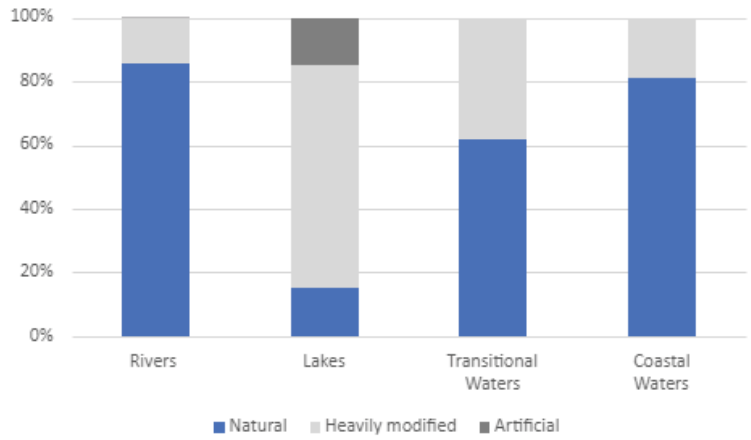
Source: 3rd RBMPs e-reporting.

Not all SWBs comply with the environmental quality standards set for the RBSPs, which are the compounds for which the country considers there is a local problem, and which form part of its ecological status/potential. 35.4% of rivers, 30% of lakes, 51.4% of coastal waters and 47.8% of transitional water bodies do not use RBSPs for classification. The most problematic RBSPs are glyphosate, which was not that prominent in the previous reporting cycle, selenium, aminomethylphosphonic acid (AMPA), copper, zinc and enilconazole (IMAZALIL).

3.2 Hydromorphological changes and artificialization (HMWBs and AWBs)

Spain features a considerable level of human intervention in its water system. Indeed, most of the lakes are heavily modified or artificial, but also rivers and coastal waters are subject to significant modifications.

Figure 3: The proportion of natural, heavily modified, and artificial water bodies by water category and total



Source: 3rd RBMPs e-reporting.

The most notable change compared to the previous cycle is that Spain reports a very large increase in the number of heavily modified lakes (from 17% to 70%, that is a change of 568 lake HMWBs). This may be the consequence from changing some water body categories from rivers to lakes. In the meantime, the share of Artificial Water Bodies (AWBs) has decreased from 15% to 5% for all lakes water bodies.

As regards the environmental objectives for those HMWBs and AWBs, the approach used to assess good ecological potential (GEP) is also described in the national reporting guide.[22] GEP is defined in relation to a reference condition which is the maximum ecological potential (MEP) reflecting as far as possible that of the closest comparable surface water body taking into account the modified characteristics. Overall, the Spanish HMWBs and AWBs are doing worse than the natural water bodies and experience more difficulties to achieve their corresponding environmental objectives even if those are of a lower level of ambition. Indeed, 50.6% of HMWBs and AWBs achieve good or high ecological potential in comparison to 60.9% for natural water bodies.[23]

Hydromorphological and physico-chemical quality elements are also taken into account, via their relationship with biology. Mitigation measures are reported in specific fact-sheets of the RBMPs for each HMWB together with the expected ecological changes due to the application of those mitigation measures, and applied to compensate as much as possible the adverse ecological effects of the physical alteration. The most common water uses associated with the high level of human intervention are, in a decreasing order of importance: irrigation for agriculture, drinking water supply, energy production and flood protection.

3.3 Groundwater bodies - have they sufficient water – quantitative status

Monitoring

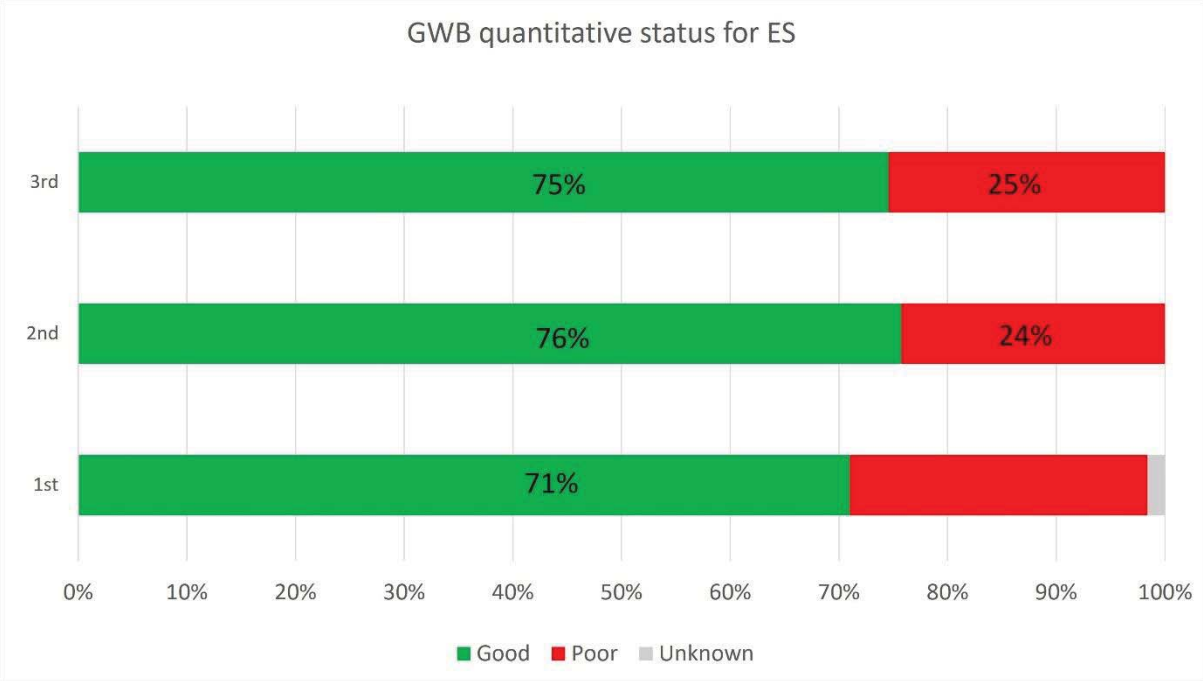
[22] Guía del Proceso de identificación y Designación de las Masas de Agua Muy Modificadas y Artificiales - Categoría Río. April 2021.
[23] Workbook: WFD_SWB_SurfaceWaterBody (europa.eu)

Although the total GWB area remains almost the same, it is noted very positively that Spain has substantially increased the national network for monitoring the quantitate status of groundwater, by increasing in 21.5% the number of monitoring stations[24] and covering at least 85% of total GWBs. There is no grouping of GWBs in the 3rd RBMPs. Nevertheless, this means that 14% of GWBs are not yet subject to monitoring for quantitative status (12% of GWBs in 2nd RBMPs) and there is still no quantitative monitoring for Ceuta (ES150) and Melilla (ES160) RBDs.

Quantitative status

It is noted with concern that Spain is still not fully considering the necessary water needs for the groundwater dependant ecosystems in the water (GWAAEs) and on the land (GWDTEs) for the quantitative status assessment, as required in the WFD. These are not taken into account in 5 RBDs or just partially in 2 RBDs, most of which are located in areas under severe water stress. This means that for these relevant GWBs the quantitative status is not correctly assessed. This risks to show a distorted picture of the real situation regarding water quantity in some regions of the country, which induces to over-abstraction. The very severe natural degradation in the case of the Doñana National Park, a flagship biodiversity hotspot in the EU, has put in evidence the crucial importance to consider the needs for groundwater dependent terrestrial and aquatic ecosystems. Equally worrying, saline or other intrusions are not considered in 5 RBDs, even though some of this RBMPs concern islands and coastal areas, which are especially vulnerable areas to sea water intrusions.

Figure 4: Quantitative status of GWBs, as reported in 2009, 2015 and 2021. Missing data due to pending reporting.



3rd RBMPs e-reporting

Regrettably, the overall quantitative status of GWBs slightly decreases in the 3rd RBMPs, with 75% of total GWBs in good quantitative status, while in the 2nd RBMPs this figure was 76%. The level of

[24] Number of Monitoring Stations (3539 in 2015 vs 4302 in 2023) extracted from Hydrological Plans and Programme of Measures (mapama.gob.es)

confidence in the assessment also seems to have slightly declined as the number of water bodies classified with either low or unknown confidence increases from 15% to 18% compared to the previous cycle.

Gap to target

It is noted with significant concern that 29% of total GWBs are at risk of failing to achieve good quantitative status by 2027. Despite this fact, Spain expects that only 6% of total GWBs will actually fail by 2027.

The main reason for GWBs failing to achieve good quantitative status is the over-abstraction, followed by far by saline/other intrusions resulting from anthropogenically induced changes in flow direction, which in coastal areas is caused by over abstraction[25]. Recent studies show that the combined impacts of climate change and groundwater pumping will significantly decrease natural groundwater recharge, reduce soil moisture and increase actual evapotranspiration,[26],[27] while predictions regarding desertification and prolonged droughts are becoming more certain.

3.4 Protected Areas (identification, monitoring, objectives and measures)

Protected areas in Spain cover a total of 141 623 km^2 on land, representing the second largest terrestrial protected areas network in the EU, and 128 670 km^2 at sea, the second largest marine network.[28] Currently, 28% of Spain's terrestrial area is designated as protected areas, which is slightly above the EU value of 26.4%. Spain has a total of 1858 recognized Natura 2000 sites. About half of the protected areas in the terrestrial environment are designated exclusively as Natura 2000 sites and the largest part of the marine protected areas network is covered by Natura 2000 sites.

Spain has designated several protected areas including: recreational areas protected under the Bathing Water Directive, areas designated for the protection of drinking water supplies under the Drinking Water Directive, areas designated for the protection of habitats and species (Natura 2000 – Habitats and Birds Directives), nitrate vulnerable zones protected under the Nitrates Directive, sensitive areas under the Urban Waste Water Treatment Directive and areas for the protection of shellfish designated under the (now repealed) Shellfish Directive. Since the 2nd RBMPs, the number of protected areas has overall increased for drinking water protection areas and Natura 2000 protected sites. Additional monitoring sub-programmes for protected areas are often undertaken in many RBDs, thus overlapping, partly or fully, with the common WFD monitoring network. Since the 2nd RBMPs, the number of these monitoring sites have increased overall, especially for bathing waters, Natura 2000 areas and shellfish designated areas.

Table 2: Number of protected areas in 2021, per type of protected area and type of associated water body.

	Number of Water Bodies Associated with protected areas in

[25] Recent Research Results on Groundwater Resources and Saltwater Intrusion in a Changing Environment (researchgate.net)
[26] Sapriza-Azuri *et al.*, 2015, Journal of Hydrology, 529(3), 1701-1712
[27] Touhami *et al.*, 2015, Journal of Hydrology, 527, 619-629
[28] https://biodiversity.europa.eu/countries/spain

Protected area type	Rivers	Lakes	Coastal	Transitional	Groundwater
Bathing waters	133	70	195	41	-
Drinking water protection area	1400	388	46	13	690
Natura 2000 protected sites	2738	635	203	152	511
Nitrate vulnerable zone	494	175	15	45	386
Sensitive ares	181	28	70	57	-
Shellfish designated water	81	1	124	52	-

Source: 3rd RBMPs e-reporting.

Since the 2nd RBMPs, there is very little progress in the status of water bodies associated with protected areas, with over 40% of SWBs not meeting good ecological status, over 30% of GWBs in poor chemical status and over 20% of GWBs in poor quantitative status. For waterbodies associated with Natura 2000 sites, no additional objectives are set. Indeed, Spain considers that achieving WFD good status is sufficient for half of the sites and for the other half the needs were described as unknown. Additional measures have only been established for safeguard zones in connection with drinking water protected areas in all RBDs.

3.5 What is being done to prevent/reduce hydromorphological pressures

Spanish water bodies have been subjected to significant hydromorphological pressures (e.g. dams) associated to specific sectors. Hydromorphological alterations are mainly related to irrigation for agriculture, flood protection, hydropower, drinking water, industry, urban development, aquaculture and recreation. Except in the RBDs of the Canary Islands, Ceuta and Melilla; the rest of the 3rd RBMPs report measures to tackle hydromorphological pressures, which include fish ladders, sediment management, removal of physical structures, re-meandering, setting of ecological flows, and river and floodplain restoration. Besides, restoring river continuity has been identified as an overall management objective in at least 15 RBMPs. Many of these measures are eligible under the Next generation EU financing instrument.

In all RBDs, there is a concession, authorisation and/or permitting regime to control water impoundment and a register of impoundments. In some RBMPs, there exists also a control and registry of the morphological modifications of water bodies, according to Article 11(3)(i) WFD,

including constructions/works, dredging and temporary diversion and changes in the riparian area. However, there is no evidence that this is generalised for all RBDs and it is also unclear whether a periodical review of permits has been introduced in the legislation. During the previous reporting cycle, it was developed (i.e. still requiring improvement in many RBDs) an inventory of existing structures including both transverse barriers (e.g. dams, weirs, sluices, etc.) and longitudinal defence works (e.g. flood protection constructions), the results of which have been used to update the pressures and to assess the longitudinal connectivity. All 3rd RBMPs include win-win measures in terms of achieving the objectives of the WFD and Floods Directive, drought management and the use of Natural Water Retention Measures (NWRM). Other relevant initiatives for hydromorphology are included in the National Strategy for Green Infrastructure and Ecological Connectivity and Restoration from 2021,[29] whose aim is to restore damaged ecosystems and consolidate a network of natural and semi-natural areas. In 2023, Spain put in place a new National River Restoration Strategy[30], which aims at protecting river natural reserves and hydrological reserves, minimise flood risks and restore river water bodies.

Regarding ecological flows, many RBDs plan to carry out studies to provide better information on flow regime, the aquifer-river relationships and its role in maintaining ecological flows, consideration of all components of ecological flow, importance for protected areas, as well as for monitoring and enforcement. Nature-based solutions (NbS) are mentioned in some RBMPs, however, perhaps because it has been published after the adoption of some RBMPs, the plans do not mention the National Strategy for the Restoration of Rivers mentioned earlier,[29] nor do they mentioned the 2030 Strategic Plan for Wetlands which was adopted in November 2023.[31]

3.6 What Spain is doing for abstractions and water scarcity

Water abstraction and exploitation continue to be very significant for a large part of Spain. Indeed, for all RBDs except 3 RBDs (all located in Canary Islands) water abstraction has been identified as a significant pressure at the RBD level or in significant portions of the RBD in the 3rd RBMPs. Water abstraction has been identified as a significant pressure for 572 SWBs (10.5% of total SWBs) failing to achieve good ecological status or potential by 2021, 203 GWBs (25% of total GWBs) failing to achieve good quantitative status by 2021 and 225 GWBs (28% of total GWBs) at risk of failing to achieve good quantitative status by 2027.

Spain has reported the average annual Water Exploitation Index plus (WEI+)[32] for the period 2017-2021 at national level to be 19.95 %, which is just below the 20% threshold above which a country usually experiences water scarcity.[33] However, many of the 3rd RBMPs do not provide a global WEI or WEI+ figure for the RBD, or in some RBDs this is broken down by exploitation systems,[34] water bodies or just given for GWBs. The lack of harmonisation in relation to the WEI data is a matter of concern as this may lead to an underestimation of the magnitude of the water stress. Among those 3rd RBMPs providing data, the RBDs with the highest WEI+ are Guadalquivir (48%), Guadiana (50%), Jucar (72%) and Segura (100%), all of them beyond the severe risk threshold of 40%. On the

[29] Estrategia Nacional de Infraestructura Verde y de la Conectividad y Restauración Ecológicas
[30] Estrategia Nacional de Restauración de Ríos (ENRR) 2023-2030.
[31] Plan Estratégico de Humedales a 2030.
[32] According to the European Environment Agency.
[33] In the absence of Europe-wide threshold values available for WEI+, values above 20 % are generally considered to be a sign of water scarcity, while values equal or greater than 40 % indicate situations of severe water scarcity, according to Eurostat.
[34] Functional division of the territory of the hydrographic district for which the allocation of resources defined in the RBMP is established.

seasonal scale, Spain appears among the EU-27 countries with the most significant water scarcity conditions (seasonal WEI+ >40%), while for 7 RBDs WEI+ reached up to 100% during summer periods.

At country level, in 2020 the major water users in Spain were: agriculture (64%), electricity generation including cooling water (19%), households and services (16 %) and manufacturing industry (1%). It is noted positively that in 2020 compared to 2016, total water abstraction has decreased in all sectors: industry (-8%), agriculture (-7%), households and services (-6%) and electricity generation including cooling water (-2%).[35] Yet, despite this decrease, there has been no overall reduction in the area affected by water scarcity. This means that additional efforts are needed to ensure sustainable water use since the frequency, intensity and impacts of drought events will increase exacerbating water scarcity.

It must be noted that the River Basin Authorities in Spain manage the concession, authorisation and permitting regime of public surface and groundwater abstractions and impoundments. Permits can be refused or revised under specific conditions to achieve environmental objectives. There is, however, a situation of practical lack of administrative control of groundwater sources in Spain derived from historical legal provisions based on a regime established in 1879 and later revised in a Water Law in 1985. Indeed, the 1985 Water Law establishes a 75-year transitional regime to respect acquired historical rights, subject to the registration in the "Catalogue of Private Water".[36] Each RBD has a water register but not all the information is available, i.e. a very significant part of the registry entries lacks the necessary updated data as well as the quantities that are allowed to be extracted. This makes it difficult to compare with the permits granted. Work is ongoing for the development of a fully digitalised central register[37] (not yet operational despite expected to be finished by 2023).[38] Abstractions for common uses (human consumption, bathing, other domestic uses, watering livestock) below 7 000 m^3/year do not require an authorisation.

Water metering has not been effectively implemented in a generalised manner in all RBDs, although this was required under the law since 2009 (Order ARM/1312/2009). This is particularly important considering the large amounts of water used by different sectors and the unauthorised water abstractions (without a permit or in excess of the permit). This lack of implementation of the law, is due to technological and regulatory problems, together with a lack of control capacity of the administrations. As a result, some RBMPs plan measures to expand water metering by 2027.

There are large divergences in the way RBDs implement ecological flows. It is a matter of concern that ecological flows have been defined but only fully implemented in less than half of the RBDs. There is not yet an explicit link between the implementation of e-flows and granting of permits to control water abstractions. It is not possible to know if e-flows are guaranteeing the good status of water bodies as not all RBMPs consider the most relevant components for the characterisation of e-flows (i.e. some components are not sensitive enough to the hydrological alterations).

All RBDs include measures to increase water supply, mostly aiming at meeting the demands of agriculture and public water supply with a focus on tourism. The measures to increase water supply

[35] Annual freshwater abstraction by source and sector, Eurostat.
[36] Exists both a "Public Water Registry" of abstractions and a "Catalogue of Private Water", this later being an inventory of private groundwater rights of landowners according to the 1879 Water Law.
[37] Orden AAA/1760/2016, por la que se regula la estructura informática del Registro de Aguas y de la Base Central del Agua.
[38] Background document 28: Application of basic measures (Article 11.3.b-l, WFD).

include water retention measures, water reuse, desalination, shifts of abstraction from one water body to another, as well as to reservoirs, and water transfers between different RBDs. Regrettably, taking into account that 25 % of GWBs are in poor quantitative status without any progress since the 2nd RBMPs, coupled with the large volumes of illegal water abstractions, it would appear that the existing framework and its enforcement is insufficient.

3.7 Adaptation to climate change

The 3rd RBMPs contain a section dedicated to climate change including projections of different climate change scenarios; effects on ecological conditions, ecosystems and invasive species; maps of vulnerability and risks of desertification, among others. They also refer to the Common Implementation Strategy (CIS) guidance No. 24.[39] Many RBDs prioritise climate change adaptation measures that complement those in the National Plan of Adaptation to Climate Change,[40] which is taken as the baseline to promote coordinated and coherent action. Spain adopted in July 2022 some Strategic Guidelines on water and Climate change.[41] In addition, many of the RBDs have their own regional plans developed to mitigate and adapt to the effects of climate change. However, many of these measures do not relate to the preservation of water bodies and no information is given on the climate proofing of the measures identified. Overall, it remains unclear which measures directly link to climate change adaptation specifically, and which measures included in the RBMPs stem from national/regional plans.

Climate change is not explicitly mentioned as a contributing cause for failure to achieve good ecological status. No information could be found on the impacts of climate change on achieving good status, nor the measures required to mitigate these impacts. As such, the analysis is rather limited, and no water bodies are identified as being under a serious risk because of climate change. Although temporary deteriorations due to drought were recorded in several RBDs, there was no case of exemptions under Article 4(6) from compliance with environmental objectives.

Drought management

Drought Management Plans (DMPs)[42,43] (established in 2000, operational since 2007 and required by the National Hydrological Plan) are available for most of the RBDs. These DMPs develop various drought scenarios and drought indicators together with a series of actions/measures aimed at minimizing impacts of possible droughts which need to be activated at different stages. DMPs only focus on addressing temporary shortage episodes and act rather as a management alert system when drought situations occur so that appropriate measures can be undertaken. These range from reducing water allocations, restricting/prohibiting non-essential uses and introducing supplementary water resources. Despite recent studies indicating that the number of SWBs in poor chemical status is expected to increase in the Mediterranean basins due to climate change,[44] the effect of droughts in pollutant concentrations has not been assessed.

Flood management

[39] Guidance document No 24 (2009): River basin management in a changing climate.
[40] Plan Nacional de Adaptación al Cambio Climático
[41] Orientaciones Estratégicas sobre Agua y Cambio Climático
[42] Spanish web portal to Drought Management Plan, Planes Especiales de Sequía (PES).
[43] Background document 19: Subplans- Special drought plans.
[44] Dorado-Guerra *et al.*, 2023, Journal of Environmental Management, 348, 119069

The Floods Directive requires to consider the impacts of climate change on the occurrence of floods, and therefore in the preparation of Flood Hazard and Risk Maps (FHRMs) and Flood Risk Management Plans (FRMPs). More information on these can be found in Section B. However, considering the close relationship between overall water management and floods management and the importance of climate change effects on both, climate change effects are jointly addressed in this section.

The updated Spanish 2022 national guidance methodology for FHRMs[45] does not refer to any changes in the consideration of climate change compared to the past. However, there is work in progress to feed the third maps with climate change impacts. This will need to be pursued.

All five FRMPs analysed in detail (Eastern Cantabrian, Guadiana, Júcar, Andalusian Mediterranean Basins, La Gomera) provide quantitative analyses of the impacts of climate change including in terms of precipitation, temperature, and sea level rise. They cite national sources, including the work of the Spanish Meteorological Agency (AEMET), studies on the impacts of climate change on water resources of the national Centre for Studies and Experimentation of Public Works (CEDEX), and the reports of the Spanish Office for Climate Change (OECC). The five FRMPs state that the main sources of flooding will continue to be sea level rise, torrential rains and, for some of the Units of Management (UoMs) such as Eastern Cantabrian, snowmelt. All FRMPs assessed refer to Spain's National Climate Change Adaptation Plan, and provide an overview of the expected impacts of climate change and refer to coordination with the 'strategic lines of action' set out therein. These lines of action include strengthening knowledge on climate impacts, in particular extreme events, integrating adaptation into water management, and improving flood risk management, including via nature-based solutions. The Adaptation Plan moreover highlights, in terms of addressing flood risks, the roles of land use and spatial planning, of insurance, and of preparedness actions including early warning systems.

4. Policy elements contributing to zero pollution

4.1 Surface Water: what is their chemical status

Monitoring

The 3rd RBMPs present only summarised information, without details for SWB classes on the percentage coverage by operational and surveillance monitoring, nor number of monitoring sites for chemical status. From the disclosed information, surveillance monitoring covers 50.3% of river lengths, 60.7% of lake area, 76.7% of transitional water area and 60.3% of coastal water area; while operational monitoring covers 57.1%, 74.1%, 53.7% and 17.3%, respectively.

It is unclear whether the monitoring network for chemical status in SWBs has been expanded or maintained compared to the 2nd RBMPs, where the spatial coverage was already reasonable. Regarding pollutants, only some 3rd RBMPs include in their monitoring programs for chemical status: i) the assessment all priority substances and ii) monitoring in biota or sediment (including those priority substances where the biota standard applies). For setting trends, very often the frequency of monitoring in biota or sediment is limited to once every six years.[46] There is also little evidence of improvement on the knowledge pertaining to the priority substances included in inventories and

[45] https://www.miteco.gob.es/es/agua/temas/gestion-de-los-riesgos-de-inundacion/propuesta-de-minimos-realizacion-mapas-deriesgo-2ciclo_tcm30-511333.pdf

[46] Environmental Quality Standards Directive 2008/105/EC, as amended by Directive 2013/39/EU, Art. 3.6 indicates as a guideline for the purpose of long-term trend analysis monitoring at least every three years.

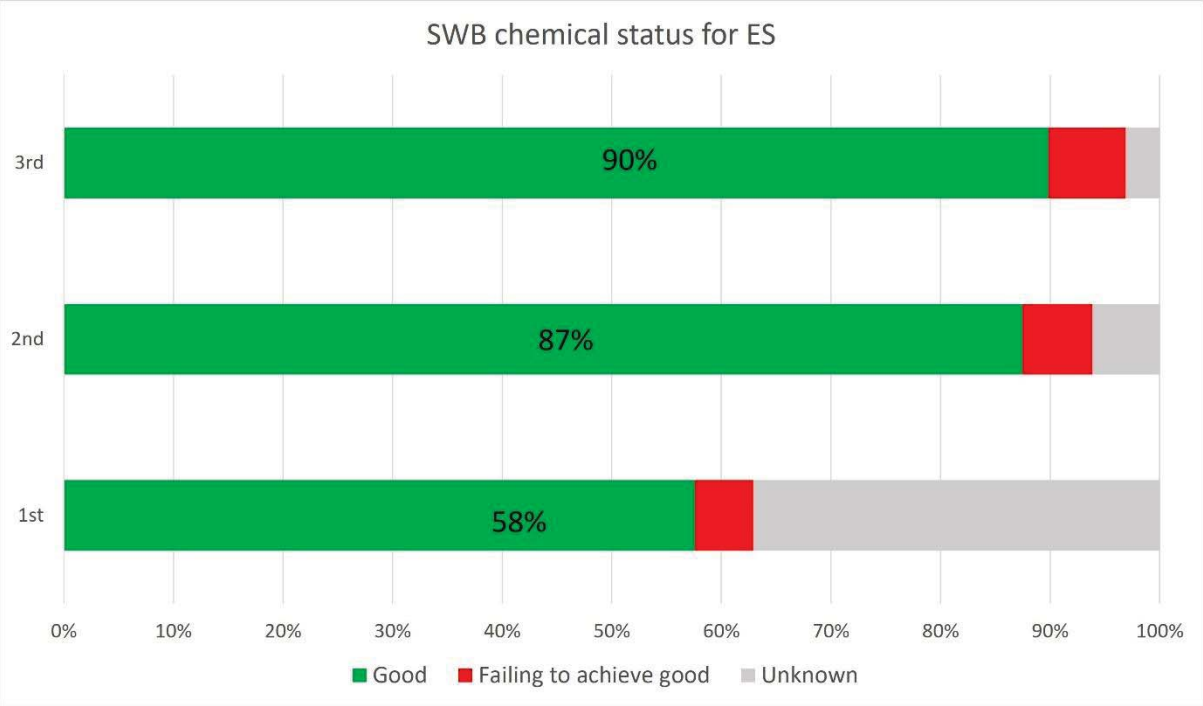
discharged into RBDs, monitoring of discharges or links to the pressure assessment and emission inventory. Not all inventories considered all priority substances, so it is not clear whether all discharged substances have been identified in all RBDs.

For the first time in the current cycle, the assessment of chemical status has been carried out in accordance with the RDSE,[47] which defines the objectives and a series of increasingly demanding criteria for classifying water bodies. The overall chemical status between the 2nd and 3rd RBMPs remains broadly the same regarding the percentage of SWBs both in good status and poor status, while the number of water bodies in unknown status has fallen to 3% nationally.[21] By 2027, it is expected that 98 % (5361 of 5470 water bodies) of SWBs will be in good chemical status. Across the RBMPs, Tinto-Odiel-Piedras (ES064) and Catalan (ES100) have the largest percentage of SWBs in poor status (32 % and 21%, respectively); while Balearic islands (ES110) and Catalan (ES100) have the largest share of SWBs in unknown status (45% and 24%, respectively). On the other hand, it is a matter of strong concern the significant increase in the number of water bodies classified without a confidence rating (i.e. from 7% of total SWBs in 2nd RBMPs to 30% in 3rd RBMPs), in particular 26% of the SWBs in good chemical status, and the deterioration in classification confidence of SWBs in poor chemical status.

The primary substances that cause failure to achieve good chemical status of SWBs are mainly metals (nickel, cadmium, mercury, and lead), followed by PFOS and pesticides (cypermethrin, chlorpyrifos, hexachlorocyclohexane, endosulfan, and dicofol). Among these, uPBT substances (mercury and PFOS) play just a minor role in the number of failures, while others (hexachlorocyclohexane, endosulfan, dicofol and PFOS) are recognised Persistent Organic Pollutants (POPs) under the Stockholm Convention listed for elimination or restriction.[48]

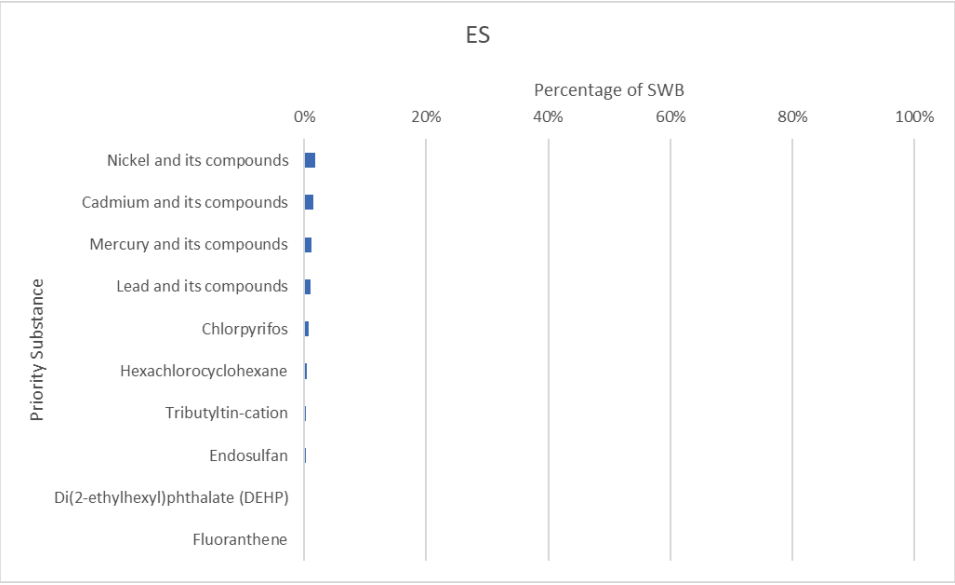
[47] Real Decreto 817/2015, por el que se establecen los criterios de seguimiento y evaluación del estado de las aguas superficiales y las normas de calidad ambiental (RDSE).
[48] UN Environment Programme (UNEP) – Stockholm Convention on Persistent Organic Pollutants.

Figure 5: Chemical status of SWBs, as reported in 2009, 2015 and 2021.



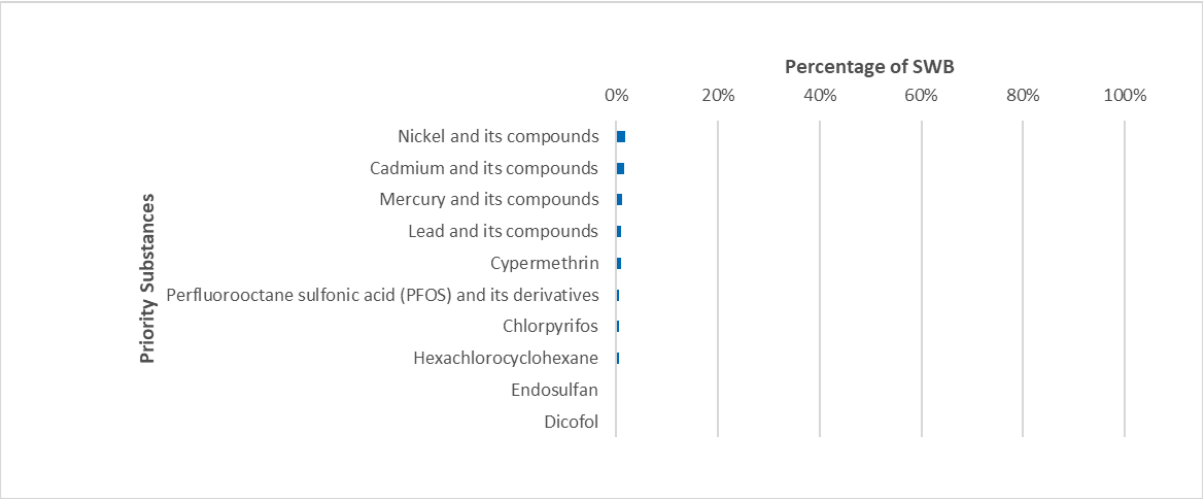
Source: 3rd RBMPs e-reporting.

Figure 6: The top-10 Priority Substances causing failure to achieve good chemical status in surface water bodies in Spain by 2022 (legally required 33 Priority Substances). Missing data due to pending reporting.



Source: 3rd RBMPs e-reporting.

Figure 7: The top-10 Priority Substances causing failure to achieve good chemical status in surface water bodies in Spain by 2022 (new 1-45 Priority Substances). Missing data due to pending reporting.



3rd RBMPs e-reporting.[49]

4.2 Groundwater Bodies: what is their chemical status

Monitoring, assessment and classification of chemical status in groundwater bodies

Since the previous cycle, Spain has reinforced its chemical monitoring of groundwater by increasing both the number of monitoring stations and the percentage of GWBs covered. While this improvement concerns all types of monitoring (surveillance, operational and investigative), it is worth highlighting a 51% increase in the number of monitoring stations and the at least 97% of total GWBs covered (at least 63% in the 2nd RBMPs) in the surveillance monitoring. Nonetheless, not all RBDs include yet in their programs for monitoring chemical status of GWBs all substances causing risk of deterioration, i.e. Groundwater Directive (GWD) Annex I and Annex II (Part B) substances and WFD Annex V (Point 2.4.2) core parameters. It is important to mention the absence of monitoring for pesticides, nitrites, phosphates, trichloroethylene, tetrachloroethylene, oxygen content and pH value in at least 16% of the RBDs.

Regarding the general chemical status assessment, only 6 RBDs make use of the methodology proposed in the EU Guidelines.[50] The rest of RBDs deviate from this harmonised methodology considered as good practice, either by setting different parameters or simply by using a different method. There is no grouping of GWBs in the 3rd RBMPs.

As in 2nd RBMPs, threshold values are not set in all RBDs for all substances leading to risk of not meeting environmental objectives and neither for all pollutants in Annex II (Part B), the most notable absences being for lead, mercury, nitrites, total phosphorus/phosphates, trichloroethylene and tetrachloroethylene missing in at least 60% of the RBDs. For 3 RBDs, including the inter-community Guadiana (ES040) RBD, threshold values are completely absent for all Annex II (Part B) pollutants or

[49] Directive 2008/105/EC as amended by Directive 2013/39/EU added 12 new substances i.e. numbered 34 to 45 to the priority substance list. For the 3rd RBMP, Member States have only had the obligation to monitor them. Compliance with the Environmental Quality Standard values for these 12 new priority substances will be assessed in 2027.

[50] CIS Guidance document 18 (2009): Groundwater status and trend assessment, derived as a 'conceptual model' in line with point 3 of Annex III (*Assessment of groundwater chemical status*) of the GWD.

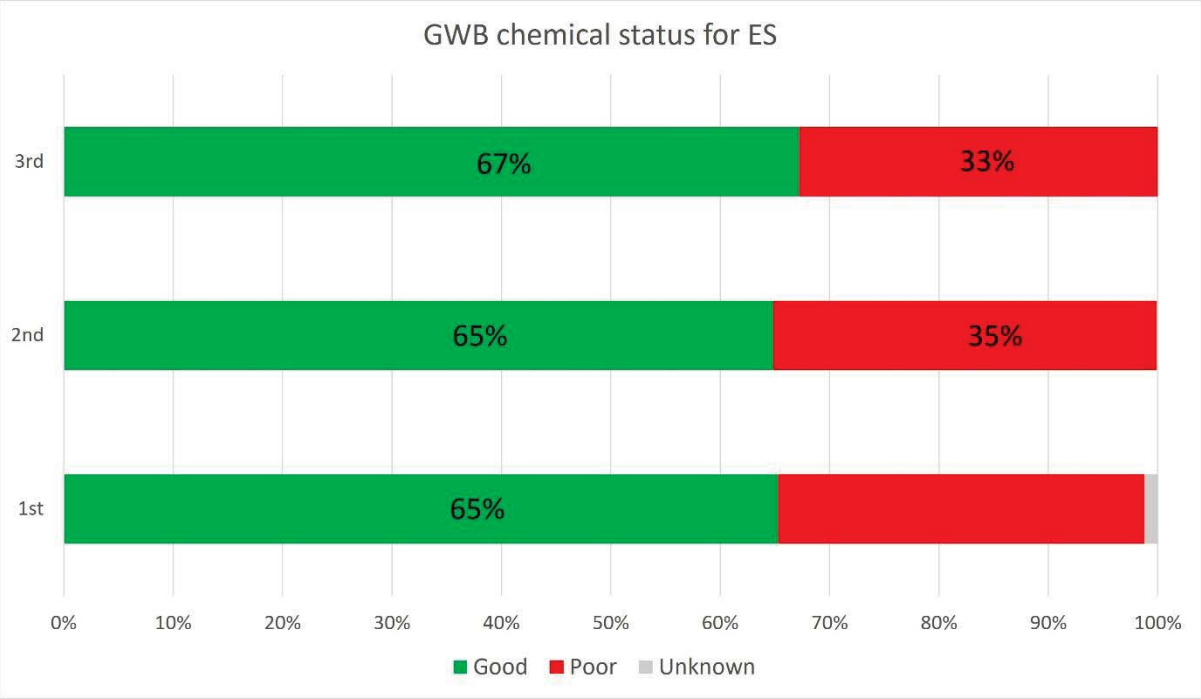
their indicators. For naturally occurring substances, background levels are not considered in the development of the respective threshold values and the chemical status assessments in all RBDs. Also for the establishment of threshold values, in a significant number of RBDs it is missing the consideration of impacts on GWAAEs, impacts on GWDTEs, saline/other intrusions and impacts on drinking water protected areas.

It is a source of concern that the impact that groundwater pollutants may have on the groundwater dependant ecosystems (i.e. aquatic or terrestrial) have not always been taken into account, as required by the WFD. Such ecosystems are either not reported or not considered in the chemical status assessment of GWBs in at least 16% of the RBDs. Chemical status assessments of some RBDs do not consider neither saline/other intrusions nor impacts on drinking water protected areas. Spain seems to struggle to identify significant and sustained upward trends in pollutants or indicators of pollution in GWBs identified as being at risk, as required under the GWD (Art. 5). Most RBDs do not provide a trend assessment methodology and do not perform a trend assessment, while only Tagus (ES030) RBD provides a trend reversal methodology.

The chemical status of GWBs has slightly improved since the last cycle with at least 67% of total GWBs in good chemical status (65% in the 2nd RBMPs). However, 33% of total GWBs were still in 2021 in poor chemical status, 43% of GWBs are at risk of failing to achieve good chemical status by 2027[51] and 18% of GWBs are expected to fail to achieve good chemical status by 2027. Confidence has deteriorated significantly since the 2nd RBMPs, with a decrease of classifications with high and medium confidence and an increase of classifications with low and unknown confidence. GWBs mainly fail because of their general water quality, followed by saline/other intrusion resulting from anthropogenically induced changes in flow direction and deterioration in quality of waters for human consumption. Nitrate, chloride, conductivity, sulphates and pesticides are the main pollutants or their indicators causing failure to achieve good chemical status, while at the same time most of them also showed sustained upward trends in GWBs.

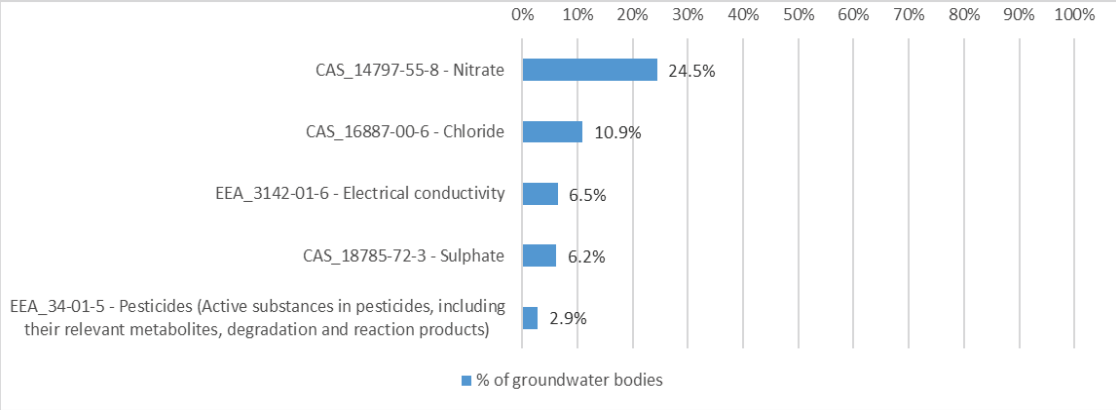
[51] See also the formal the Spanish web portal regarding declaration of GWB at risk of failing good chemical status.

Figure 8: Chemical status of GWBs, as reported in 2009, 2015 and 2021.



Source: 3rd RBMPs e-reporting.

Figure 9: Top-5 pollutants causing failure to achieve good chemical status in groundwater bodies by 2021. Missing data due to pending reporting.



Source: WISE electronic reporting.

4.3 What Spain is doing to combat pollution from agriculture

The 3rd RBMPs identify a series of measures to tackle agricultural diffuse pollution,[52],[53] mainly nitrates and pesticides. Basic measures and necessary complementary measures, both mandatory and present in all RBMPs, include regulatory measures,[54] measures to reduce the application of

[52] Background document 27: Application of basic measures (Article 11(3)(a), WFD).
[53] Background document 28: Application of basic measures (Article 11.3.b-l, WFD).
[54] Real Decreto 47/2022, sobre protección de las aguas contra la contaminación difusa producida por los nitratos procedentes de fuentes agrarias.

nitrates, measures to create buffer strips for watercourses, model-based assessment to reduce the amounts of pollution, action programmes for vulnerable areas for nitrates contamination, development of a National Plan for the application control regarding the use of authorised pesticides and good agricultural practices for pesticide use reduction.[55] While the planned measures correspond to identified pressures, there is a knowledge gap on the expected effects of the planned measures and the necessary nutrient load reduction to achieve the environmental objectives exists, which makes difficult to ascertain how much progress will be achieved and if measures would be sufficient. Although the 3rd RBMPs include measures to reduce pollution from nutrients (i.e. 54 basic and 20 supplementary within 16 RBDs) and pesticides (i.e. 11 basic and 6 supplementary within 6 RBDs), there is no quantitative information provided about what are the load reductions that are needed to achieve the environmental objectives.

Whilst there is information on the total investment cost per measures, there is no indication of whether the financial commitment has been secured. In the 3rd RBMPs, there seems to be a general trend to reduce the number of measures while increasing the total investment, compared to the previous cycle. This may lead to a more targeted approach, better prioritisation and ultimately a higher progress on implementation at the end of the programming period. Measures related to pollution are mainly funded by public administrations. Hence it remains unclear whether the polluter pays principle is fully implemented in the agricultural sector. When reviewing the draft CAP Strategic Plan in 2022,[56,57] the European Commission called on Spain to improve nutrient use efficiency, clarify the timing and content of the actions envisaged in the frame of currently applicable and upcoming national mandatory rules and how they would be integrated in the Good Agricultural and Environmental Condition (GAEC) 10.. Spain was also invited to properly address the potential for water saving and focus on the effective reduction in water use in areas of higher water pressures. According to Spain's CAP Strategic Plan, the share of organic farming will double from 10% in 2022[58] and reach 20% of the Spanish utilised agricultural area (UAA) by 2030.

4.4 What Spain is doing to combat pollution from other sectors

In the 3rd RBMPs, pollution from point source discharges is mainly addressed by a large number of measures (i.e. 2176 basic and 1325 supplementary within 24 RBDs, by far the largest number compared to other Key Types of Measures (KTMs)) and by investments in construction and upgrades of urban and industrial wastewater treatment plants. Nevertheless, not all RBMPs include specific measures to eliminate/reduce pollution from chemical substances in SWBs (i.e. Priority Substances or River Basin Specific Pollutants) and in GWBs (groundwater pollutants). Although the current overall chemical status for both surface and groundwater bodies is overall indicated, there is no specification on what exactly this chemical pollution entails and what are exactly their main causes (i.e. main drivers). No information is given on how specific pollutants are being addressed nor a quantitative gap assessment on how much additional treatment would be required, thus hindering the possibility to carry out an analysis on whether environmental objectives will be reached by 2027.

[55] "Voluntary codes of good agricultural practices" is a basic measure established in the Nitrates Directive 91/676/EEC. It is voluntary for farmers to follow the codes but mandatory for the regions to establish, approve and disclose.
[56] Commission observations on the proposal by Spain for a CAP Strategic Plan 2023-2027.
[57] "Mapping and analysis of CAP strategic plans" (2023-2027).
[58] EU's organic farming area reaches 14.7 million hectares - Products Eurostat News - Eurostat (europa.eu)

4.5 What Spain is doing to combat significant pressures – overall assessment of the Programmes of Measures

Measures are in place and planned to address all significant pressures in both groundwater and surface water,[59] with at least one Key Type of Measure (KTM) assigned to each pressure. In general, the reported significant pressures are well covered with operational KTMs.

The RBMPs in Spain include both environmental measures and other measures that are not meant to satisfy environmental objectives, for example, fulfilment of demands. All environmental measures are grouped into 19 main types associated to an equivalent KTM. Spain has mapped 3523 national basic measures against 16 predefined KTMs and 10 nationally defined KTMs. In addition, a total of 5361 national supplementary measures have been mapped against 18 predefined KTMs and 11 nationally defined KTMs. The application of both basic and supplementary measures varies between RBDs. Basic measures are reported against all the requirements of Article 11.3 of the WFD, except for direct groundwater pollutants. Information on gaps to be filled is provided and so are KTM to achieve the objectives in SWBs and GWBs by 2021. Gap analyses have been presented for all the significant pressures and quantitative pressure indicators and gap values for 2021 are in place at water body level. Regrettably, quantitative indicators on the expected gap to good status by 2027 have not been provided.

A cost-effectiveness analysis[60] has been presented in all RBMPs, but do not provide a high-level description of the actual effectiveness of the measures and does not mention the costs that have been executed based on planning. The total amount of investment reported for the environmental objective measures through public sector during the period 2021-2027 is MEUR 24,669.86 from national investment and MEUR 1,428.9 from EU funding. In some RBMPs, it is mentioned a minimum percentage of private funding for measures related to point-source pollution, while investments from irrigator communities are addressed to measures aiming to reduce pressure from water abstraction and modernization of irrigation systems. Prioritisation of measures varies between the RBDs in Spain. While in some RBMPs there is no information on the prioritisation of measures, in others different criteria have been defined and measures have been prioritised based on a conceptual framework developed for the risk evaluation associated with climate change.

5. Exemptions and economics

5.1 To what extent are exemptions applied in Spain

Environmental objectives have been reported in all RBDs. Similar to the 2nd RBMPs, the number of SWBs for which the date to achieve objectives is unknown is less than 2% (for both ecological and chemical status), while there are no GWBs for which the date to achieve objectives (both chemical and quantitative) is unknown. Additional objectives have been set for surface and groundwater bodies associated with drinking water protected areas and for surface water bodies associated with the Shellfish Directive and, for 29 SWBs, Natura 2000 sites.

[59] The whole set of measures of Spanish RBMP can be consulted in the Spanish web portal Hydrological Plans and Programme of Measures (mapama.gob.es)
[60] Background document 33: Cost-effectiveness analysis for the selection of measures.

Spain has published Guidance and background documents[61] for the application of the exemptions provided for in the WFD in compliance with the environmental objectives.[62] Some RBMPs explain the general methodology established and some aspects that have led to the variation in the number of water bodies with the different types of exemptions. However, the plans recognise some gaps, i.e. the concept for technical infeasibility as used in Article 4 of the WFD has not yet been developed in Spanish regulations. Regrettably, although in some RBDs justifications are provided at water body level, these are quite generic and many RBMPs do not provide specific information: i.e. do not sufficiently explain the type of technical issues, why costs are disproportionate, do not consider challenges faced by each water body, nor alternative financing mechanisms, often provide the same justification for multiple water bodies, do not provide timelines and budget or simply do not specifically mention the use of Article 4(4) exemptions despite these being reported electronically. Overall, it is evident that the main drivers causing the need to apply exemptions to water bodies are related to various pressures such as pollution from agriculture, urban waste water, industry and mining; agriculture and public water supply; and hydromorphological and physical alterations.

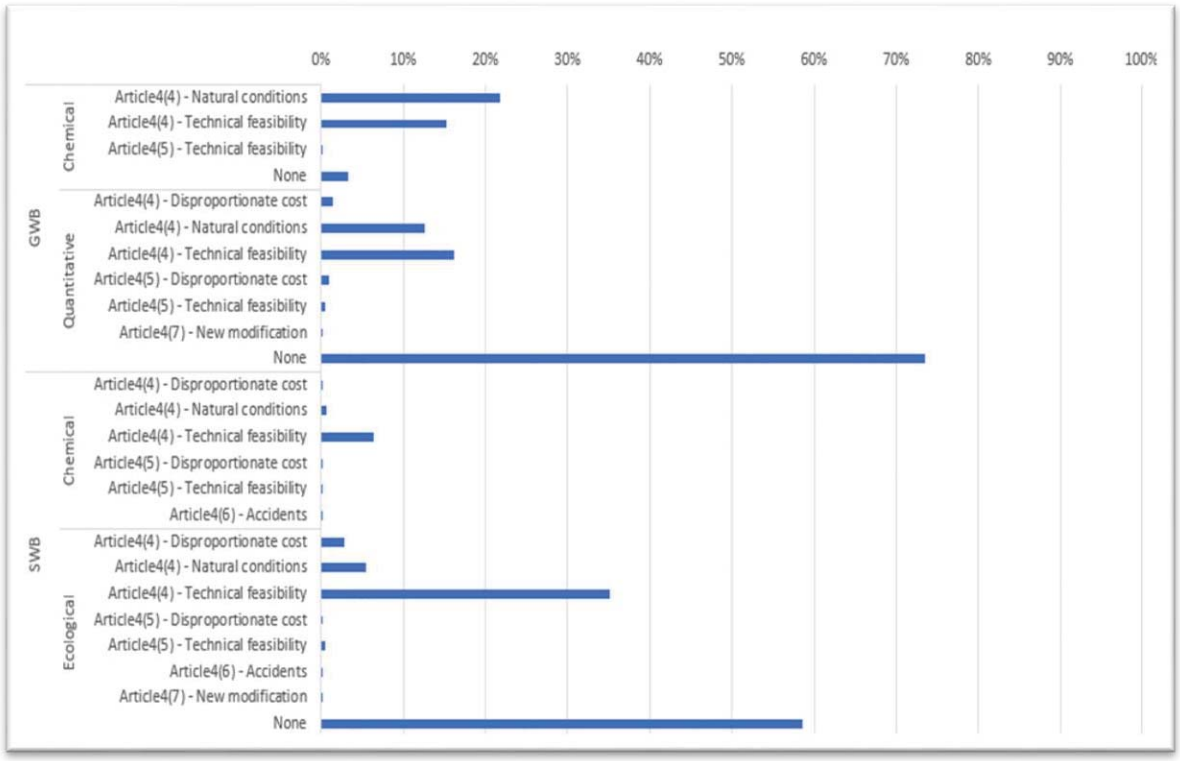
As in the previous reporting cycle, Spain continues to prioritise the postponement of deadlines under Article 4(4), while limiting the application of exemptions setting less stringent objectives under Article 4(5). However, the available data for the new reporting cycle clearly shows a shift in terms of the reasons invoked to justify Article 4(4) exemptions. In the 2nd RBMPs, this was mainly justified for reason of technical feasibility and disproportionate costs, while technical feasibility and natural conditions are currently appearing as the main justification grounds in the 3rd RBMPs. This prompts to believe that a large share of water bodies previously exempted under Article 4(4) for reason of disproportionate costs have now been inappropriately justified by natural conditions. An outstanding example of this could be the justification under natural conditions of GWBs which are actually suffering from saline intrusion as a consequence of the water imbalance caused by abstractions or from the great inertia of nitrates contamination.

Article 4(6) exemption has been applied only to 1 surface water body as a result of an accident in the Eastern Cantabrian RBD.[63] Yet, the national authorities are developing a common repository to collect information regarding Article 4(6) exemptions and to allow the justification of a temporary deterioration when control networks detect non-compliance. This leads to conclude that there may have been more than one.

It is worth noting that the application of Article 4(7) exemptions has been reduced from at least 40 SWBs in the 2nd RBMPs to a total of 10 SWBs and 2 GWBs in the 3rd RBMPs. Justification is provided for each project at water body level and detailed supporting technical sheets are included in the appendix of the corresponding RBMPs. The reporting covers mitigation measures, overriding public interests and processes to ensure that preventive and corrective measures are linked to each impact detected. In the 3rd RBMPs, no exemptions have been granted pursuant to Article 6(3) of the Groundwater Directive.

[61] Background document 14: Exemptions provided in the WFD for compliance of the environmental objectives in water bodies.
[62] Recomendaciones para incorporar la evaluación de efectos sobre los objetivos ambientales de las masas de agua y zonas protegidas en los documentos de evaluación de impacto ambiental de la A.G.E., 2019.
[63] The 2020 collapse of the Zaldibar (Vizcaya) landfill.

Figure 10: Type of exemptions reported to be applied to SWBs and GWBs for the 3rd RBMPs in Spain.



Note: ecological status and groundwater quantitative status exemptions are reported at water body level. Chemical exemptions for groundwater are reported at the level of each pollutant causing failure of good chemical status, and for surface waters for each Priority Substances that is causing failure of good chemical status. For the purposes of this Figure the number of water bodies exempted for chemical status is used. Please note that while the WISE reporting uses a label "Article 4(5)- Technical feasibility" it should be read as "Article 4(5)- Infeasibility".

Source: 3rd RBMPs e-reporting.

5.2 Use of economic analysis and water pricing – cost recovery

In Spain, the state offers most of the gross supply of water services and the regulation of the natural hydrological regime to increase and favour the availability of water that is ultimately captured and used by different types of users according to certain conditions. There appears to be a clear distinction between water services, understood as all water supply and wastewater treatment services, and water uses, which are in turn disaggregated into three main water user sectors: industry, households and agriculture. Most of the 3rd RBMPs contain an annex containing the economic analysis with unit cost estimates as part of the information on water tariffs. Although most obligations from Annex III WFD are overall included, not all 3rd RBMPs include estimates of relevant investments (including forecasts) differentiating over water services or estimations about the most cost-effective combination of measures. In addition, as the revenues from the water tariffs do not yield a high-cost recovery rates, it should be expected some proper incentives to an efficient water use. However, there is missing information on the type and structure of tariffs applied for individual water services and other services, i.e. whether they are fixed, volumetric or part of an overarching structure. This, in conjunction with the lack of an explicit justification, hinders the assessment of the incentivising effects of the water pricing policies in place. It is worth noting that as part of the Strategic Guidelines for Water and Climate change, the authorities recognise the need to review the system establishing water tariffs.

Background documents are available describing the methodology for the cost recovery of water services.[64],[65] As acknowledged by the Spanish authorities, the current system applied only recovers from the users the 70% of the costs incurred. This cost-recovery gap has been identified, in all RBDs, as a significant barrier to fund the necessary measures to achieve the environmental objectives.

In Spain, there is a wide variety of cost recovery instruments linked to water services, including taxes, levies and rates that are the responsibility of different agents to collect, given that the different tax figures can be state, regional or local competence, depending on the administration that directly or indirectly provides the service. In the 3rd RBMPs, the total cost of water services in Spain, expressed in terms of equivalent annual cost, is estimated at MEUR 14 392. Differentiating cost recovery rate by water user sectors this would be: 80% for industry, 73% for households and 67% for agriculture. All RBMPs apply cost recovery to drinking water abstraction/treatment/distribution, sewage collection/wastewater treatment, irrigation water abstraction/treatment/distribution, self-abstraction and impoundment/storage of water (except for impoundments for flood protection and navigation). In many RBMPs, it is clearly mentioned that one consequence of low-cost recovery is the lack of financial availability to develop the Programme of Measures. However, it is not clear whether the reported methodology for the calculation of water services costs and cost recovery rates is based on national guidance.

Most of the 3rd RBMPs report financial costs, distinguishing investments from operation/maintenance costs for the various water services; as well as environmental and resource costs, though considering different methodologies for their calculation. Most of the plans also report on water supply prices and revenues distinguishing between the different water user sectors. However, 3rd RBMPs do not include information on the adequacy of the contribution by different water user sectors to the costs of water services. The plans lack information on the practical application of the Polluter Pays Principle in the calculations of costs and do not report mitigation factors to justify cost recovery rates which are below 100%.

6. WFD recommendations

It is worth noting that a number of recommendations included hereafter have also been identified by the Spanish authorities themselves as areas to be improved in the Strategic Guidelines for Water and Climate Change.

Recommendations - Spain should:

1. Spain needs to accelerate efforts and elevate its ambitions to minimize the compliance gap as much as possible by 2027. This entails the following actions:

    a) ensure comprehensive reporting on the consumption of both surface water and groundwater across all users. The RBMPs should provide clear estimates on consumptive uses, their proportions, and trends. Additionally, Spain needs to more effectively address illegal water abstractions in agriculture and other sectors through closer monitoring and stricter penalties.

    b) fully comply with WFD provisions regarding the periodic review of permits and controls for all relevant activities affecting water bodies, such as abstraction, impoundment, discharges, and

[64] Background document 35: Cost recovery of water services.
[65] Background document 36: Tools for the cost recovery of water services.

hydromorphological works. An effective, dissuasive, and proportionate sanction regime should be in place. Spain should consider revising existing legislation that exempts small abstractions from permitting to better manage cumulative impacts.

c) harmonize the gaps analysis of various river basin management plans to enhance transparency for stakeholders, ensure comparability among regions, and better target measures needed to close the gap by 2027. Specifically, Spain should clearly identify types of pollutants and the specific amounts found in water bodies, estimate targets for reducing nutrient and pesticide pollution and put in place effective measures for the remediation of ubiquitous substances and heavy metals.

d) ensure an effective coordination with authorities responsible for the Marine Strategy Framework Directive and Nitrates Directive to accelerate progress in meeting status requirements for both freshwater and marine environments by leveraging potential synergies.

e) tackle decisively the main reported obstacles to progress in the achievement of Program of Measures objectives, in particular insufficient funding, administrative resources and governance.

2. As regards existing persisting pressures, Spain should identify and put in place, as appropriate, additional measures to reduce such environmental challenge. In particular, it should:

a) step up action to reduce diffuse nutrient pollution, including quantitatively assessing how much the load of nutrients from agriculture sources needs to be reduced to achieve the objectives of WFD, MSFD and Nitrates Directive, and providing information on the area where the measures are being applied and whether the necessary funding is being secured.

b) further reduce point source pollution by identifying the main cause of this pollution and to what extent the measures identified will tackle the pollutants which cause the failure. Furthermore, Spain should take into account the new obligations under the revised IED and UWWTD and provide more exhaustive information on the measures planned to better control discharges; address waste water discharges from scattered households and unconnected small settlements, and improve wastewater management throughout its territory.

c) continue and extend work on a control and registry of the morphological modifications of water bodies and the inventory of barriers in all RBDs, and step-up efforts to improve river continuity to improve the general hydrological situation and increase fish protection. This should be coupled with an enhanced and more integrated management of aquatic invasive alien species.

d) continue the ongoing work in defining ecological flows and effectively implementing them in all water bodies. All RBDs should establish an explicit link between the implementation of e-flows and the authorisation process and/or review of permits to control water abstractions and impoundments. Peaks in hydropower generation should be taken into account in the revision of water permits.

e) more clearly identify the progress in the implementation of measures on water metering, the extent of water metering across all water uses, as well as the extent of unauthorised water abstractions (either without a permit or in excess of the permit conditions), all these of utmost importance to understand and improve the confidence in water abstraction/consumption estimations.

f) should continue improving the work to establish the additional needs for protected areas, defining additional objectives, implementing appropriate monitoring and improving the measures that apply to such protect areas as their state has not really improved.

g) more systematically consider the needs of groundwater dependent ecosystems (both terrestrial and aquatic), and the impacts on saline/other intrusions and drinking water protected areas in the assessment of all RBDs. This is of particular importance given the rich biodiversity that is present in Spain.

3. On the use of economic tools, Spain should continue improving its economic analysis, addressing gaps as regards key items, including on long term supply and demand forecasts, defining water services, reporting of cost recovery rates (including costs for private actors), and investment needs. In particular, Spain should:

a) provide more detailed information on relevant investments and estimates about the most cost-effective combination of measures for all RBDs, while including prioritisation of measures.

b) include an explicit and systematic account on the adequacy of the incentives of water pricing to water use efficiency.

c) Step up the efforts to fully apply the cost recovery principle to all water use activities that have an impact on water bodies.

d) systematically provide more information on the mitigating factors to cost recovery, the sectorial adequacy of the contribution to the costs of water services, exemptions under Article 9(4) WFD as well as subsidies, and on the Polluter Pays Principle application. This is also partly linked to the national system of historical rights that would merit to be reviewed.

4. As regards the water scarcity challenge and adaptation to climate change, it is recommended that Spain:

a) provides, regularly update and monitor accurate water balances for all river basins, that take into account all inputs and abstractions and natural losses. In this context, it would be appropriate to register all abstractions or at least lower the level above which abstractions need to be registered, in order to have a full control of the resource and account for the cumulative effect of a myriad of small abstractions impacting the GW quantitative status.

b) improves water management to better address the adaptation to present and future effects of climate change and ensure long-term economic, social and environmental resilience.

c) improves coordination among all levels of government and administration while adapting existing solutions for sustainable water management in agriculture, water efficiency and infrastructure investments.

d) Continues to prioritise implementation of nature-based solutions and green infrastructure for more sustainable water storage across soils and ecosystems, and ensures that grey infrastructure (i.e. dams and reservoirs) are part of coherent water resilience strategies that consider long-term climate scenarios.

e) provides detailed analysis on the impacts of climate change on water abstraction.

f) Provides more detailed information on specific climate change adaptation measures and the analysis of how these measures will alleviate water scarcity or drought related issues.

g) improves climate proofing of measures included in the PoMs and develop adequate measures or plans for climate resilience and drought management to ensure the preservation of water bodies and the objectives of the WFD.

5. To more effectively achieve the objectives of the WFD and enhance water resilience, Spain should further enhance transboundary cooperation, in particular by establishing joint Programmes of Measures in the framework of the cooperation agreements with Portugal and France, as well as reinforcing the cooperation on water abstraction issues addressing water scarcity risks under climate change.

6. Spain should ensure continued efforts to transparently justify every exemption in all RBDs, in line with ECJ jurisprudence on the restrictive interpretation of exemptions. In particular, Spain should:

a) provide a higher the level of detail for justifications under Article 4(4) and 4(5) exemptions for all RBDs at individual water body level. Given the different nature of both exemption types, there should be a clear distinction of justifications and related criteria between technical feasibility, disproportionate costs and natural conditions.

b) Continue to work towards a harmonised information sheet for all RBDs regarding justifications under Article 4(6) exemptions and how these exemptions are applied to individual water bodies.

c) make better use of Article 4(7), by providing specific details on cumulative effects, the assessment of better environmental options and the measures taken to mitigate the adverse impacts of new developments. In particular, the concept of 'overriding public interest' continues to be insufficiently addressed/justified as a result of the use of a mere 'declaration of general interest' allowed under the Spanish legislation.

7. As regards monitoring, assessment, data management and reporting, Spain has made important improvements in several aspects but should:

a) continue progressing on setting type-specific reference conditions where these have not yet been set, in particular as regards hydromorphological quality elements for lake, transitional and coastal water body types.

b) improve the selection of RBSPs to ensure consistent monitoring and appropriate coverage, identifying exceedances and how such exceedances have been taken into account in the assessment of ecological status.

c) address significant gaps in monitoring of biological, hydromorphological, and physico-chemical quality elements; extend quantitative monitoring to all RBDs (i.e. Ceuta and Melilla); include in the chemical monitoring all substances causing risk of deterioration; increase frequency of monitoring in biota/sediment and extend such biota monitoring to all relevant priority substances (in particular for mercury).

d) further improve the level of confidence for status assessment, both for water bodies classified without confidence rating and for classifications with low confidence overall. This could be done by improving the in-situ coverage and the monitored parameters thus limiting the reliance on expert judgement.

e) include all priority substances in the monitoring programs of all RBDs and for status assessment. This would need to be coupled with clearer information for each RBD on priority substances and groundwater pollutants included in the inventories and actually being discharged in the water. The monitoring of discharges and links to the pressure assessment/emission inventory needs to be improved.

SECTION B:
FLOODS DIRECTIVE

7. Flood risk management under floods directive (FD)

The Directive requires each Member State (MS) to scan its territory for flood risks, assess the potential adverse consequences of future floods for human health, the environment, cultural heritage and economic activity, identify the significant risks, map the flood extent and the potential adverse consequences, and take measures to reduce the flood risk. These activities are reflected in (a) the Preliminary Flood Risk Assessments (PFRAs) (including the identification of Areas of Potential Significant Flood Risk (APSFRs)), (b) the preparation of flood hazard and risk maps, or FHRMs, and (c) the establishment of flood risk management plans, or FRMPs. The preliminary assessments, mapping and planning for flood risk are repeated in six-yearly cycles.

There are 25 Units of Management (UoMs) in Spain, which are the same as the Water Framework Directive's River Basin Districts (RBDs). A selection of 5 UoMs and FRMPs have been reviewed in further depth and details. These are: Eastern Cantabrian, Guadiana, Júcar, Andalusian Mediterranean Basins, La Gomera. The potentially significant sources of flooding in Spain are: fluvial, pluvial, groundwater, and sea water floods.

Spain designated 1 451 Areas of Potential Significant Flood Risk (APSFRs).

It is noted that considerable efforts have been made by Spain to better integrate the impacts of climate change on flood risk. This has built on a number of initiatives: a new climate change national study, a pilot methodology for fluvial and pluvial floods published in 2019, and an extended and improved methodology drafted in 2018 and applied in the second PFRA. For coastal flooding, there is a national study assessing the impacts of sea level rise. Pilot studies have been undertaken for five river stretches as regards the quantitative flow changes due to climate change effects on precipitation, resulting generally in larger flow volumes, depth and velocity.

7.1 Flood hazard and risk maps

The methodology used to prepare flood hazard risk maps seems to be largely the same as in the previous cycle. The guidance document[66] published at national level aims to harmonise the work being developed in the UoMs.

Spain is using a national map viewer,[67] largely targeted to professionals, for fluvial and pluvial floods. Maps for other flood types are also available in other formats and different scales (regional or UoM scale) The national website[68] also refers to the specific websites of the individual UoMs.

FHRMs were prepared at the national level and cover the whole country and all 25 UoMs. Maps for floods with low probability (1/500 years), with medium probability (1/100 years) and with high probability (1/10 years) are provided. The maps also cover: flood extent, water depth, number of inhabitants potentially affected, the type of economic activity and the industrial installations covered by the Industrial Emissions Directive. All maps, except for Catalan Basins (ES100), also show the potentially affected protected areas identified in the WFD.

[66] https://www.miteco.gob.es/es/agua/temas/gestion-de-los-riesgos-de-inundacion/propuesta-de-minimos-realizacion-mapas-deriesgo-2ciclo_tcm30-511333.pdf page 35 and following
[67] https://sig.mapama.gob.es/geoportal/
[68] https://www.miteco.gob.es/es/agua/temas/gestion-de-los-riesgos-de-inundacion/mapa-peligrosidad-riesgo-inundacion/Mapas-peligrosidad-segundo-ciclo-2019.aspx

It is worth noting that there is an improved identification of the Points of Special Importance. Previously, there were four types of points: installations covered by the Industrial Emissions Directive, wastewater treatment plants, cultural heritage and civil protection. In this second cycle, all categories have been retained but providing more information to better equip civil protection authorities when managing a flood event.

As regards the consideration of climate change effects in the preparation of flood hazard and risk maps, reference is made to section 3.7 on 'adaptation to climate change'.

7.2 Flood risk management plans

Objectives and measures

The FRMPs are available online.[69] All five FRMPs assessed set nine common, general objectives. Four of the five FRMPs also cite a common, overarching objective, to ensure that current flood risk does not increase, as well as sub-objectives. One general objective refers to managing exposure to flooding and another to improving resilience and reducing vulnerability. The objectives also call for reducing flood risks, of which adverse consequences are a component.

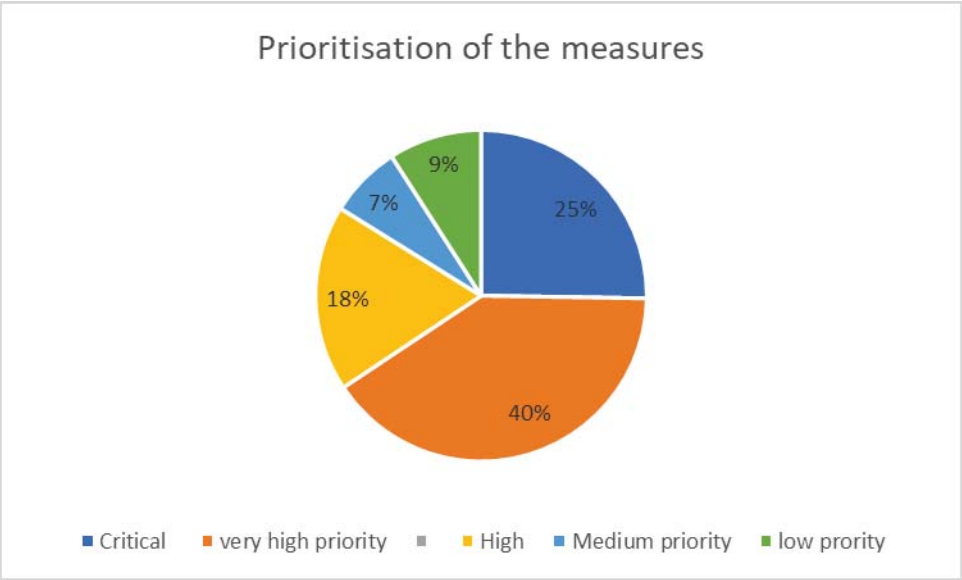
The general objectives call for i) raising awareness to support self-protection by the economic actors, ii) improving administrative coordination, iii) enhancing knowledge and forecasting, and iv) improving land-use planning and v) reducing flood risk for human health, for economic activities, for the environment, and for cultural heritage. Moreover, one of the general objectives calls for improving or maintaining the good status of water bodies via improvement of their hydromorphological conditions, thus addressing the WFD's environmental objectives. It is worth noting that as part of the general objectives, as well as a sub-objective for three FRMPs, there is a call for natural water retention measures (NWRMs). All five FRMPs highlight the importance of NWRMs and include them both as groups of measures and as single measures.

All five FRMPs assessed have Programmes of Measures (PoMs), listing both clusters of measures as well as individual ones, all amount to 3 681 measures. Out of those, 998 prevention measures, 1 170 protection measures and 894 preparedness measures. The PoMs present the benefits of groups of measures in qualitative terms and importance is given to ensure that flood risk management goes hand-in-hand with the protection and restoration of ecosystems.

The FRMPs include measures for land-use planning and for the reduction of the vulnerability of existing buildings in flood risk zones. The FRMPs briefly present the methods for prioritisation and provide a common list of indicators to monitor the progress of their measures and their objectives including some target values. As part of this prioritisation methodology, one of the criteria considered is the synergies with other legislation, including the EU Birds and Habitats Directives.

[69] https://www.miteco.gob.es/es/agua/temas/gestion-de-los-riesgos-de-inundacion/planes-gestion-riesgos-inundacion/planes-gestion-riesgos-inundacion-segundo-ciclo.html

Figure 11: Prioritisation of measures using the five priority categories set out in the reporting guidance, from critical to low priority.



Source: 2nd FRMPs e-reporting

As regards the progress achieved so far in implementing the measures:

- a significant proportion of measures were reported as not started (1 403 measures)
- abandoned/interrupted (1 162 measures)
- completed (357 measures)
- ongoing or recurrent (e.g. maintenance works, 291 measures)
- in preparation (273 measures),
- undergoing construction (195 measures)

It has been noted that the prevention measures have the highest percentage of completed measures (15% of all prevention measures), while only 3% of recovery and review measures were reported as completed. 55% of all recovery and review measures (341 measures) were reported as abandoned/interrupted, the highest across all measure aspects; 26% of prevention measures were abandoned/interrupted, as were 20% protection measures, and 38% of preparedness measures.

Four of the five FRMPs note that some measures under the first FRMPs either have not been completed yet, or have not even started due to various reasons.[70] Two of the five plans – the FRMPs for the Júcar and Guadiana UoMs – state that a higher share of measures where regional and local authorities are responsible have not been initiated. This includes regional departments of land use planning and urbanism, regional departments of environment, regional civil protection agencies, and municipalities. The FRMPs state that progress in implementation has been greater in actions within the competence of RBD authorities and national authorities. Additionally, there has been low level of implementation of measures involving the approval of agreements or requiring enhanced coordination. The two plans do not, however, describe the reasons for these trends.

[70] Chapter 11.3 of the FRMPs for ES017, ES040, ES060 and ES080.

In other areas of progress, the second FRMPs provide more information on measures, including their costs. A greater emphasis is placed on the role of land use and spatial planning in addressing flood risks. The second FRMPs have a new, general objective for emergency planning, raising the profile of work in this area. They also provide further information on the national approach and institutions for flood insurance.

As regards funding, all FRMPs provide total budgets and the PoMs indicate the costs of each measure for 97% of them. The five FRMPs assessed use a common text to refer to the funding of their measures: a mix of funding from EU and national sources is planned. Next to public funding, the plans also mention private sources of funding, stating that the private sector can be involved through social corporate responsibility actions, and they indicate that owners should also bear the costs of measures to protect their buildings and properties. All five FRMPs describe the use of quantitative cost-benefit analysis (CBA) for structural measures.

Governance

As regards public participation, Spain reported that a wider range of stakeholders were actively involved in the preparation of the second FRMPs. The four FRMPs assessed in mainland Spain each has a brief section in the main text describing the process for public information and consultation and provides further details in an annex. The exception is the FRMP for La Gomera, which mentions the public information and consultation process but does not provide details on it. During the consultation period, the draft FRMPs were available online.[71]

As regards transboundary cooperation, the Guadiana FRMP refers to the Albufeira Convention of 1998, as the main instrument for transboundary cooperation in water management between Spain and Portugal. The Eastern Cantabrian FRMP, which includes basins shared with France, cites the Toulouse Agreement of 2006 on transboundary cooperation in water management between Spain and France.

Consideration of climate change

As regards the consideration of climate change effects in the preparation of flood risk management plans, reference is made to section 3.7 on 'adaptation to climate change'.

Progress identified in the second FRMPs

In the second FRMPs the objectives are linked to both measures and to indicators, which should provide a clearer picture as to how objectives are achieved.

The second FRMPs have improved a number of aspects compared to the previous cycle, namely:

- they provide much more information on the measures than in the past.
- they place a greater emphasis on the role of land use and spatial planning in addressing flood risks and a stronger emphasis on nature-based solutions.
- they refer to public awareness in their objectives and their measures
- they all include a new, general objective for emergency planning, raising the profile of work in this area.

[71] For the Andalusian Mediterranean Basins, on the website of the Andalusia Autonomous Community, and for the Eastern Cantabrian, Guadiana, and Júcar FRMPs, on the website of the UoM/RBD authorities.

- they provide more information on flood insurance and on the impacts of climate change (including indications of the existing uncertainties).

8. FD recommendations

Based on the reported information and the FHRMs and FRMPs assessed, in addition to the progress made, Spain should:

- render the FHRM portal more user friendly for non-expert users;
- take into account climate change in the development of FHRMs;
- provide detail on how the FHRMs were used in the choice of objectives and measures in the FRMP;
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- make clear to what extent the objectives would be achieved with the implementation of the measures. An assessment of the progress made towards the achievement of the objectives should be included in the FRMP;
- provide information on the methods used to prioritise measures in the FRMP;
- although some FRMPs describe the use of quantitative CBA for structural measures, provide a clear overview of its use and the methodology behind it;
- describe in more detail the public information and consultation process in all FRMPs and consultations should aim to last six months;
- where appropriate, consider flow velocity (or relevant water flow) in the FHRM and flood conveyance routes in the FRMP, as these are relevant to emergency response.
- include more information on the investment needs and funding sources (e.g. public -including EU funds -and private).