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COMMISSION STAFF WORKING DOCUMENT

Second River Basin Management Plans - Member State: France

Accompanying the document

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

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

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Acronyms

EQS Directive	Environmental Quality Standards Directive
FD	Floods Directive
Km	Kilometre
km^2	Kilometre squared
KTM	Key Type of Measure
PoM	Programme of Measures
QA/QC Directive	Quality Assurance / Quality Control Directive
RBD	River Basin District
RBMP	River Basin Management Plan
WFD	Water Framework Directive
WISE	Water Information System for Europe
Annex 0	Member States reported the structured information on the second RBMPs to WISE (Water Information System for Europe). Due to the late availability of the reporting guidance, Member States could include in the reporting an Annex 0, consisting of a short explanatory note identifying what information they were unable to report and the reasons why. This Annex was produced using a template included in the reporting guidance. If Member States reported all the required information, this explanatory note was not necessary.

Foreword

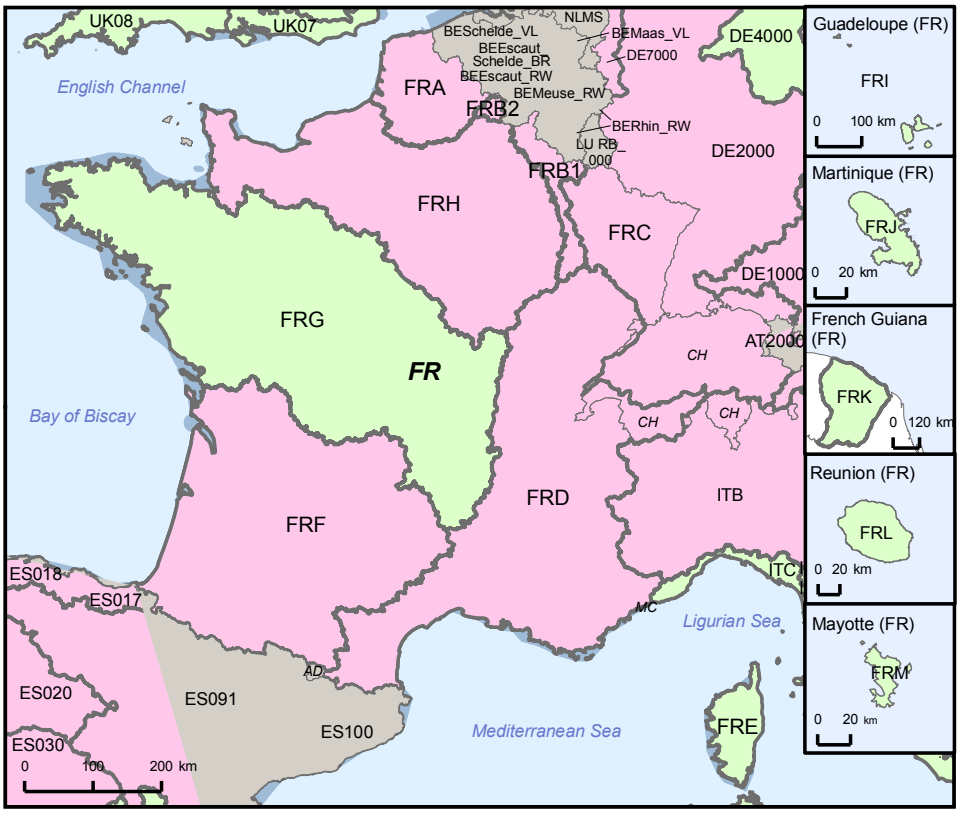
The Water Framework Directive (WFD) (2000/60/EC) requires in its Article 18 that each Member State (MS) reports its River Basin Management Plan(s) (RBMPs) to the European Commission. The second RBMPs were due to be adopted by the Member States in December 2015 and reported to the European Commission in March 2016.

This Member State Assessment report was drafted on the basis of information that was reported by Member States through the Water Information System for Europe (WISE) electronic reporting.

The Member State Reports reflect the situation as reported by each Member State to the European Commission in 2016 or 2017 and with reference to River Basin Management Plans (RBMP) prepared earlier. The situation in the Member States may have changed since then.

General Information

Map A Map of RBDs



Source: WISE, Eurostat (country borders)

International RBDs (within European Union and Switzerland)
International RBDs (outside European Union)
National RBDs (within European Union)
Countries (outside European Union)
Coastal Waters

Information on areas of the national RBDs including sharing countries is provided in Table A:

Table A Overview of France's RBDs

RBD	Name	Short Name[1]	Size[2] (km^2)	Countries sharing RBD
FRA	Scheldt, Somme and coastal waters of the Channel and the North Sea	Scheldt	19362	BE, NL
FRB1	Meuse	Meuse	7901	BE, DE, LU, NL
FRB2	Sambre (part of the Meuse international RBD)	Sambre	1103	BE
FRC	Rhine	Rhine	23736	BE, CH, DE, LU, NL
FRD	Rhone and Coastal Mediterranean	Rhone-Mediterranean	123846	CH, ES, IT
FRE	Corsica	Corsica	10896	-
FRF	Adour, Garonne, Dordogne, Charente and coastal waters of Aquitania	Adour-Garonne	118502	ES
FRG	Loire-Brittany and Vendee coastal waters	Loire-Brittany	168857	-
FRH	Seine and Normandy coastal waters	Seine-Normandy	96581	BE
FRI	Guadeloupe	Guadeloupe	4769	-
FRJ	Martinique	Martinique	2065	-
FRK	Guyana (French)	Guyana	85938	-
FRL	Réunion Island	Réunion	2998	-
FRM	Les cours d'eau de Mayotte	Mayotte	1761	

Source: RBMPs reported to WISE. Mayotte was only recently subject to the RBD and has different deadlines for reaching good status.

The share of France in the respective international RBDs is 99.3 % (Garonne), 92.1 % (Rhone), 50.8 % (Scheldt), 26.0 % (Meuse-Maas), 12.1 % (Rhine), 0.55 % (Ebro) and 0.23 % (Po).

France has a number or parts of major international river basins on its territory with established international co-operation and RBMPs (Rhine, Meuse, Scheldt). There are also a number of river basins where very small stretches of river cross the national frontiers, such as part of the river Po (mainly in Italy), and small parts of the Ebro (mainly in Spain and Andorra). The Rhône river basin is shared with Switzerland. In these cases there is established co-operation on a bilateral level, although no international RBMPs have been adopted. Each of these RBDs is therefore considered as international.

1 The short name for each RBD is used throughout this report.
2 Area includes coastal waters.

Table B Transboundary river basins by category and % share in France

Name international river basin	National RBD	Other RBD names	Countries sharing RBD	Co-ordination category			
				1		2	
				km²	%	km²	%
Ebro	FRD	Adour Garonne (FR) / Cantabrico Oriental (ES)	ES			474	0.55
Garonne	FRF	Ebro (ES)	ES			80122	99.3
Meuse-Maas	FRB1	Meuse / Maas (BE, NL)	BE, DE, LU, NL	8919	26.0		
Po	FRD	Po/Rhône	CH, ES, IT			173	0.23
Rhine	FRC	Rhine (BE), Rhein	BE, CH, DE, LU, NL	23830	12.1		
Rhone	FRD	CH, Po (IT)	CH, ES, IT			88977	92.1
Scheldt	FRA	Escaut / Scheldt (BE)	BE, NL	18486	50.8		

Source: WISE electronic reports

Category 1: International agreement, permanent co-operation body and international RBMP in place.
Category 2: International agreement and permanent co-operation body in place.
Category 3: International agreement in place.
Category 4: No co-operation formalised.

Status of second river basin management plan reporting

A total of 14 RBMPs (Scheldt, Meuse, Sambre, Rhine, Rhone-Mediterranean, Corsica, Adour-Garonne, Loire-Brittany, Seine-Normandy, Guadeloupe, Martinique, Guyana, Réunion, Mayotte) were published between 23 November and 22 December 2015. Documents are available from the European Environment Agency EIONET Central Data Repository https://cdr.eionet.europa.eu/.

Key strengths, improvements and weaknesses of the second River Basin Management Plans

The main strengths and shortcomings of the second RBMPs of France are as follows:

- **Governance and public consultation**

  - France's Competent Authorities include its Basin Committees, which bring together government and private stakeholders. This led to the involvement of a broad range of stakeholders in the development of all the French RBMPs.

  - The public consultation on the draft RBMPs led to improvements at different levels in almost all French RBDs.

  - Some of France's RBDs are part of international RBDs where cooperation includes the development of international RBMPs and PoMs: the Scheldt, Meuse/Maas and Rhine.

  - France did not report on the international dimensions of Rhone-Mediterranean, Seine-Normandy or Guyana RBDs. Nonetheless, in the Rhone-Mediterranean RBD, France has strengthened cooperation with Switzerland and with Italy.

  - France has not reported coordination with Belgium with regard to the Seine-Normandy RBD (the share of territory in Belgium in this RBD is, however, quite small). No information is provided on coordination between the Guyana RBD and neighbouring third countries.

- **Characterisation of the RBD**

  - Most national types are linked to an intercalibration type. However, 32 % of surface water bodies do not have a corresponding intercalibration type reported (23 % if we only consider mainland France).

  - For the Réunion RBD, the typology has not been made biologically relevant for all types for the second cycle.

  - Reference conditions are available for some biological quality elements in all water types for rivers and lakes. However, there are still some significant gaps in the establishment of comprehensive reference conditions for all water body types in all

water categories in France, which raises doubts about the robustness of the classification of ecological status/potential.

- For surface waters and groundwaters, in all 14 RBDs the significance of pressures was linked to failure of objectives. However, for groundwater, the significance of pressures was not defined in terms of thresholds in all 14 French RBDs and the same applies to eight RBDs for surface water.

- France carried out a comprehensive analysis of the gap that needs to be filled in order to reach the environmental objectives of the Directive. That analysis was done in terms of significant pressures. Some, but not all, pressures are linked to specific sectors and activities. The weakest part of the reported gap analysis concerns hydromorphological pressures, which in the vast majority of cases have not been apportioned between the responsible sectors or activities, unknown or obsolete being reported instead.

- 13 of the 14 French RBDs have established inventories of emissions (Mayotte has a different timetable). All RBDs except the Scheldt and Sambre have complete inventories, with only one group of substances missing in these two RBDs. The methodology used was reported as "other" and the data quality was uncertain.

- **Monitoring, assessment and classification of ecological status**

- There was a small increase in the number of surveillance monitoring sites and overall, there is good representation in surveillance monitoring of water bodies in the different status/potential classes. However, the number of operational monitoring sites decreased by about 72 % in coastal waters, rivers and transitional waters in the 13 RBDs that reported for both the first and second RBMPs.

- There is no monitoring programme for lakes in the Guadeloupe and Guyana RBDs, even if lake water bodies have been identified in both RBDs.

- At least one biological quality element was monitored in almost all water bodies included in operational monitoring. In lakes and rivers in some RBDs, some biological quality elements which had not been monitored for the first RBMPs were now monitored. However, the extent of the monitoring of most biological quality elements in transitional waters has decreased.

- There are still major gaps in the monitoring and assessment of the hydromorphological quality elements. For example, the number of RBDs in which hydromorphological

quality elements were monitored in lakes was reduced from nine to six. For rivers, this went down from 11 to 8 RBDs.

- For most biological quality elements and River Basin Specific Pollutants, the minimum recommended sampling frequency was not respected. The Directive allows for different frequencies when justified, but no explanation was provided by France for the frequencies adopted.

- There was a reduction of the number of water bodies in unknown status. Over 99 % of coastal and river water bodies, 98 % of transitional water bodies and 93 % of lake water bodies have now been assigned an ecological status/potential class.

- All the required biological quality element assessment methods have been developed for rivers, transitional and coastal waters, although reference conditions were not developed for coastal and transitional waters. Assessment methods have not been developed for phytobenthos and benthic invertebrates in lakes.

- Standards were developed for most required general physicochemical quality elements in rivers, lakes and transitional waters. Standards for nutrient conditions were not developed for coastal waters, even if nitrogen and phosphorus are classified in some water bodies. The classification method for general physicochemical quality elements is, therefore, unclear.

- Environmental Quality Standards were reported for 10 River Basin Specific Pollutants in water in rivers and lakes, and for one pollutant in water for coastal waters and transitional waters. For biota, an Environmental Quality Standard has been set for one substance, for all four water categories. The standards have been derived in accordance with the Technical Guidance n. 27 and the analytical methods are in line with either Article 4(1) or 4(2) of Directive 2009/90/EC. However, no information was provided on how those River Basin Specific Pollutants were selected.

- **Monitoring, assessment and classification of chemical status in surface water bodies**

- Between the two RBMPs there was an increase in the proportion of surface water bodies with good chemical status from 43 % to 63 %. The proportion of surface water bodies with poor chemical status decreased from 23 % to 16 % and the proportion with an unknown chemical status also decreased from 34 % to 21 %.

- Overall, 52 % of surface water bodies were classified for chemical status with low confidence, 33 % with medium confidence and 15 % with high confidence, reflecting a combination of monitoring, expert judgement and grouping used in the assessment of chemical status.

- A large proportion (from 63 % to 91 %) of the lake, transitional and coastal water bodies in France was monitored for chemical status; about a quarter of river water bodies were monitored. No territorial waters were monitored nor assessed for chemical status.

- The operational monitoring programme covered most of the water bodies failing to achieve good status.

- All 41 Priority Substances were monitored in 12 of the 14 RBDs. In the two remaining RBDs 36 substances were monitored. All discharged substances were monitored (no inventory was reported for Mayotte). The sampling frequencies were in line with the recommended minimum frequency for surveillance monitoring, except for Guyana and Reunion RBDs, where lower frequencies were applied, due e.g to local difficulties related to accessibility, seasonality, analytical capacity and costs.

- Mercury, hexachlorobenzene and hexachlorobutadiene were monitored in biota for status assessment in six RBDs. Monitoring was undertaken at what seems to be a small proportion of sites. The reported frequencies met the recommended minimum at the majority of sites.

- France has monitored all 14 Priority Substances in sediment and/or biota for trend assessment (except in the Réunion RBD, where sediment monitoring is not possible due to local hydromorphological conditions and trend monitoring is reported in water). The spatial extent could not be determined (as not properly reported to WISE). The reported frequency met the recommended minimum frequency at the majority of sites.

- **Monitoring, assessment and classification of quantitative status of groundwater bodies**

- There was a significant increase of the number of groundwater bodies and of the numbers of monitored groundwater bodies and of monitoring sites. Still, 25 % of groundwater bodies are not monitored and grouping of groundwater bodies for monitoring purposes was not indicated.

- All groundwater bodies now have a clear quantitative status and the groundwater body area failing good status was significantly reduced. However, it is not clear from the reporting how status was assessed in the absence of monitoring data. According to information subsequently provided by France, the groundwater bodies without monitoring are indirectly assessed by pressure and/or modelling approach.

- Environmental objectives related to groundwater dependent terrestrial ecosystems have not been considered in all river basin districts where such ecosystems exist and cause risk.

- **Monitoring, assessment and classification of chemical status of groundwater bodies**

- Monitoring decreased from 89 % coverage of surveillance monitoring in the first RBMPs to 84 % of all groundwater bodies. Not all groundwater bodies at risk are object of operational monitoring. Not all substances causing risk are object of surveillance and operational monitoring.

- The overall status improved significantly, as the number of groundwater bodies failing good status dropped from 235 to 199 (from 31 % to 25 % in terms of total groundwater body area failing good status).

- There was no consideration of groundwater associated surface waters in threshold value establishment and no consideration in status assessment in the Rhone-Mediterranean river basin district where such ecosystems are related to risk.

- **Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential**

- No major changes in the methodology for heavily modified water body designation have taken place. General information about the definition of significant adverse effects of restoration measures on the use and the wider environment and of better environmental options is found in a national guidance document.

- The methodology for defining good ecological potential has not changed since the first RBMPs. Good ecological potential is defined using a hybrid approach (combining the Prague and the Common Implementation Strategy Guidance approaches); however, it is not defined in two RBDs with designated HMWB (Guyana and Réunion). Good ecological potential biological values are derived for diatoms (rivers) and

phytoplankton (lakes), thus still missing the biological quality elements which are most sensitive to hydromorphological alterations. Mitigation measures are also identified for defining good ecological potential, but no description is provided of the ecological changes expected due to the mitigation measures.

- **Environmental objectives and exemptions**

- The increased number of exemptions in a number of RBDs is an issue of concern. Progress with the justifications for the application of Article 4(4) and 4(5) exemptions should be continued and uncertainties further reduced. Justifications need to be reviewed and updated in order to ensure that all possible measures are implemented for a timely achievement of the WFD objectives.

- For the application of Article 4(7) France needs to ensure a thorough assessment of proposed new projects in line with the requirements of the WFD and as further specified by the Judgment of the Court in case C-461/13.

- **Programme of Measures**

- Significant progress in the completion of measures does not seem to have been made between the two cycles.

- For the second cycle, finance has been secured for all measures and all relevant sectors.Lack of finance was reported as an obstacle to the implementation of the first Programmes of Measures.

- New legislation or regulations to implement the Programmes of Measures in the first cycle were reported as necessary and already adopted in all 13 previously reported RBDs.

- With a few exceptions, most significant pressures seem to be covered by operational KTMs.

- 38 national basic measures and 204 national supplementary measures have been mapped against predefined KTMs and the basic measure types are indicated for all RBDs. National measures have been mapped against a wide range of KTMs.

- No KTMs have been reported to tackle River Basin Specific Pollutants or Priority Substances causing water bodies to fail good status.

- Indicators of gaps have not been reported for 2027. Indicators for the scale and progress of the implementation of measures have not been reported for 2021 or 2027.

- **Measures related to abstractions and water scarcity**

  - Water abstraction has not been identified as a significant pressure at the river basin district level. However, several river basin districts have more than 10 % of groundwater bodies in bad quantitative status or more than 20 % of surface water bodies with significant abstraction pressures.

  - Water resource allocation and management planning in relation to abstractions is included in the RBMPs.

  - There is a concession, authorisation and/or permitting regime to control water impoundment and abstractions as well as a register of impoundments and abstractions. Complementary measures are reported for addressing abstraction pressures, and water reuse is foreseen as a measure in most of the river basin districts.

- **Measures related to pollution from agriculture**

  - There is a clear link between agricultural pressures and agricultural measures. No gap assessment in terms of load reduction was done but there is information on the number of water bodies for which a measure is planned in the second cycle.

  - Safeguard zones have been established for abstractions.

  - Implementation of basic measures under Article 11(3)(h), for the control of diffuse pollution from agriculture at source, is ensured in all RBDs with differentiated rules for different parts of the RBDs. Supplementary measures are applied in all RBDs. General binding rules for nitrates, pesticides, phosphorus and sediments to control diffuse pollution from agriculture are set and applied in all RBDs.

  - No information is available in the RBMPs on the use of mandatory versus voluntary measures.

  - Progress is anticipated in relation to pesticides. However, no specific link is made to the Directive on Sustainable Use of Pesticides.

  - Financing of agricultural measures is secured in all RBDs.

- **Measures related to pollution from sectors other than agriculture**

  - Many KTMs have been reported to tackle a wide range of non agricultural pressures causing pollution, including for example pollution from urban and industrial waste water treatment plants, or pollution from urban areas, transport and built infrastructure.

  - Two national plans are in place to better know and better control pollution, one plan dealing with micropollutants in general, and one more specifically on plant protection products.

  - France chose to report KTMs as linked to pressures and not specifically to substances, so it is not possible to know whether measures are in place to tackle pollution from all substances causing failure and to suppress emissions from all priority hazardous substances.

  - Efforts are being made to tackle pollution from nutrients at basin wide level, however it could not be determined whether the expected progress will be sufficient to reach the WFD objectives.

- **Measures related to hydromorphology**

  - Operational KTMs to address the significant hydromorphological pressures are reported for 11 out of the 14 RBDs where such pressures are identified. However, significant hydromorphological pressures have not been clearly related in the WISE reporting to specific sectors and drivers. Operational KTMs for hydromorphological pressures are missing for three RBDs (Réunion, Guyana and Martinique.) For the KTMs, indicator values are only reported for 2015, but not for 2021 and 2027. Therefore, no conclusions can be reached on the number of measures that will still be needed after 2021 for hydromorphological pressures.

  - Although hydromorphological measures to restore ecological continuity in the Rhine have been agreed in the framework of the International Convention for the Protection of the Rhine (ICPR), these measures have not yet been implemented in France.

  - In four RBDs (Rhone-Mediterranean, Corsica, Adour-Garonne and Martinique) ecological flows have been derived for all relevant water bodies. In two of these RBDs (Adour-Garonne, Martinique) the derived ecological flows have been implemented in all relevant water bodies, while in the other two there has been partial implementation

and the work is still ongoing. In the remaining 10 RBDs, ecological flows have been partially derived and work is still ongoing. Specific measures to achieve ecological flows are planned in some but not all RBDs.

- **Economic analysis and water pricing policies**

  - Cost recovery calculations vary widely, as do the values reported.

  - The RBMPs do not describe how 'adequate incentives' are provided.

  - The definition of water services varies across the French RBDs, including in the language used to describe them.

- **Considerations specific to Protected Areas (identification, monitoring, objectives and measures)**

  - For Protected Areas related to Shellfish and for Drinking Water Protected Areas additional objectives have been set for both surface and groundwaters.

  - However, France reported that, for the majority of Protected Areas designated under the Birds and Habitats Directives, no specific water objectives have been set to protect dependent habitats or species because the additional needs are not known. Progress with establishing the need for additional objectives is, so far, limited.

  - The specific monitoring activity in relation to Protected Areas was significantly higher in the first cycle than in the second. The reported monitoring programmes for Protected Areas in France seem to be insufficient both in coverage and in number of monitoring sites.

- **Adaptation to drought and climate change**

  - Climate change was considered in various ways in all RBDs and it is stated that the Common Implementation Strategy guidance document on adaptation to climate change was used.

  - No drought management plans have been reported for France, and there is not always a clear distinction between droughts and water scarcity.

Recommendations

- France should ensure transparency on how coordination within the international river basin districts is taking place and include clear information in national RBMPs on international coordination efforts.

- France should continue to improve international cooperation, including coordinated assessments of the technical aspects of the WFD such as ensuring a harmonized approach for status assessment and a coordinated Programme of Measures in order to ensure the timely achievement of the WFD objectives.

- France has made important progress on the significance of pressures and its quantification, but further work is needed in the identification of all pressures, in particular hydromorphological, which also need to be apportioned among different sectors.

- Reference conditions are still incomplete for all required Quality Elements, in particular for hydromorphological and biological Quality Elements. This work therefore needs to be completed.

- France should further strengthen monitoring of surface waters by covering all relevant quality elements in all water categories. In particular, hydromorphological quality elements should be monitored at a sufficient number of sites for a reliable assessment of status/potential. Operational monitoring needs to include all water bodies which are subject to significant pressures. The monitoring frequency should be in line with the minimum recommended frequency, especially for surveillance monitoring, unless adequately justified.

- France should have a clear and transparent method for the selection of River Basin Specific Pollutants.

- France should complete the development of assessment methods for all biological quality elements in all categories of water bodies, and develop reference conditions for transitional and coastal waters. River Basin Specific Pollutants should be included in the assessment of transitional waters, and to a larger extent in coastal waters.

- France should continue to progress in the assessment of hydromorphological and general physicochemical quality elements. France should develop standards for nutrient conditions for coastal waters and clarify the classification methods used. The assessment of hydromorphological quality elements should be linked to sensitive biological quality elements, and should cover all categories of water bodies.

- The number of unknowns in chemical status should be further reduced and confidence in the assessment further improved. Monitoring should be performed in the relevant matrix

in a way that ensures sufficient spatial coverage and temporal resolution to reach sufficient confidence in the assessment for all water bodies, if necessary in combination with robust grouping/extrapolation methods. If a different matrix or reduced frequencies are used, the corresponding explanations should be provided, as required by the Directives.

- For trend monitoring, where sediment monitoring is not possible, monitoring in biota should be considered.

- France should improve harmonisation of groundwater status assessments among RBDs, including the consideration of natural background levels. Continued improvement is needed concerning groundwater monitoring (especially operational) and grouping methodologies need to be clarified. France should also ensure appropriate assessment and classification, taking into account the links to aquatic and terrestrial dependent ecosystems.

- Good ecological potential needs to be defined also for the remaining RBDs where heavily modified or artificial water bodies are designated.

- The increased number of exemptions in a number of RBDs is an issue of concern. Progress with the justifications for the application of Article 4(4) and 4(5) exemptions should be continued and uncertainties further reduced. Justifications need to be reviewed and updated in order to ensure that all possible measures are implemented for a timely achievement of the WFD objectives.

- For the application of Article 4(7) France needs to ensure a thorough assessment of proposed new projects in line with the requirements of the WFD and as further specified by the Judgment of the Court in case C-461/13.

- France should ensure that funding for all measures and relevant sectors will be secured.

- KTMs should cover all the significant pressures and be operational. In addition, KTMs should be reported to tackle River Basin Specific Pollutants or Priority Substances, to clearly show whether the measures are sufficient to reach the objectives of the WFD (the objective of reaching good status, but also the objective to suppress emissions for priority hazardous substances).

- Water scarcity and over-abstraction should continue to be addressed in those river basin districts where they translate into significant pressures and cause poor quantitative status.

- France should complete a comprehensive gap assessment for diffuse pollutant loads from agriculture (nutrients, agri-chemicals, sediment, organic matter) across all waters (including coastal waters) in all RBDs, and link it directly to mitigation measures in the

third RBMPs (as per WFD Article 11(3)(h)), to facilitate the achievement of WFD objectives.

- In the third RBMPs, France should state clearly to what extent, in terms of area covered and pollution risk mitigated, basic measures (minimum requirements to be complied with) or supplementary measures (designed to be implemented in addition to basic measures) will contribute to achieving the WFD objectives. The contribution of the measures on an RBD-wide basis in all RBDs should be considered and sources of funding identified (e.g. CAP Pillar 1, RDP), as appropriate, to facilitate successful implementation of these measures.

- In the third RBMPs France should make the links between the WFD and supporting programmes (ND, SUD, Echophyta) more explicit and ensure that an expert and effective advisory service is available to farmers to aid successful implementation of measures. RDP funds need to be made available to support the successful implementation of the RBMPs' agricultural measures.

- France should continue their efforts to tackle nutrient pollution, and clearly assess and report the expected effect of the measures on status.

- France should continue its efforts to implement and report hydromorphological measures for all water bodies affected by hydromorphological pressures, and for all RBDs, also to meet international commitments to remove obstacles to river continuity.

- France should apply cost recovery for water use activities having a significant impact on water bodies or justify any exemptions using Article 9(4). France should transparently present how financial, environmental and resource costs have been calculated and how the adequate contribution of the different users is ensured. It should transparently present the water-pricing policy and provide a transparent overview of estimated investments and investment needs.

- France should consider developing drought management plans for areas more at risk of drought, particularly in light of the fact that abstraction is identified as a significant pressure for both surface water and groundwater bodies in the country.

Topic 1 Governance and public participation

1.1 Assessment of implementation and compliance with WFD requirements in the second cycle

1.1.1 Administrative arrangements – RBDs

France has reported 14 RBDs[3]. Of these, eight are located in "metropolitan" France, one in Corsica and the remaining five in France's overseas territories outside of Europe. In the first cycle, France reported one fewer RBD (a total of 13): in the second cycle, the island of Mayotte, previously included with La Réunion, was designated a separate RBD.

France reports that four of its mainland RBDs are part of international RBD: Scheldt (part of this RBD is in the international Escaut/Scheldt RBD); Meuse (part of the Meuse international RBD); Sambre (also part of the Meuse international RBD); and Rhine (part of the Rhine international RBD).

France did not report that the Rhone-Mediterranean RBD is part of an international RBD: however, the Rhone itself arises in Switzerland, a non-European Union country, and its basin includes Lake Geneva (Lac Leman) and other water bodies in Switzerland[4]. In addition, a small catchment (the Roya or Roia River) is shared with Italy and a small share of the Segré River basin (96 % of which is in Spain) lies in this RBD.

France did also not report that Seine-Normandy RBD is part of an international RBD: a small portion of this RBD is located in Belgium, which has reported it as an international RBD. Finally, France did not report that Guyana, located in South America, is part of international RBD(s).

1.1.2 Administrative arrangements – competent authorities

France lists three sets of competent authorities.

These include 12 *Comités de bassin* (Basin Committees) for the 14 RBDs (the Rhine-Meuse Committee covers the Meuse, Sambre and Rhine RBDs): these Committees are responsible for the preparation of the RBMPs.

[3] By judgment of 26 December 2018, the Paris Administrative Court annulled the RBMP (SDAGE) of the Seine-Normandy basin for the period 2016-2021.

[4] France subsequently informed that the 'Commission Internationale pour la Protection des Eaux du Léman' (the CIPEL convention) covers bilateral co-operation with Switzerland which is elaborated in the section below.

Corresponding to each of these 12 Basin Committees there is a *Préfet coordonnateur de bassin* (Basin Coordinating Prefect), responsible for the assessment of groundwater and surface water, co-ordination of implementation, economic analysis, enforcement of regulations, implementation of measures, monitoring of groundwater and surface water, preparation of the Programme of Measures, pressure and impact analysis, public participation and reporting to the European Commission. There are two exceptions: instead of a Prefect, the corresponding Competent Authority in Corsica RBD is the *Président du conseil executif de Corse* (President of the Executive Council of Corsica), and in Mayotte RBD, it is the Representative of the State.

Finally, the Ministry of Ecology, Energy and the Sea is listed as a Competent Authority responsible for reporting to the European Commission (under the current government, this Ministry has been renamed Ecological Transition and Solidarity).

1.1.3 RBMPs – structure (sub-plans, Strategic Environmental Assessment)

France did not report the use of sub-plans for any of its RBDs.

All of France's RBMPs underwent a Strategic Environmental Assessment procedure.

1.1.4 Public consultation

Documents were available for the requisite six months for all of France's 14 RBDs. In all the RBDs, documents were available for download. Paper copies were in general available in municipal buildings. Six RBDs carried out a direct mailing via email, and seven a direct mailing via the post. In five RBDs, documents were distributed at exhibitions.

France reported that stakeholders in all RBDs were actively involved via advisory groups (presumably the River Basin Councils, which bring together public bodies and stakeholder groups). Stakeholders were involved in drafting in all but one RBD (Guyana). Five RBDs used regular exhibitions for active involvement, and two RBDs - Meuse and Rhine - established geographical commissions, with information meetings at local authorities and inter-municipal structures as well as dedicated Internet spaces. The stakeholders that were actively involved, according to the information available in WISE, were: agriculture/farmers; local/regional authorities, in all RBDs but Adour-Garonne; NGOs/Nature protection in all but Adour-Garonne; water supply and sanitation; consumer groups in all RBDs but Adour-Garonne, Corse and Mayotte; energy/hydropower in all but Guadeloupe, Martinique and Mayotte; fisheries/aquaculture in all RBDs but Adour-Garonne, Guadeloupe, Martinique, Guyana and Mayotte; industry in all RBDs but Adour-Garonne, Martinique, Mayotte; navigation/ports in

all but Guadeloupe, Martinique and Mayotte. (France informed, however, that the consultation in the Adour-Garonne RBD included local/regional authorities, NGOs/nature protection, consumer groups, fisheries/aquaculture and industry.)

Tourism stakeholders are indicated in three RBDs: Scheldt, Sambre and Rhone-Mediterranean. In the Meuse and Rhine RBDs, other stakeholder groups involved include local water commissions (CLE of the SAGEs) and other public concertation bodies (SCOTs) as well as parties involved in the Floods Directive[5]. In the Rhone-Mediterranean and Corsica RBDs, amateur fishing associations were involved.

The impact of public consultation was: the addition of new information in 11 of the 14 RBDs; adjustment to specific measures in 10 RBDs; commitment to further research in six RBDs; commitment to action in the next RBMP cycle in five RBDs; changes to selections of measures in five RBDs; greater coordination of public policies and finance for measures in two RBDs; and changes to methodology in one RBD (out of France's 14 RBDs, only one, Guyana, reported no changes following public consultation).

France subsequently informed that as part of the RBMP and PoM consultations in the Meuse and Rhine RBDs, the Basin Coordinator Prefect and the President of the Rhine-Meuse Basin Committee requested the opinion of the Presidents of the Regional Chambers of Agriculture for Alsace, Champagne-Ardenne and Lorraine and the Presidents of Departmental Chambers of Agriculture[6]. These bodies are also represented on the Basin Committee and participated in its working groups, which defined the fundamental orientations and provisions of the RBMPs. Drinking water and waste water treatment enterprises were widely consulted. The Basin Coordinating Prefect and the Basin Committee chairman moreover sought the opinion of the municipalities, which have authority for drinking water and waste water treatment (mayors of 3,240 municipalities) and as well as the Presidents of inter-municipal structures (the *Établissements public de coopération intercommunale*, EPCIs, of the Rhine and Meuse). In addition, local government bodies are represented on the Basin Committee (with 40 representatives, 40 % of the total) that approves the RBMPs.

France subsequently clarified that in the Loire-Brittany RBD, local water commissions (*commissions locales de l'eau*), which prepare lower-level water management plans, are closely associated with the work to prepare the RBMP, on the one hand, by being officially consulted in the same way as other bodies and on the other hand, through their own networks.

[5] Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060

[6] For the Ardennes, Haute-Marne, Meurthe and Moselle, Meuse, Moselle, Bas-Rhin, Haut -Rhin and Vosges.

In the Adour-Garonne RBD, 1,200 organisations were consulted, and 291 gave an opinion on the RBMP and POM, including: Chambers of Agriculture and of Commerce and Industry, Regional Councils and socio-economic councils, local water commissions, inter-municipal organisations and others.

1.1.5 Integration with other European Union legislation: Floods Directive and Marine Strategy Framework Directive

All of France's RBDs organised joint consultation for their RBMPs and Flood Risk Management Plans.

For all of France's RBMPs, there was joint consultation with the Marine Strategy Framework Directive[7]. Further information on coordination in relation to measures is provided in section 9.1.1 of this report.

1.1.6 International coordination and co-operation

France reports that four of its RBDs are part of international RBDs - Scheldt (part of this RBD is in the international Escaut/Scheldt RBD), Meuse, Sambre (also part of the Meuse international RBD) and Rhine. For all four, France reports that international cooperation is taking place in the frame of international agreements, permanent co-operation bodies and that RBMPs and Programme of Measures were prepared at international level (designated as category 1 cooperation). In addition, explicit links were made with national RBDs within the international RBMP (for further information see the reports on international coordination on the Water Framework Directive).

As noted above, France did not report on the international dimension, nor on international coordination, for the Rhone-Mediterranean, Seine-Normandy or Guyana RBDs.

For the Rhone-Mediterranean, in 1963 France and Switzerland signed an agreement to protect Lake Geneva, which is part of the Rhône International River Basin District: cooperation is undertaken via the joint Commission created under the agreement (CIPEL, *Commission internationale pour la protection des eaux du Léman*). France and Switzerland have also signed administrative agreements for several small, shared sub-catchments in the RBD and have discussed a framework for integrated water management in the RBD as a whole. In addition, France and Italy have signed a protocol to establish stronger coordination on their

[7] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056

shared sub-catchment of this international RBD (for further information see the reports on international coordination on the Water Framework Directive).

Regarding Seine-Normandy, where a small share of the RBD lies in Belgium, France informed that there are exchanges with Belgium.

1.1 Main changes in implementation and compliance since the first cycle

There was one main change: in 2011, Mayotte became a "*Département et Région d'Outre-Mer*". Consequently, in the second cycle it is included as a new RBD, named *Les cours d'eau de Mayotte*.

1.2 Progress with Commission recommendationss

There were no recommendations for this topic.

Topic 2 Characterisation of the River Basin District

2.1 Assessment of implementation and compliance with WFD requirements in the second cycle

2.1.1 Delineation of water bodies and designation of heavily modified and artificial water bodies

14 RBDs reported data on the delineation of water bodies in the second RBMPs. There are only data for 13 RBDs in the first cycle because the Mayotte RBD had not been designated as a separate RBD (previously included with La Réunion). Excluding Mayotte, there was a small increase in the numbers of coastal water bodies (4) in the second RBMPs compared to the first ones, relatively small decreases in numbers of lake (-17) and river water bodies (-132) and larger decreases in numbers of transitional water bodies (-10) (Table 2.1). The Rhone-Mediterranean RBMP explained that other changes included the modification of the water body route and the modification of attributes such as the name.

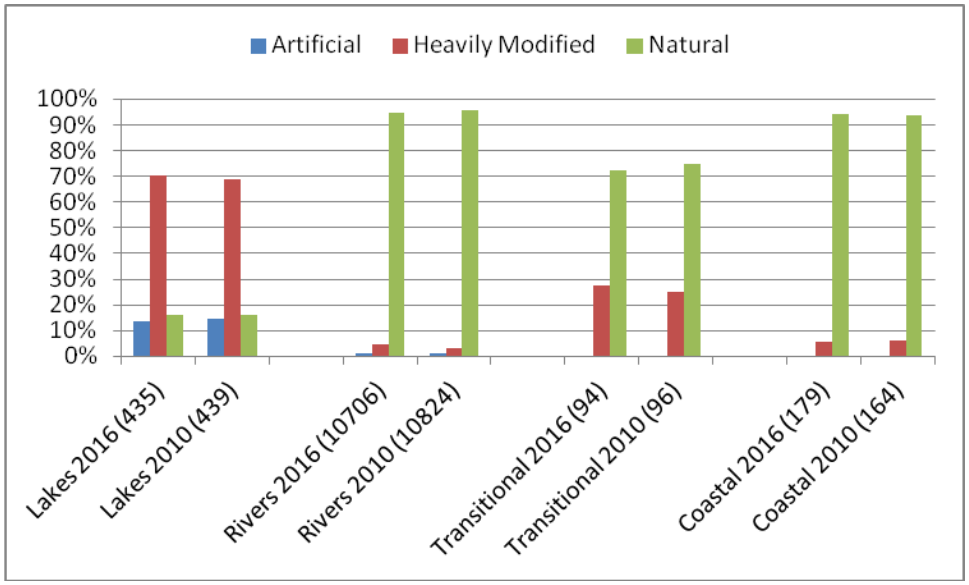
Excluding Mayotte, in the second RBMPs 7 % of surface water bodies were designated as heavily modified and 2 % as artificial (Figure 2.1). The largest proportion of heavily modified water bodies was for lakes (70 %) and the smallest for rivers (4 %). The proportion of heavily modified water bodies in the same 13 RBDs (excluding Mayotte) was the same as in the first cycle for coastal water bodies, with small increases in lakes (69 % in the first cycle, 70 % in the second), in rivers (3.3 % in the first cycle to 4.4 % in the second) and transitional waters (25 % in the first cycle, 28 % in the second). At the RBD level, there was an increase in the numbers of heavily modified river water bodies in 6 of the 11 RBDs with designated heavily modified river water bodies and no change in the other five. In each of the six RBDs there was also a decrease in numbers of natural river water bodies and it is implied that some natural river water bodies in the first cycle were designated as heavily modified water bodies in the second cycle. The largest increase in heavily modified water bodies was in Rhone-Mediterranean RBD, rising from 136 in the first cycle to 176 in the second. The RBMP for Rhone-Mediterranean only compared the status assessment of the two cycles, for those water bodies that remained the same[8].

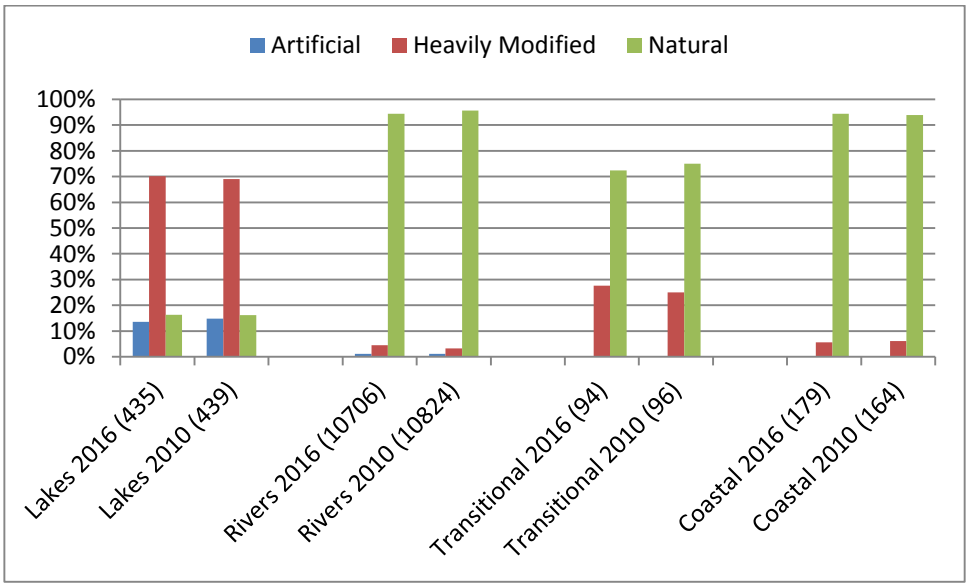
Table 2.2 shows the differences in size distribution of surface water bodies in France between the second and first cycles. There were no significant changes overall in the minimum sizes of each water body category. The minimum size criteria reported were 10 km^2 catchment area for

[8] France subsequently clarified that a comparison of the evolution of the state of the water bodies was carried out.

rivers and 0.5 km^2 surface area for lakes. However two RBDs were different: Guyana has minimum size criteria of 20 km^2 catchment area for rivers and Loire-Brittany had a minimum size criteria 10 km^2 surface area for lakes.

Figure 2.1 ***Proportion of surface water bodies in France designated as artificial, heavily modified and natural for the second and first cycles. Note that the numbers in parenthesis are the numbers of water bodies in each water category***





Source: WISE electronic reports.

Table 2.1 Number and area/length of delineated surface water bodies in France for the second and first cycles

Year	RBD	Lakes		Rivers		Transitional		Coastal	
		Number of water bodies	Total area (km^2) of water bodies	Number of water bodies	Total length of water body (km)	Number of water bodies	Total area (km^2) of water bodies	Number of water bodies	Total area (km^2) of water bodies
2016	FRA	4	3	55	2 425	4	64	5	503
2016	FRB1	4	4	141	2 948				
2016	FRB2	1	2	11	357				
2016	FRC	25	57	473	10 187				
2016	FRD	94	837	2 633	40 010	27	754	32	2 519
2016	FRE	6	4	210	2 865	4	28	14	2 100
2016	FRF	107	329	2 681	38 887	11	829	10	1 145
2016	FRG	141	224	1 893	97 853	30	467	39	11 876
2016	FRH	47	150	1 651	25 817	8	285	19	1 911
2016	FRI	1	0	47	364			11	3 080
2016	FRJ	1	1	20	249	1	1	19	976
2016	FRK	1	361	841	20 130	9	528	1	1 961
2016	FRL	3	1	24	617			12	395
2016	FRM			26	604			17	1 399
2016	Total	435	1 971	10 706	243 312	94	2 956	179	27 864
2010	FRA	4	3	55	2 431	4	60	5	503
2010	FRB1	4	4	141	2 999				
2010	FRB2	1	2	11	362				

Year	RBD	Lakes		Rivers		Transitional		Coastal	
		Number of water bodies	Total area (km^2) of water bodies	Number of water bodies	Total length of water body (km)	Number of water bodies	Total area (km^2) of water bodies	Number of water bodies	Total area (km^2) of water bodies
2010	FRC	25	57	473	10 204				
2010	FRD	103	843	2 610	39 996	27	755	32	2 523
2010	FRE	6	4	210	2 880	4	28	14	2 109
2010	FRF	105	330	2 680	38 906	12	576	11	1 537
2010	FRG	141	225	1 940	98 047	30	513	39	11 887
2010	FRH	45	146	1 679	25 840	7	271	19	1 937
2010	FRI			47	365			11	3 090
2010	FRJ	1		20	244	4	14	19	967
2010	FRK	1	350	934	18 810	8	622	1	1 943
2010	FRL	3	1	24	600			13	156
2010	Total	439	1 963	10 824	241 684	96	2 840	164	26 652

Source: WISE electronic reports.

Table 2.2 Size distribution of surface water bodies in France in the second and first cycles

Year	RBD	Lake area (km^2)			River length (km)			Coastal (km^2)			Transitional (km^2)		
		Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
2016	FRA	0.52	0.8	0.67	8.12	224.13	44.09	25.1	233.3	100.64	1.08	40.03	15.97
2016	FRB1	0.62	1.34	0.92	1.93	180.78	20.91						
2016	FRB2	1.54	1.54	1.54	8.51	92.87	32.46						
2016	FRC	0.52	10.97	2.28	1.33	213	21.54						
2016	FRD	0.09	578.22	8.9	1.06	187.88	15.2	1.76	354.43	78.72	0.12	188.34	27.94
2016	FRE	0.38	1.16	0.65	2.04	74.23	13.64	0.28	724.49	150	1.08	13.75	6.95
2016	FRF	0.34	57.65	3.08	1.29	194.19	14.5	1.08	216.72	114.54	1.7	611.1	75.38
2016	FRG	0.04	54.26	1.59	3.29	508.05	51.69	38.37	1,321.74	304.51	0.61	185.11	15.57
2016	FRH	0.43	45.91	3.2	0.4	161.13	15.64	15.93	330.85	100.56	0.57	145.18	35.58
2016	FRI	0.35	0.35	0.35	1.72	17.67	7.74	35.84	937.22	279.96			
2016	FRJ	0.81	0.81	0.81	5.43	23.89	12.45	6.37	191.35	51.38	1.2	1.2	1.2
2016	FRK	361.49	361.49	361.49	0.85	227.39	23.94	1,960.60	1,960.60	1,960.60	7.4	199.71	58.65
2016	FRL	0.15	0.4	0.25	6.3	57.71	25.7	0.73	69.33	32.89			
2016	FRM				6.85	67.79	23.21	1.41	303.18	82.3			
2010	FRA	0.52	0.8	0.67	8.13	224.87	44.2	25.1	233.3	100.64	1.08	40.03	14.97
2010	FRB1	0.63	1.34	0.92	1.93	180.75	21.27						
2010	FRB2	1.54	1.54	1.54	8.53	93.03	32.91						
2010	FRC	0.52	10.97	2.28	1.33	213.05	21.57						

Year	RBD	Lake area (km^2)			River length (km)			Coastal (km^2)			Transitional (km^2)		
		Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
2010	FRD	0.09	578.12	8.19	1.06	187.98	15.32	1.76	355.05	78.83	0.12	188.53	27.97
2010	FRE	0.38	1.17	0.66	1.14	74.41	13.71	0.29	727.6	150.62	1.09	13.79	6.98
2010	FRF	0.34	57.52	3.14	1.29	195.75	14.52	1.08	420.84	139.77	1.7	283.34	48.04
2010	FRG	0.04	54.19	1.6	3.29	507.81	50.54	38.34	1,320.31	304.81	0.7	227.39	17.11
2010	FRH	0.43	45.88	3.25	0.4	161.03	15.39	15.96	355.88	101.97	0.57	157.64	38.68
2010	FRI				2	17	7.77	35	940	280.91			
2010	FRJ				5.64	23.16	12.21	6.37	191.99	50.9	0.02	9.33	3.48
2010	FRK	350	350	350	2	191	20.14	1,943.00	1,943.00	1,943.00	2.34	372.09	77.78
2010	FRL	0.03	0.4	0.17	5.12	51.32	25.01	0.41	33.58	11.97			

Source: WISE electronic reports.

Overall there was an increase of 10 % in the number of groundwater bodies, from 574 in the first RBMPs to 631 in the second (Table 2.3). In the RBMPs it is explained that due to better characterization of groundwater bodies a refined delineation of groundwater bodies was carried out. In the Guyane RBD groundwater bodies have been combined together so there are fewer[9]. In the Réunion RBMP it is explained that a new national reference system for assessing groundwater bodies had been developed which incorporates recent hydrogeological knowledge from the studies "altitude aquifers", "signal processing", "GSAM" (Galerie Salazie Amont), which allowed for the review the delineation of the groundwater bodies in the first RBMP. 11 homogeneous aquifer systems were identified, within which a coastal area was distinguished. The second RBMP takes into account this new delimitation with now 27 bodies of water (16 water bodies 2010-2015). In the Rhone-Mediterranean RBMP it was reported that deep water bodies were removed and based on improvements of knowledge and the revision of the hydrogeological entities some groundwater bodies were split.

No transboundary surface water or groundwater bodies were reported by France.

Table 2.4 summarises the information provided by France on how water bodies have evolved between the two cycles. The water body category with the most changes was river water bodies (n=790) with water bodies created, split, aggregated and deleted. Groundwater bodies were also changed, with the most significant number of changes related to splitting of water bodies.

Table 2.3 Number and area of delineated groundwater bodies in France for the second and first cycles

Year	RBD	Number	Area (km^2)		
			Minimum	Maximum	Average
2016	FRA	16	475.68	3,067.38	1,304.99
2016	FRB1	11	183.23	2,627.48	1,060.40
2016	FRB2	2	671.26	882.25	776.76
2016	FRC	15	208.12	8,424.66	2,280.08
2016	FRD	238	12.15	5,912.07	642.91
2016	FRE	15	8.61	3,199.76	591.86
2016	FRF	105	1.86	40,031.94	3,634.93
2016	FRG	143	6.52	38,610.89	2,414.02

[9] France subsequently highlighted that the transition from 14 groundwater bodies to 27 was due to recent hydrogeological knowledge gained from the studies, to have a coherent image of the issues of sustainable aquifer management in the island of La Réunion, which highlighted quantitative imbalances and pressures.

2016	FRH	53	110.57	60,943.01	3,491.08
2016	FRI	6	20.21	678.27	279.54
2016	FRJ	6	114.64	279.16	180.53
2016	FRK	2	3,555.61	83,797.15	43,676.38
2016	FRL	27	6.07	389.83	92.72
2016	FRM	6	1.4	141.79	61.33
2016	*Total*	*645*			
2010	FRA	16	475.68	3,067.38	1,306.67
2010	FRB1	11	183	2,633.00	1,062.00
2010	FRB2	2	671.26	873.45	772.36
2010	FRC	15	208	8,432.00	2,282.13
2010	FRD	180	17	8,021.00	786.27
2010	FRE	9	33	6,152.00	1,000.11
2010	FRF	105	2	40,096.00	3,641.24
2010	FRG	143	7	15,113.00	1,489.14
2010	FRH	53	111	61,021.00	3,497.00
2010	FRI	6	20	678	294.67
2010	FRJ	6	114	279	180.33
2010	FRK	12	19	19,726.00	7,308.50
2010	FRL	16	70	302	176.56
2010	*Total*	*574*			

Source: WISE electronic reports.

Table 2.4 Type of change in delineation of groundwater and surface water bodies in France between the second and first cycles

Type of water body change for second cycle (wiseEvolutionType)	Ground-water Body	Lake Water Body	River Water Body	Transitional Water Body	Coastal Water Body
change	283	6	790	11	11
Aggregation	2		27	1	
Aggregation and splitting	7		35		3
Splitting	102		148	2	2
Creation	35	5	299	1	17
Deletion	19	9	424	2	
ExtendedArea					4
ReducedArea	1		9		2
Change in code	2		38		1
No change	213	424	9360	79	139
Total water bodies before deletion	682	444	11130	97	179
Delineated for second cycle (after deletion from first cycle)	663	435	10706	95	179

Source: WISE electronic reports.

2.1.2 Typology of surface water bodies

Other than for five coastal water types shared between Guadeloupe and Martinique RBDs, all types reported for the overseas RBDs were unique to the specific RBD. All types reported for the overseas RBDs had no corresponding intercalibration types. Note that ecological status/potential has been reported for surface water bodies in the overseas RBDs.

A number of types are shared by more than one European French RBD: 38 % of coastal water types, 62 % of lake water types, 52 % of river water types and 46 % of transitional waters are shared by more than one RBD. For example, coastal type C1 is common to four RBDs and lake type A6b to six RBDs.

Table 2.5 shows the number of surface water body types at RBD level in France for the first and second cycles. In general there was an increase in number of types from the first cycle to the second, which was largely due to the types from Mayotte RBD being reported separately in the second RBMP. 35 of the 48 coastal types, 33 of the 34 lake types, 139 of 145 river types

and 15 of the 16 transitional water types reported in the second cycle were common to the first cycle.

For the Réunion RBD, the typology was based on geology, hydrology and geomorphology and there is no evidence that it has been made biologically relevant. Other RBMPs refer to the national methodology for defining types.

Overall, 32 % of surface water bodies do not have a corresponding intercalibration type reported. Considering only the nine French European RBDs, there are 23 % of surface water bodies without a corresponding intercalibration type. The RBMPs did not provide information on whether the typology was coordinated with other Member States, but it was reported that the types were coordinated at a national level. It is unclear how the results of intercalibration have been translated to all national types.

Table 2.5 Number of surface water body types at RBD level in France for the first and second cycles

RBD	Rivers		Lakes		Transitional		Coastal	
	2010	2016	2010	2016	2010	2016	2010	2016
FRA	9	9	3	3	2	2	3	3
FRB1	9	9	3	3	0	0	0	0
FRB2	12	5	4	1	2	0	3	0
FRC	18	18	8	7	0	0	0	0
FRD	143	61	31	19	3	3	7	7
FRE	143	5	31	2	1	1	4	4
FRF	143	48	31	12	5	5	7	7
FRG	143	40	31	14	12	5	26	12
FRH	143	27	31	6	2	4	7	7
FRI	4	3	0	1	0	0	6	6
FRJ	3	3	1	1	1	1	7	7
FRK	8	8	1	1	3	2	1	1
FRL	6	6	2	2	0	0	6	5
FRM		3		0		0		8
TOTAL		145		34		16		48

Source: WISE electronic reports. Note that the total is not the sum of the types in each RBD as some types are shared by RBDs.

2.1.3 Establishment of reference conditions for surface water bodies

Table 2.6 shows the percentage of surface water body types in France with reference conditions established for the first and second cycles. There are significant gaps and shortcomings in the establishment of comprehensive reference conditions for all water body types in all water categories in France, which brings into doubt the robustness of the subsequent classification of ecological status/potential. For the types in the European RBDs, reference conditions have been established for some physicochemical quality elements for all coastal types but not for any biological or hydromorphological quality elements. In lakes, reference conditions have been established for some biological quality elements for all types but not for any type in terms of hydromorphological and physicochemical quality elements. In transitional waters, the only reference conditions established are for 12 of the 13 types for the physicochemical quality elements and not for any types for the biological and hydromorphological quality elements. Reference conditions have not been established for any hydromorphological or physicochemical quality elements for any river body type. The situation in terms of biological reference conditions for river types is better to some extent, in that they have been established for 103 out of the 122 types for some but not all biological quality elements. The other 19 river types do not have reference conditions for any biological quality element.

Reference conditions have only been established for five coastal water types for some biological and some physicochemical quality elements in the French overseas RBDs. Limited reference conditions were also reported for lakes and river types in those RBDs: two of the five lake types only for some biological quality elements and six of the 23 river types only for some biological quality elements. Reference conditions have not been established for any transitional type for any quality element.

There is no information on coordination of reference conditions at the European Union scale in the RBMPs. In the Réunion RBMP it was indicated that there was lack of knowledge for reference conditions for some biological elements, because it was the first time they had been set. It is indicated that knowledge will be improved, and that this may have an effect on the definition of reference conditions and hence biological assessment in the future.

Table 2.6 ***Percentage of surface water body types in France with reference conditions established for all, some and none of the biological, hydromorphological and physicochemical quality elements. Numbers in parenthesis are the number of types in each category***

Water category	Water types	Biological quality elements	Hydromorphological quality elements	Physicochemical quality elements
Lakes (34)	All			
	Some	91 %		
	None	9 %	100 %	100 %
Rivers (145)	All			
	Some	75 %		
	None	25 %	100 %	100 %
Transitional (16)	All			
	Some			75 %
	None	100 %	100 %	25 %
Coastal (48)	All			
	Some	10 %		65 %
	None	90 %	100 %	35 %

Source: WISE electronic reports.

2.1.4 Characteristics of groundwater bodies

13 of the 14 RBDs (all except Mayotte) reported data on the geological formation of their aquifer types and whether or not the groundwaters are layered. The same 13 RBDs reported whether groundwater bodies are associated with one or more surface water bodies and whether a terrestrial ecosystem is directly dependent on the groundwater body.

2.1.5 Significant pressures on water bodies

Overall the most significant pressures on surface water bodies in France in the second RBMPs were diffuse agricultural and "Physical alteration of channel/bed/riparian area/shore - Unknown or obsolete" (i.e. physical alterations to the water body from an unknown source) (Figure 2.2). Diffuse agricultural pressures were the most significant on surface water in France in the second cycle: 36 % of coastal waters, 26 % of lakes, 30 % of rivers and 60 % of transitional water bodies, were reported to be affected. Pressures arising from Physical alteration of channel/bed/riparian area/shore - Unknown or obsolete were also reported to be significant in rivers (33 % of river water bodies) and transitional water bodies (37 %). Point

source pressures from urban waste water were significant in 27 % of coastal water bodies and 49 % of transitional water bodies. Diffuse agricultural pressures were reported in 13 of the 14 RBDs with rivers. Abstraction or flow diversion for public water supply and pressures from dams, barriers and locks (unknown or obsolete) were both significant in 12 RBDs. 8 of the 11 RBDs with coastal waters reported significant point source pressures from urban waste waters, and seven RBDs reported significant pressures from physical alteration of channel/bed/riparian area/shore - Unknown or obsolete and diffuse agriculture. 11 of the 13 RBDs with lakes reported significant diffuse agricultural pressures and five physical alteration of channel/bed/riparian area/shore - Unknown or obsolete and point source pressures from urban waste water. Diffuse agricultural pressures were again significant in the most RBDs with transitional waters (six out of eight RBDs) with physical alteration of channel/bed/riparian area/shore - Unknown or obsolete pressures and point source pressures from urban waste water significant in five RBDs.

In the first RBMPs, the most significant pressures in France (based on 13 RBDs, excluding Mayotte) were from diffuse sources (38 % of surface water bodies) followed by point source pressures (30 % of surface water bodies) and river management pressures (Figure 2.3).

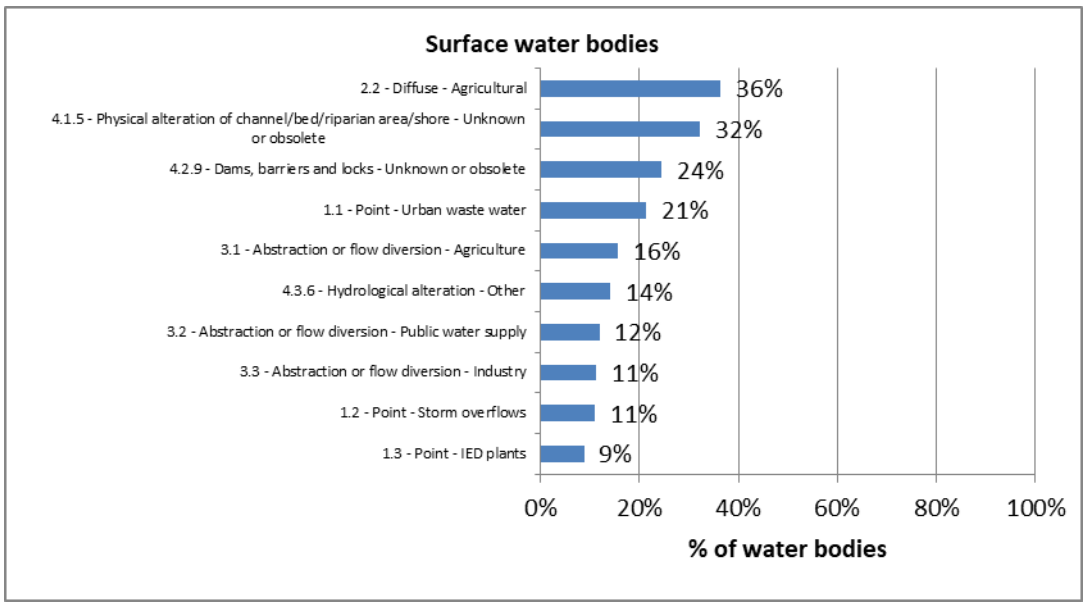
It is not possible to make a direct comparison between the two cycles because of changes in pressure definitions between the two cycles and because of changes in water body delineation. In addition, different RBDs reported either aggregated pressures or disaggregated pressures in the first RBMPs: the comparison would have to be based on aggregated data.

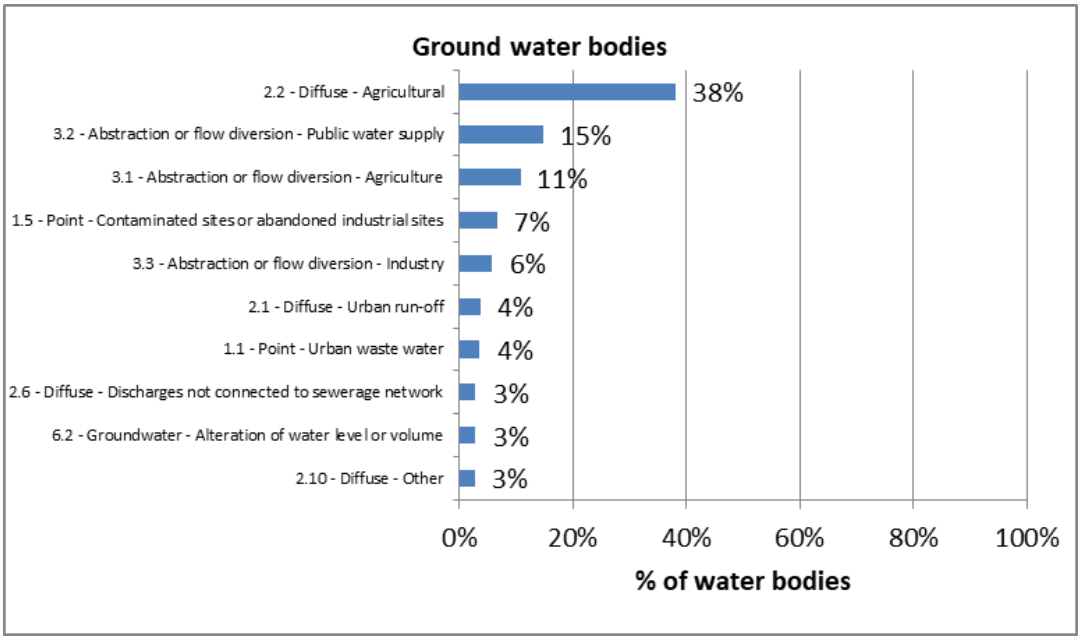
In the second RBMPs, 39 % of surface water bodies in France were subject to significant diffuse pressures compared to 38 % in the first ones. There has been little change between the two cycles in these significant pressures on surface water bodies between the two cycles.

In the Rhone-Mediterranean RBMP, it was explained that better data and better ways of identifying/defining pressures led to a better detailed view on water bodies at risk. In that way, at an RBD level it may seem as if there are more pressures exerting a negative impact on water bodies, but in the RBMP it is concluded that this is not the case. The higher detail serves towards a better understanding of relevant pressures and a better management for tackling these. In the Réunion RBMP, it is indicated that, due to changes in socio-economics (such as increase in population, increase in intensity of agriculture and food industry) and the implementation of large sanitation works, expected pressures change accordingly and there may be more of an issue in relation to water quantity and water quality as a consequence.

The most significant pressures on groundwater bodies in France in the first RBMPs were diffuse sources (66 %), water abstraction (72 %) and point source pressures (7.1 %). Similarly to surface water, it is not possible to make a direct comparison between the first and second cycle. In the second cycle the significant pressure affecting the largest proportion of groundwater bodies in France was diffuse agriculture (54 %), followed by abstraction or flow diversion - Public water supply (38 % of groundwater bodies) and abstraction or flow diversion - agriculture (11 % groundwater bodies) (Figure 2.2). 11 of the 14 French RBDs reported diffuse agriculture as a significant pressure, followed by abstraction or flow diversion - Public water supply (10 RBDs) and abstraction or flow diversion - Industry (seven RBDs).

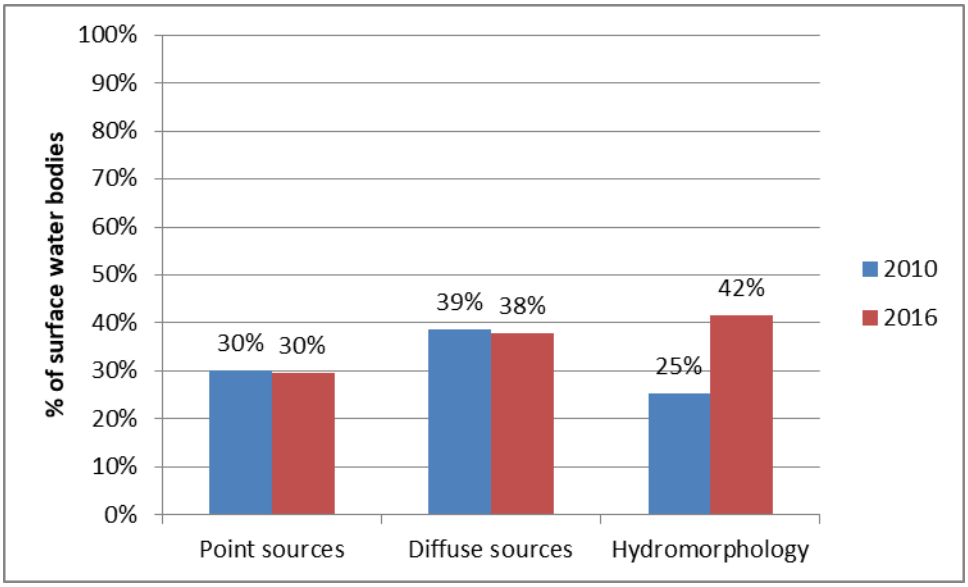
Figure 2.2 The 10 most significant pressures on surface water bodies and groundwater bodies in France for the second cycle





Source: WISE electronic reports.

Figure 2.3 ***Comparison of pressures on surface water bodies in France in the first and second cycles. Pressures presented at the aggregated level. Note that there were 11414 identified surface water bodies for the second cycle and 11523 for the first cycle.***



Source: WISE electronic reports

2.1.6 Definition and assessment of significant pressures on surface and groundwater

The Mayotte RBD only used expert judgement to assess the significance of pressures on surface water bodies. Numerical tools were used to assess the significance of point source pressures in four RBDs, expert judgement in two and a combination of both in the other eight

RBDs. Numerical tools were used in fewer RBDs (two) to assess diffuse source pressures, expert judgment in one and a combination of both in the other 11. A combination of numerical tools and expert judgement was used in most RBDs (11) to assess water flow pressures with expert judgment being used in the other two RBDs that assessed this pressure. Numerical tools were used by most RBDs (8), expert judgement in one and a combination of both in the other five RBDs to assess water abstraction pressures on surface water bodies. It was largely unclear what tools had been used to assess significant pressures for the first RBMPs.

The tools used for the assessment of point source, diffuse source and water abstraction pressures on groundwater varied among the French RBDs in the second RBMPs with cases of numerical tools, expert judgment and a combination of both being reported. Artificial recharge pressures were assessed either by expert judgment or a combination of expert judgment and numerical tools in the seven RBDs that assessed this pressure. It was largely unclear what tools had been used to assess significant pressures for the first RBMPs.

For surface waters, significance has been defined in terms of thresholds in six of the 14 French RBDs whereas in all 14 RBDs significance was linked to failure of objectives. For groundwater, significance was not defined in terms of thresholds in any of the 14 French RBDs whereas in all 14 RBDs significance was linked to failure of objectives. For example in the Rhone-Mediterranean RBMP, there is a graph that displays the percentages for which certain parameters have caused failure of reaching good ecological status in 2015. These parameters include (1) morphology and/or continuity, (2) hydrology, (3) dangerous substances, (4) pesticides, (5) diffuse pollution except for pesticides and nitrogen and phosphorus, (6) organic material and oxidisables, (7) other and (8) pressure unknown. Morphology (>70 % of the water bodies) and pesticides (>40 %) were the main pressures. There are maps included, such as in the Scheldt RBMP, which show an increase in nitrate concentrations per area, which may be linked to not reaching good status objectives for groundwater.

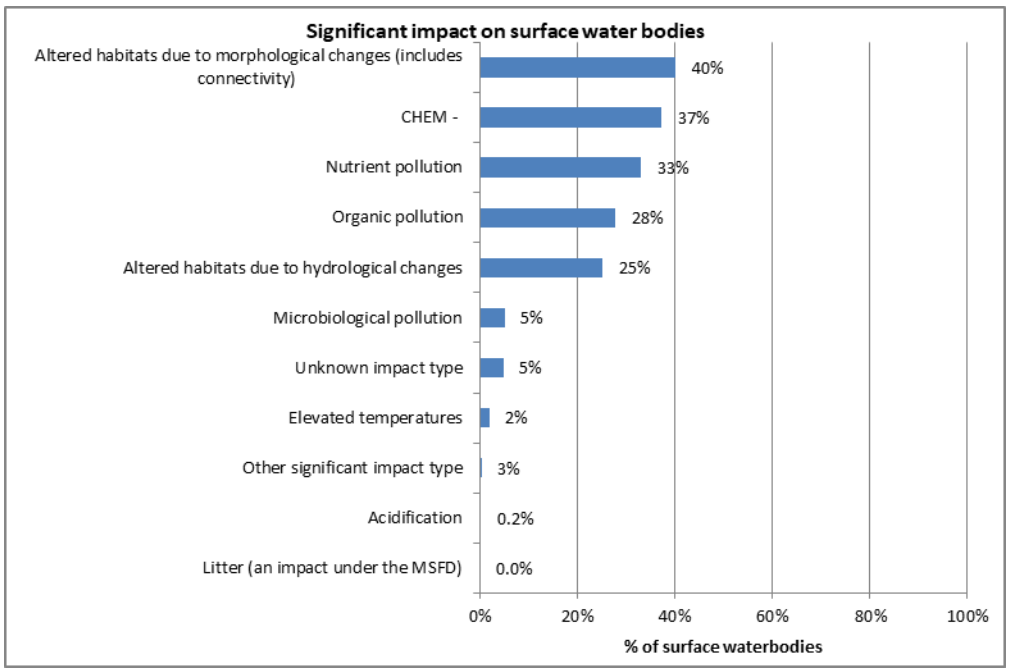
In the Réunion RBMP, there was no indication of how pressures have been identified for the second cycle, but that the first cycle was reported rather late, so no new methodology has been identified. However, the combination of status assessment and the identification of pressures led to the determination of water bodies that were at risk, not at risk, or uncertain of reaching good status by 2021.

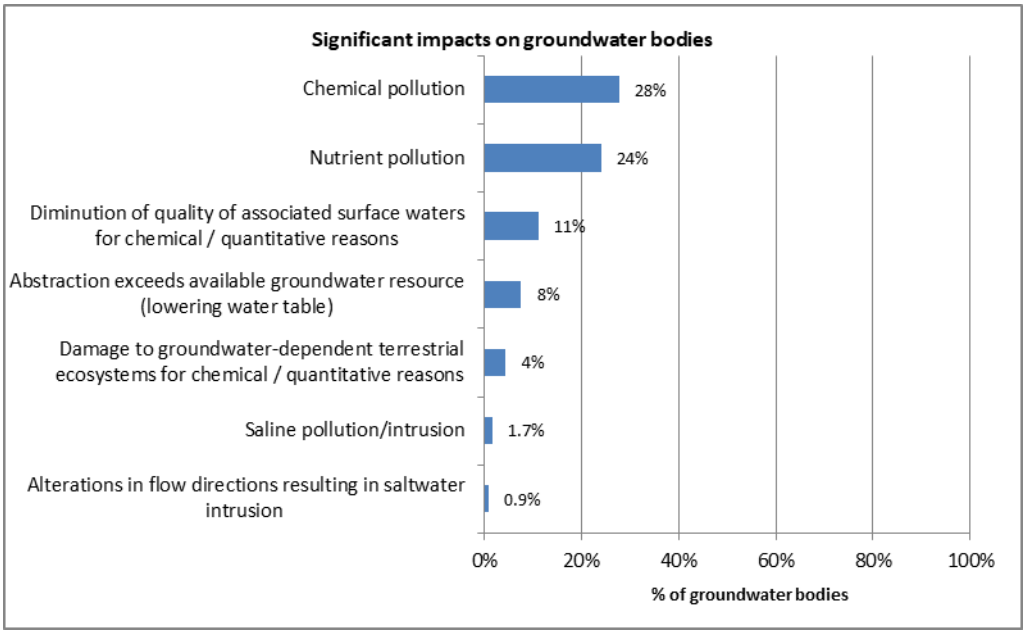
2.1.7 Significant impacts on water bodies

For France as a whole (14 RBDs), the largest impact on surface water bodies in the second RBMPs was from altered habitats due to morphological changes (40 % of surface water

bodies), chemical pollution (37 %), nutrient pollution (33 %), organic pollution (28 %) and altered habitats due to hydrological changes (25 %) (Figure 2.4). In the first RBMPs, information on impacts was only reported for 11 RBDs. The most significant impact was altered habitats (36 % of surface water bodies), nutrient enrichment (26 %) and organic enrichment (21 %). The data for the two cycles are not comparable because of the difference in the RBDs reported and also in terms of differences in the definition of the impact types between the two cycles. The largest impact on groundwater bodies in the second RBMPs was from chemical pollution (28 % of groundwater bodies) and nutrient pollution (24 %) (Figure 2.4).

Figure 2.4 Significant impacts on surface water and groundwater bodies in France for the second cycle. Percentages of numbers of water bodies





Source: WISE electronic reports

2.1.8 Quantification and apportionment of pressures

France has reported information on the gaps to be filled to achieve objectives in groundwater for 13 of its RBDs. Gaps are reported for the different sectors responsible for diffuse, point and abstraction pressures in particular. For example, gaps to be filled in terms of diffuse agricultural pressures are reported for 11 RBDs.

For surface waters, France has reported information on the gaps to be filled to achieve objectives for all 14 of its RBDs. Gaps are reported for the different sectors responsible for diffuse, point and abstraction pressures in particular. For example, gaps to be filled in terms of diffuse agricultural pressures are reported for 13 RBDs, in terms of point - Urban waste water pressures for 14 RBDs and point – Industrial Emissions Directive[10] plants pressures for 12 RBDs. However, there has been no apportionment of pressures/impacts for some hydromorphological pressures such as for "Physical alteration of channel/bed/riparian area/shore" where "Unknown or obsolete" is reported and for "Dams, barriers and locks" where "Unknown or obsolete" are reported.

In the Réunion RBMP source apportionment of pressures on surface water from sectors contributing nitrate, phosphorus and organic loads to surface waters has been undertaken. In the Scheldt RBMP there was no specific link made to the sectors, but in the Programme of

[10] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0075

Measures, each parameter is clearly linked to a sector for which action is needed[11]. There is no quantitative data linking drivers/impacts to failure of good status for groundwater.

France did not report any information on the quantification of gaps to be filled for chemical substances causing failure of status objectives. It should be noted that France reported water bodies that are in less than good chemical status and on Priority Substances that are causing the failures.

2.1.9 Inventories of emissions, discharges and losses of chemical substances

Article 5 of the Environmental Quality Standards Directive[12] requires Member States to establish an inventory of emissions, discharges and losses of all Priority Substances and the eight other pollutants listed in Part A of Annex I of the Directive for each RBD, or part thereof, lying within their territory. This inventory should allow Member States to further target measures to tackle pollution from Priority Substances. It should also inform the review of the monitoring networks, and allow the assessment of progress made in reducing (or suppressing) emissions, discharges and losses for Priority Substances.

13 of the 14 French RBDs established an inventory of emissions: the exception is the Mayotte RBD. Mayotte became and outermost region of the European Union in 2014, which means that the European legislation (including the WFD and associated Directives) entered into force on 1st January 2014 in this RBD.

All RBDs except the Scheldt and Sambre had inventories for all Priority Substances. The only missing substances in the inventories for those two RBDs were those belonging to the group of polycyclic aromatic hydrocarbons.

The two step approach from the Common Implementation Strategy Guidance Document n°28[13] was followed for all substances considered in the inventories. The methodology tier was reported as "other" and the data quality as uncertain.

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[11] France subsequently clarified that the pressures (and therefore the drivers) responsible for exemptions on water bodies has been reported to WISE. In addition, for each body of water exempted, the impacts are mentioned.

[12] 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:32008L0105

[13] CIS Guidance N° 28 - Preparation of Priority Substances Emissions Inventory http://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm

2.2 Main changes in implementation and compliance since the first cycle

Excluding Mayotte, which is a new RBD in the second cycle, there was a small increase in the numbers of coastal water bodies (4) in the second RBMPs compared to the first, relatively small decreases in numbers of lake water bodies (-17) and river water bodies (-132) and larger decreases in numbers of transitional water bodies (-10). There was an increase in the number of groundwater bodies from 574 in the first cycle to 631 in the second cycle.

Overall in France (excluding Mayotte) the proportion of heavily modified water bodies in the 13 RBDs was the same as in the first cycle for coastal waters, with small increases in lakes (69 % in the first cycle, 70 % in the second), in rivers (3.3 % in the first cycle to 4.4 % in the second) and transitional waters (25 % in the first cycle, 28 % in the second). At the RBD level, there was an increase in the numbers of heavily modified river water bodies in six of the 11 RBDs with designated heavily modified river water bodies and no change in the other five. The largest increase was in Rhone-Mediterranean RBD, from 136 in the first cycle to 176 in the second. In each of the six RBDs there was also a decrease in numbers of natural river water bodies and it is implied that some natural river water bodies in the first cycle were designated as heavily modified water bodies in the second cycle.

In general there was an increase in number of types from the first cycle to the second, which was largely due to the types from Mayotte RBD being reported separately in the second cycle RBMP. 35 of the 48 coastal types, 33 of the 34 lake types, 139 of 145 river types and 15 of the 16 transitional water types reported in the second cycle were common to the first cycle.

At the aggregated pressure level, 29.5 % of surface water bodies in France were affected by significant point source pressures in the second cycle, compared to 30 % in the first cycle. In the second cycle, 38 % of surface water bodies in France were subject to significant diffuse pressures, compared to 38.6 % in the first cycle.

2.3 Progress with Commission recommendations

- Recommendation: *Refine the significance of the pressures by quantifying those which are likely to prevent the achievement of environmental objectives*.

  and

- Recommendation: *Apportion pressures by their sources and identify the responsible sectors/areas.*

Assessment: France has reported a comprehensive set of gaps required to be filled to achieve objectives in groundwater and surface waters in terms of significant pressures. The pressures are identified by sectors and activities for some but not all pressures. The biggest gap in the reported information is in terms of hydromorphological pressures which in the vast majority of cases have not been apportioned between the responsible sectors or activities: instead unknown or obsolete is reported. In conclusion there has been significant progress on this recommendation but it has not been completely fulfilled.

- Recommendation: *Where there are currently high uncertainties in the characterisation of the RBDs, identification of pressures, and in the assessment of status, these need to be addressed in the current cycle, to ensure that adequate measures can be put in place before the next cycle.*

  Assessment: There has been little if any progress on this recommendation in terms of characterisation. Reference conditions are still not complete for all the required quality elements with significant gaps remaining. Reference conditions have not been established for any hydromorphological quality element in any of the four water categories, and not for any biological quality element in coastal and transitional waters. This calls into doubt the validity in the assessment of ecological status/potential in France. This recommendation has not been fulfilled. (Further information on progress with respect to measures is provided in Chapter 9).

Topic 3 Monitoring, assessment and classification of ecological status in surface water bodies

3.1 Assessment of implementation and compliance with WFD requirements in the second RBMPs

3.1.1 Monitoring of ecological status/potential

Monitoring programmes

All 14 RBDs reported monitoring programmes. There was a separate monitoring programme for groundwater. In terms of surface waters, there were either a surface water monitoring programme (e.g. in the Scheldt and Adour-Garonne RBDs) or separate programmes for each water category (e.g. the Rhone-Mediterranean and Corsica RBDs). In general, monitoring programmes covered each water category identified in the RBD. The exceptions were for lakes in the Guadeloupe and Guyana RBDs where lakes were identified but no monitoring programme was reported.

Monitoring sites

There were small increases in the number of surveillance monitoring sites from the first to the second RBMPs in coastal, lakes, rivers and transitional waters overall in the 13 RBDs that reported information for both cycles (the Mayotte RBD did not report separately in the first RBMP). Proportionally the largest increase was in transitional waters where numbers increased by 25 % from the numbers reported in the first RBMPs. Surveillance sites were not reported in the second RBMPs for lakes in Guadeloupe, Martinique and Guyana even though lakes have been identified in the water body characterisation. Figure 3.1 shows the percentage of water bodies included in surveillance and operational monitoring for the first and second RBMPs.

Overall, the number of operational monitoring sites decreased by about 72 % from the first RBMPs to the second in coastal waters, rivers and transitional waters in the 13 RBDs that reported for both cycles. There was a small increase (five sites) in operational sites in lakes. In rivers there was a decrease in numbers of operational sites in seven RBDs, an increase in four and no change in two RBDs.

The same proportion of coastal, lake and river water bodies were included in surveillance monitoring for the second RBMPs as had been for the first overall in the 13 RBDs which

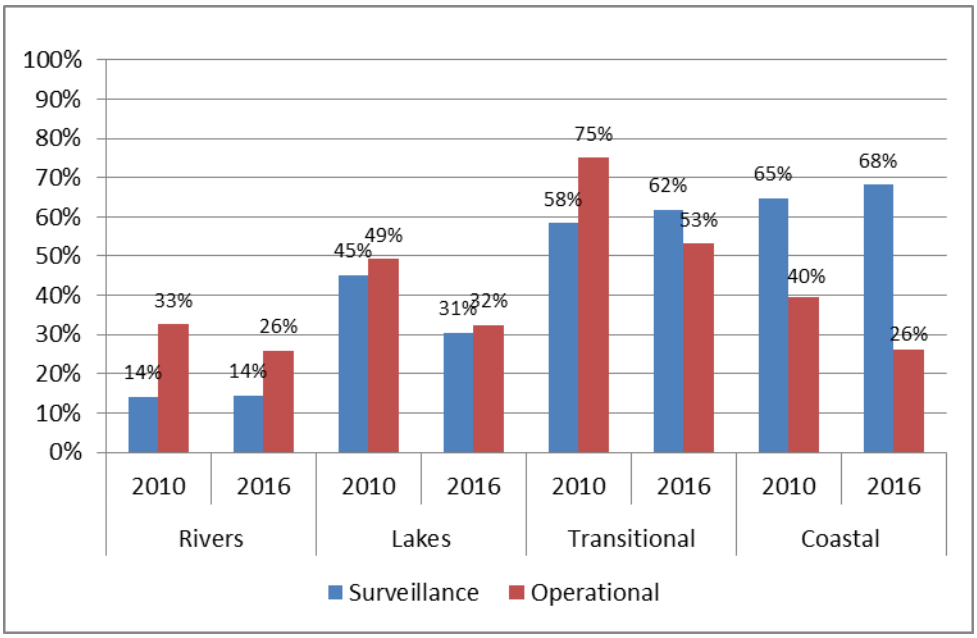
reported data for both cycles. For transitional waters the proportion included in surveillance monitoring increased from 58 % for the first RBMPs to 62 % for the second.

In contrast to surveillance monitoring, overall in the 13 RBDs with information for both cycles there was a decrease in the proportion of coastal (40 % to 29 %), lakes (49 % to 48 %), rivers (33 % to 26 %) and transitional (75 % to 53 %) water bodies included in operational monitoring compared to the first RBMPs.

These changes in the proportion included in each type of monitoring are not seemingly explained by the relatively small decreases in the numbers of water bodies identified in each category from the first to the second RBMPs, which was around 1 % in each category.

Representative RBMPs from three RBDs were examined to obtain any additional information on the changes in monitoring from the first to the second RBMPs. The number of monitoring sites has changed over time for the Scheldt RBD and Rhone-Mediterranean RBD, due to the new delineation of water bodies (grouping or new water bodies) or due to the extension of the network in order to increase representativeness of the network. For example, in the Scheldt RBD there has been a selection of previously unreported existing sites to be representative of agricultural activities. No change has been made or reported in terms of ecological indicators for the status assessment for either of the RBDs. There was no information for the Réunion RBD.

Figure 3.1 ***Percentage of water bodies included in surveillance and operational monitoring in France for the first and second RBMPs. Note no differentiation is made between water bodies included in ecological and/or chemical monitoring***



Source: WISE electronic reports

Surveillance monitoring of surface water bodies

Table 3.1 compares the number of monitoring sites used for surveillance and operational purposes between the first and second RBMPs, and Table 3.2 gives the number of sites used for different purposes for the second RBMPs.

Table 3.1 ***Number of sites used for surveillance and operational monitoring in France for the second and first RBMPs. Note that for reasons of comparability with data reported in the first RBMP, the second RBMP data does not take into account whether sites are used for ecological and/or chemical monitoring***

	Rivers		Lakes		Transitional		Coastal	
	Surv.	Op	Surv.	Op	Surv.	Op	Surv.	Op
second RBMP								
FR_A	42	40	4	2	4	4	4	4
FR_B1	27	62	2					
FR_B2	8	9	1	1				
FR_C	80	283	15	1				
FR_D	396	656	43	38	10	17	18	9
FR_E	22	23	6	5	4	3	5	3

	Rivers		Lakes		Transitional		Coastal	
	Surv.	**Op**	**Surv.**	**Op**	**Surv.**	**Op**	**Surv.**	**Op**
FR_F	352	377	53	38	10	10	7	1
FR_G	420	959	48	76	16	9	25	10
FR_H	216	648	28	58	5	7	12	12
FR_I	25						16	
FR_J	20	18		1	1	1	12	6
FR_K	51				29		7	
FR_L	20	10	1	2			10	2
FR_M	20						17	
Total by type of site	**1699**	**3085**	**201**	**222**	**79**	**51**	**133**	**47**
Total number of monitoring sites	*3756*		*320*		*110*		*158*	
first RBMP								
FR_A	42	43	4	4	2	4	4	4
FR_B1	27	87	2					
FR_B2	8	6	1	1				
FR_C	80	376	15					
FR_D	396	658	45	47	12	18	18	8
FR_E	22	23	6	5	4	3	6	7
FR_F	355	935	52	38	8	10	7	1
FR_G	420	957	49	78	16	30	25	22
FR_H	216	1161	23	44	5	7	12	12
FR_I	20	17					11	7
FR_J	14		1		3		12	
FR_K	53				13		4	
FR_L	20	2	1				10	4
Total by type of site	**1673**	**4265**	**199**	**217**	**63**	**72**	**109**	**65**
Total number of monitoring sites	4967		315		*96*		*129*	

Sources: Member States electronic reports to WISE

Table 3.2 Number of monitoring sites in relevant water categories used for different purposes for the second RBMP in France. Note that no differentiation is made between sites used for ecological monitoring and/or chemical monitoring

Monitoring Purpose	Rivers	Lakes	Transitional	Coastal
CHE - Chemical status	3100	320	85	116
DWD - Drinking water - WFD Annex IV.1.i	16			
ECO - Ecological status	3740	320	95	146
NID - Nutrient sensitive area under the Nitrates Directive - WFD Annex IV.1.iv	1341	1	3	
OPE - Operational monitoring	3085	222	51	47

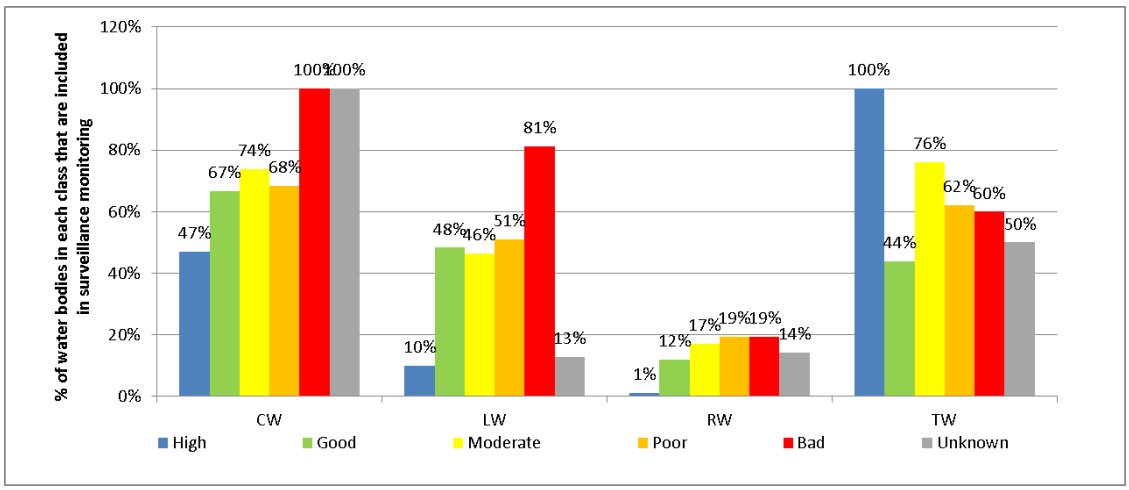
Monitoring Purpose	Rivers	Lakes	Transitional	Coastal
RIV - International network of a river convention (including bilateral agreements)	26			
SEA - International network of a sea convention	35		8	16
SOE - EIONET State of Environment monitoring	1134	151	31	46
SUR - Surveillance monitoring	1699	201	79	133
TRE - Chemical trend assessment	1286	154	36	45
Total sites irrespective of purpose	**3756**	**320**	**110**	**158**

Source: WISE electronic reports

Surveillance monitoring should include "sufficient surface water bodies to provide an assessment of the overall surface water status within each catchment or sub-catchments within the river basin district". Overall in France, there is good representation of water bodies among the status/potential classes that are included in surveillance monitoring (Figure 3.2).

All coastal water bodies included in surveillance monitoring were monitored for at least one of the required biological quality elements. However, 60 % of these water bodies did not have any hydromorphological quality elements monitored and 2 % had none of the physicochemical quality elements monitored. 16 % of transitional water bodies included in surveillance monitoring had none of the required biological quality elements monitored, 69 % none of the hydromorphological quality elements and 9 % none of the physicochemical quality elements. In rivers, 82 % of water bodies included in surveillance monitoring did not have any hydromorphological quality elements monitored, 1 % none of the biological quality elements and 0.1 % none of the physicochemical quality elements. The situation for lakes in France is similar, as 62 % of water bodies included in surveillance did not have any hydromorphological quality elements monitored, 5 % none of the biological quality elements and 7 % none of the physicochemical quality elements.

Figure 3.2 Proportion of water bodies in each ecological status/potential class that is included in surveillance monitoring in France



Source: WISE electronic reports

A differentiated presentation between ecological status and potential and including all types of quality element can be viewed here:
https://tableau.discomap.eea.europa.eu/t/Wateronline/views/WISE_SOW_QualityElement_Status_Compare/SWB_QualityElement_Group?iframeSizedToWindow=true&:embed=y&:display_count=no&:showAppBanner=false&:showVizHome=no

The water category with the highest proportion of water bodies included in surveillance monitoring where all the required biological quality elements are monitored is rivers (82 % of water bodies), followed by coastal waters (70 %), lakes (35 %) and transitional waters (5 %). There was a wide variation among the RBDs in terms of monitoring all the required biological quality elements: in six of the eight RBDs there were no water bodies where all biological quality elements were monitored in transitional waters. In five RBDs all required biological quality elements were monitored in all water bodies included in surveillance monitoring and in three there were none.

The extent of monitoring of the hydromorphological quality elements in France is much smaller than for the biological quality elements. For example, 8 of the 10 RBDs with lakes did not have any lake water bodies where all required hydromorphological quality elements were monitored; in the other two all required elements were monitored. Overall in France, 2.5 % of lake water bodies, 4 % of coastal water bodies, 15 % of river water bodies and 22 % of transitional water bodies included in surveillance were monitored for all required hydromorphological quality elements.

There is a high percentage of coastal water bodies in which all relevant physicochemical quality elements are monitored in water bodies included in surveillance monitoring (96 % in France as a whole). For rivers the overall value for France is 18 %, 36 % in lakes and 64 % in transitional water bodies. As for the other quality element groups, there was a wide range of variation among the RBDs: in some, all elements were monitored in all water bodies, in others there were none.

Operational monitoring of surface water bodies

For operational monitoring, the WFD requires the selection of parameters indicative of the biological quality element, or elements, most sensitive to the pressures to which the water bodies are subject. At least one biological quality element is used in every transitional water body, in 98 % of coastal, 95 % of river and 98 % of lake water bodies included in operational monitoring. In terms of hydromorphological quality elements, only 18 % of transitional, 43 % of coastal, 6 % of river and 59 % of lake water bodies included in operational monitoring have at least one these elements monitored. 99 % of river, 98 % of lake, 93 % of coastal and 82 % of transitional water bodies included in operational monitoring include at least one physicochemical quality element.

International surface water body monitoring

26 sites (in the Scheldt, Sambre and Rhine RBDs) were reported to be part of an international network of a river convention and 59 (in the Scheldt, Rhone-Mediterranean, Corsica, Adour-Garonne and Guadeloupe RBDs) sites to be part of an international network of a sea convention.

Quality elements monitored (excluding River Basin Specific Pollutants)

Table 3.3 illustrates the quality elements used for the monitoring of surface water bodies for the second RBMPs: no differentiation is made between purposes of monitoring.

Table 3.3 ***Quality elements monitored for the second RBMPs in France (excluding River Basin Specific Pollutants). Note; quality element may be used for surveillance and/or operational monitoring***

	Biological quality elements									Hydromorphological quality elements		
	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Angiosperms	Macroalgae	Other aquatic flora	Other species	Hydrological or tidal regime	Continuity conditions	Morphological conditions
Rivers	No	Yes	Yes	Yes	Yes			No		Yes	Yes	Yes
Lakes	Yes	Yes	Yes	Yes	Yes			No		Yes		Yes
Transitional	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		Yes	Yes	Yes
Coastal	Yes			Yes	No	Yes	Yes	No		Yes	Yes	Yes

	General physicochemical quality elements								
	Transparency conditions	Thermal conditions	Oxygenation conditions	Salinity conditions	Acidification status	Nitrogen conditions	Phosphorus Conditions	Silicate	Other determinand for nutrient conditions
Rivers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lakes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Transitional	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Coastal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: WISE electronic reports

In coastal waters there was no change in the RBDs monitoring phytoplankton from the first to the second RBMPs. However, there was some deterioration from the first to the second RBMPs in the biological quality elements monitored in coastal waters. For example, macroalgae were no longer reported in the second RBMP in the Guadeloupe RBD, and benthic invertebrates no longer reported for the Martinique RBD.

There has been no change from the first to the second RBMPs in the number of RBDs reporting that phytoplankton is monitored in lakes, but macrophytes appear to be no longer monitored in one RBD (Corsica) for the second RBMP. Phytobenthos was reported to be monitored in lakes in three more RBDs (Meuse, Rhine, Réunion) for the second RBMPs compared to the first, and fish were reported for three RBDs that had not been reported for the first RBMPs. Nine RBDs reported that hydromorphological quality elements were monitored for the first RBMPs in lakes but this was reduced to six RBDs for the second.

Macrophytes were reported to be monitored in rivers by the same RBDs for the second RBMPs as for the first, but this still left a gap in that the Corsica RBD did not monitor this element. In terms of phytobenthos and benthic invertebrates in rivers, two and one more RBD, respectively, reported that these were now monitored for the second RBMPs. However, three fewer RBDs reported fish were monitored in rivers for the second RBMPs compared to the first. Similarly to lakes, for the first RBMPs 11 RBDs reported that hydromorphological quality elements were monitored in rivers whereas for the second it was only eight RBDs.

In transitional waters phytoplankton was reported to be monitored in one more RBD for the second RBMPs than for the first. However, the extent of the monitoring of the other biological quality elements in transitional waters decreased from the first to the second RBMPs: five RBDs reported macroalgae for the first RBMPs, two for the second; five reported angiosperms for the first RBMPs, three for the second; seven reported benthic invertebrates for the first RBMPs, six for the second; and six reported fish for the first RBMPs, five for the second. In terms of monitoring hydromorphological quality elements in transitional waters, four reported them to be monitored for the first RBMPs and three for the second.

Annex V of the WFD provides guidance on the frequency of monitoring of the different quality elements. Surveillance monitoring should be carried out for each monitoring site for a period of one year during the six years covered by a RBMP. For phytoplankton this should be done twice during the monitoring year and for the other biological quality elements once during the year. As a guideline, operational monitoring should take place at intervals not exceeding once every six months for phytoplankton and once every three years during the six year cycle for the other biological quality elements. Greater intervals may be justified on the basis of technical knowledge and expert judgement.

All biological quality elements used for the surveillance monitoring of coastal waters, rivers and transitional waters were monitored at the minimum recommended frequency at all sites. This was not the case for lakes where only one element (phytobenthos) was monitored at the minimum recommended frequency at all sites: the lowest rate was for fish where they were sampled at 66 % of sites at the minimum frequency.

Only two biological quality elements out of the 19 used for operational monitoring across the four water categories were sampled at the minimum recommended frequency for operational monitoring at all sites: macroalgae and fish in transitional waters. For the other quality elements, the highest and lowest rates were: for benthic invertebrates (95 % of sites) and angiosperms (61 % of sites) in coastal waters respectively; for macrophytes (75 % of sites) and

phytoplankton (1 % of sites) for lakes, respectively; for phytobenthos (93 % of sites) and fish (45 % of sites) for rivers, respectively; and the lowest for transitional waters was for macrophytes (42 % of sites).

River Basin Specific Pollutants and matrices monitored

Overall in France, 10 different River Basin Specific Pollutants were monitored. All were monitored in all water categories, but not in all RBDs. Seven substances were monitored in 12 RBDs, including MCPA, linuron, oxadiazon and copper. Chlordecone was monitored in four RBDs.

Table 3.4 Number of sites used to monitor River Basin Specific Pollutants in the second RBMPs and non-priority specific pollutants and/or other national pollutants in the first RBMPs in France. Note that the data from both cycles may not be fully comparable as different definitions were used and also not all Member State reported information at the site level meaning that there were no equivalent data for the first RBMPs

Year		Lakes	Rivers	Transitional	Coastal
first RBMP	Sites used to monitor non-priority specific pollutants and/or other national pollutants	223	2940	77	101
second RBMP	Sites used to monitor River Basin Specific Pollutants	231	2561	37	37

Sources: WISE electronic reports

In coastal waters, substances were monitored only in water at a maximum of 37 sites each (23 % of total sites in coastal waters) and a minimum of four sites. Oxadiazon, linuron, MCPA and copper were monitored at 37 sites.

In lakes, all substances were monitored in water, nine in sediment, six in settled sediment and one (chlordecone) in biota, at one site only. Linuron, oxadiazon and MCPA were monitored at the highest number of sites in water (229, 72 % of lake sites), followed by copper (219 sites).

In rivers, all substances were monitored in water, seven in sediment, six in settled sediment and one (chlordecone, 57 sites) in biota. All were monitored in more sites for water than for the other matrices, with linuron monitored at 2398 sites (64 % of river sites), oxadiazon in 2360, copper and zinc in 2297 sites.

In transitional waters, substances were monitored only in water. Eight of these substances were monitored at 37 sites (34 % of transitional water sites), including oxadiazon, linuron and copper.

The monitoring in sediment was reported to be exclusively for long-term trend assessment.

The WFD indicates that, for the surveillance and operational monitoring of River Basin Specific Pollutants, the frequency of monitoring should be, respectively, at least once every three months for one year during the six year cycle and at least once every three months every year (this frequency is to be understood for monitoring in water). Greater intervals can be applied provided they are justified on the basis of expert judgment or technical knowledge.

All River Basin Specific Pollutants monitored in water were monitored at least at the minimum recommended frequency of four times per year in most of the sites. No explanation was found for the reduced frequencies.

Minimum monitoring frequencies in biota are specified for the assessment of Priority Substances in Article 3(2)c of the EQS Directive : this is once per year for operational and surveillance monitoring purposes, unless greater intervals can be justified on the basis of technical knowledge or expert judgment. It thus seems consistent to monitor River Basin Specific Pollutants in biota at the same frequency.

The only substance monitored in biota, chlordecone, was monitored at all 57 sites at a frequency of at least once a year.

Use of monitoring results for classification

Over 99 % of coastal and river water bodies, 98 % of transitional water bodies and 93 % of lake water bodies in France have been assigned an ecological status or potential class. Grouping was not used in the assessment and classification of any water body for any quality element and expert judgment was only rarely used. Therefore overwhelmingly monitoring results were used in the classification of water bodies in France. In many cases more water bodies are monitored for biological quality elements than those for which monitoring results are used in classification of ecological status or potential. However, there are examples where more water bodies are classified using monitoring results for the biological quality elements than were reported to be directly monitored. For example in France, 4063 river water bodies were classified using the results of monitoring phytobenthos while 2874 were directly monitored, and 3799 were classified using the results of monitoring benthic invertebrates

compared to 2844 directly monitored. This is hard to explain particular as grouping has not been reported to be used.

The results of the monitoring of four biological quality elements were used to classify coastal waters; at most 54 % of coastal water bodies were classified using the results of monitoring phytoplankton. The results of monitoring seven different physicochemical quality elements were used in the classification of coastal water (at most 60 % using nitrogen conditions) but the results of the monitoring of hydromorphological quality element were only used for classifying 7 % of coastal water bodies though France reported that 56 % more were monitored for morphological conditions but the results were not used.

Lakes were classified using the monitoring results from three biological quality elements (the most was 75 % by phytoplankton) and from five different physicochemical quality elements (the most by phosphorus and nitrogen conditions, 75 %). The results of monitoring hydromorphological quality elements were not used in any water body though hydrological regime was reported to be monitored in 63 % of lakes.

Of the four biological quality elements where monitoring results were used in the classification of rivers, the most commonly used was phytobenthos (38 % of river water bodies). The results of monitoring hydromorphological quality elements were only used in the classification of 0.2 % of river water bodies though they were reported to be monitored in 74 % of river water bodies. Eight different physicochemical quality elements were used in the classification of river water bodies with oxygenation conditions, acidification status, nitrogen and phosphorus conditions being most commonly used (42 % of river water bodies).

The monitoring results from all five relevant biological quality elements have been used in the classification of transitional water bodies: angiosperms were the least used (2 % of transitional water bodies) and phytoplankton the most (40 %). The results of monitoring hydromorphological quality elements were not used to classify any transitional water bodies though France reported that these elements were monitored in 56 % of transitional water bodies. Only three physicochemical quality elements were used in the classification of transitional water bodies with nitrogen conditions being the most commonly used (44 % of transitional water bodies).

Overall in France, biological quality elements were used to classify 76 % of lake, 65 % of transitional water, 64 % of coastal and 42 % of river water bodies. These values imply that a significant proportion of water bodies in France have been classified not using any biological

quality elements. The percentage of water bodies classified using only one biological quality element was 62 % of lakes, 21 % of transitional waters, 7 % of coastal waters and 7 % of river water bodies. In addition, 9 % of coastal waters, 4 % of river, 2 % of lake and 1 % of transitional water bodies were classified using only physicochemical quality elements.

The nutrients (nitrogen and phosphorus) are classified in coastal water bodies in most RBDs having coastal waters, but no nutrient assessment methods are reported for coastal waters in any RBD. Thus, it is unclear how the classification was undertaken.

River basin specific pollutants were used to classify coastal (7 %), lakes (61 %) and river (23 %) water bodies but not for the classification of transitional waters, although they are monitored in some (~10 %) water bodies.

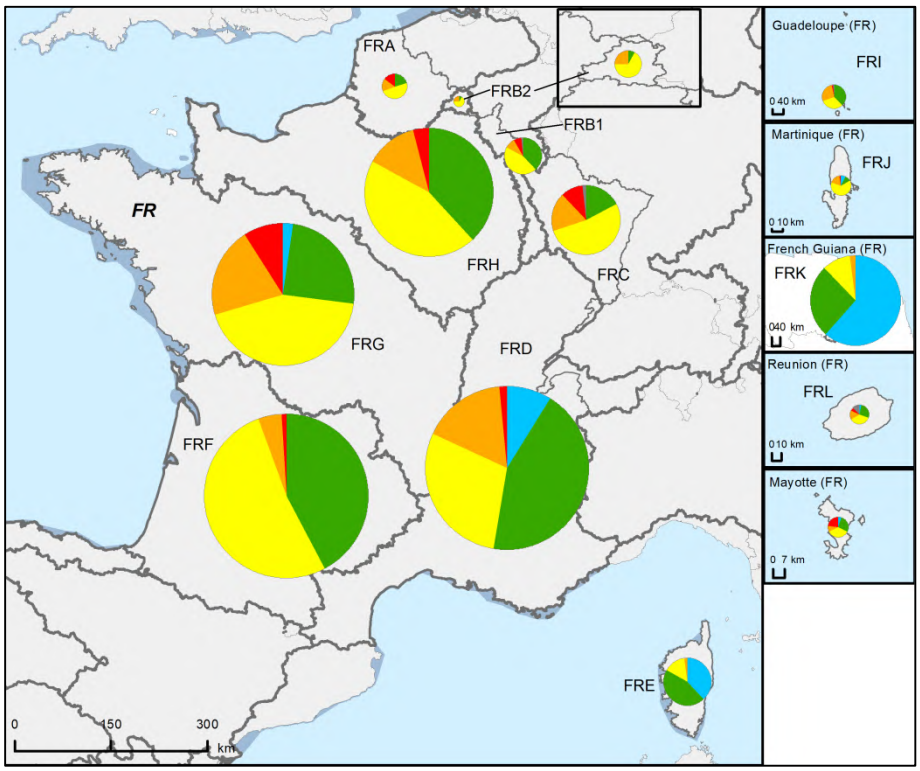
It is stated in the RBMPs that the surveillance monitoring network has been considered as representative for the different types and pressures. The increase in surveillance sites and the improvement of the model of extrapolating the state from pressures explain the increase in the number of water with classifications at high and medium confidence levels. The assessment of the ecological status of each body of water is based either on data from the basin monitoring program and from local studies, when the body of water is monitored, or on extrapolation of the state from the assessments of the impact of pressures. From 2011, the water monitoring network has been strengthened.

3.1.2 Ecological Status/potential of surface water

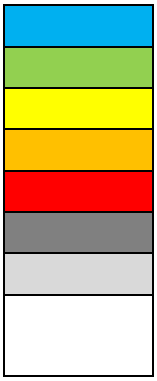
Overall water status and ecological status

The ecological status/potential of surface water bodies in France for the second RBMPs is illustrated on Map 3.1.

Map 3.1 Ecological status or potential of surface water bodies in France



Note: Standard colours based on WFD Annex V, Article 1(4)(2)(i)
Source: WISE, Eurostat (country borders)



High
Good
Moderate
Poor
Bad
Unknown
RBDs
Countries outside the European Union

A differentiated presentation of this data between ecological status and potential and including all types of quality element can be viewed here:
https://tableau.discomap.eea.europa.eu/t/Wateronline/views/WISE_SOW_QualityElement_Status_Compare/SWB_QualityElement_Group?iframeSizedToWindow=true&:embed=y&:display_count=no&:showAppBanner=false&:showVizHome=no

The proportion of water bodies in less than good status has slightly decreased for many water categories in many RBDs, while in the first RBMPs a 22 % improvement in the proportion of surface water bodies at good or better ecological status/potential was anticipated. The

proportion of water bodies expected to achieve good ecological status after 2015 has increased from around 35 % in the first RBMPs to around 50 % in the second.

In the Rhone-Mediterranean RBMP it is indicated that certain parameters used in the calculation of the ecological status of water bodies have been reviewed and revised revealing that the impact of certain pressures on the status of water was underestimated in the first RBMPs. The achievement of good status assumes that all the parameters meet the criteria; the addition of more or revised criteria often leads to the identification of more water bodies in less than good status. Furthermore, natural variability is apparent so results need to be compared over the long term. Overall, these changes slightly degrade the overall assessment of the ecological status of the water bodies in the basin. Work is underway to develop more sensitive indicators for measuring changes over shorter periods. There was no information on this aspect in the Scheldt and the Réunion RBMPs.

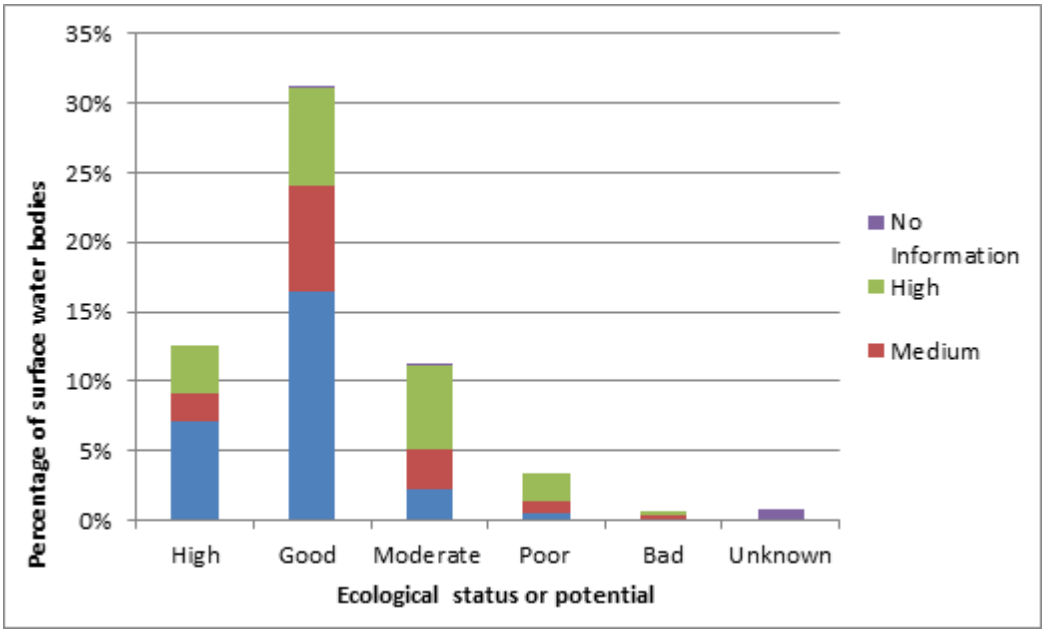
There are still some heavily modified and artificial lake water bodies with unknown ecological potential.

Confidence in ecological status assessment

The confidence in the classification of status reported for in second RBMPs has improved compared to the first, due to more monitoring and assessment of biological quality elements. Examination of the RBMP for the Rhone-Mediterranean RBD indicates that the level of confidence is determined globally and not on a quality element basis. Thus, the ecological status evaluated for a water body may be the result of combining different types and levels of information (environmental data, pressure data, and similar contextual data). The level of confidence is attributed according to the data available for the assessment of status.

Figure 3.3 shows the confidence in the classification of ecological status/potential.

Figure 3.3 Confidence in the classification of ecological status or potential of surface water bodies in France



Source: WISE electronic reports

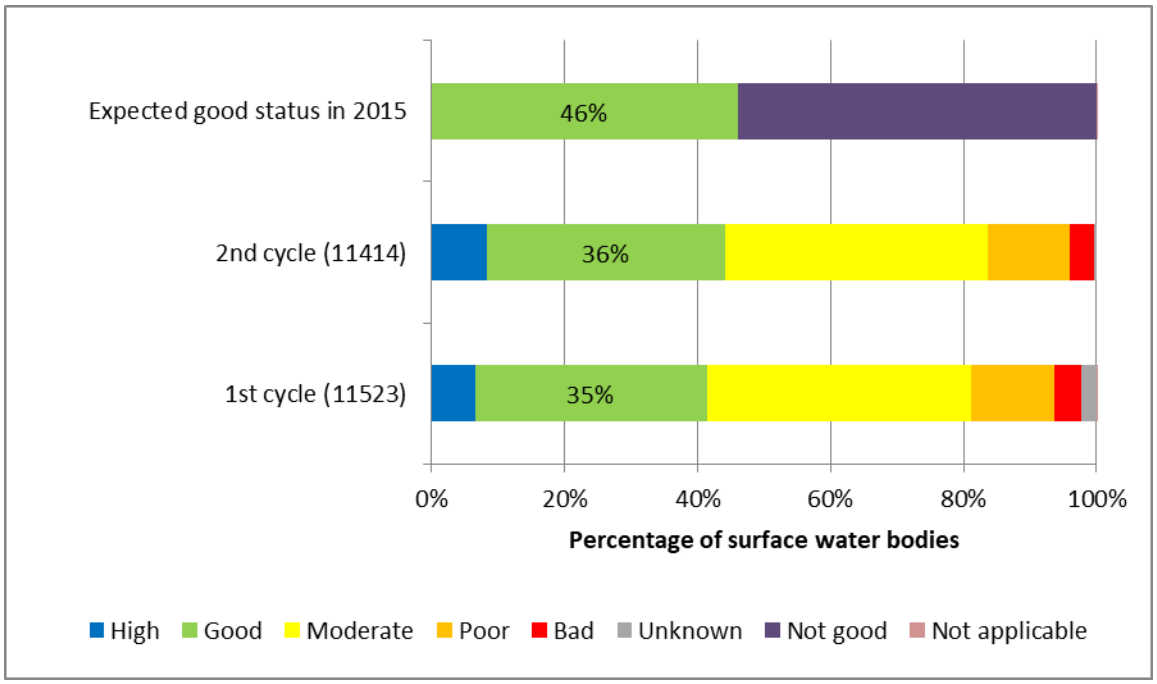
Classification of ecological status at the quality element level

Hydromorphological quality elements are not classified in any water body, although relevant methods are developed. The monitoring of these quality elements is highly variable among the RBDs and water categories, but are mostly not monitored or monitored in only a few water bodies. Macrophytes and fish are classified in a small minority of rivers and in very few lake water bodies. Benthic invertebrates and fish are rarely classified in heavily modified and artificial river water bodies. Oxygen and acidification conditions in lakes are not classified in any water body.

Ecological status change

The proportion of water bodies in less than good status/potential has slightly decreased (from 56 % to 54 %) for many water bodies in many RBDs between the two plans. While in the first RBMPs a 22 % increase in the proportion of surface water bodies at good or better status/potential was anticipated, there was a smaller increase from 44 % to 46 % reported for the second RBMPs. Figure 3.4 compares the ecological status of surface water bodies in France for the first RBMPs with that for the second RBMPs (based on the most recent assessment of status/potential) and that expected by 2015.

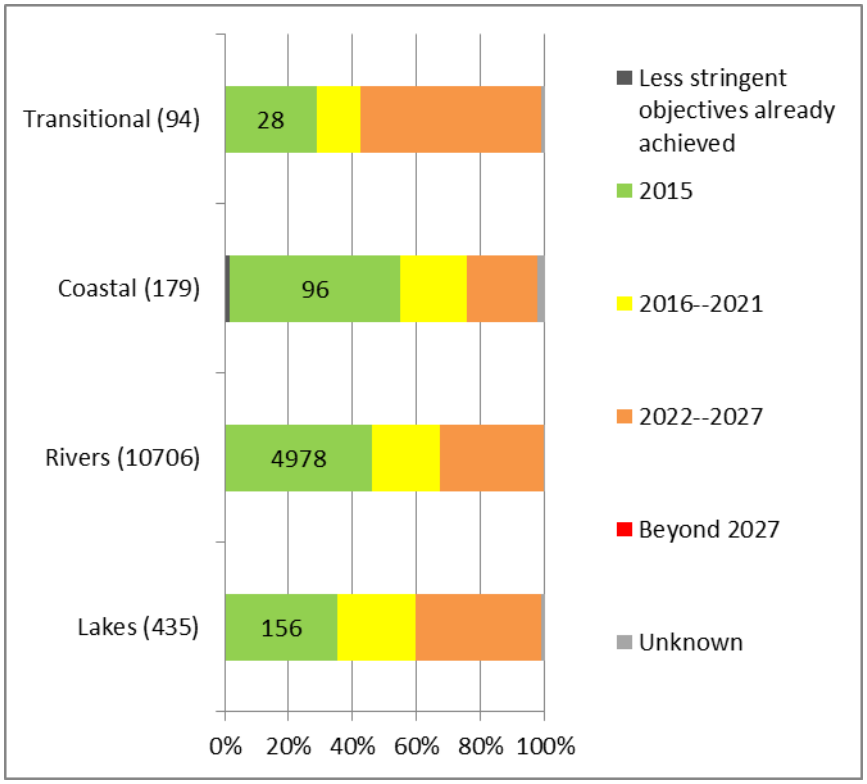
Figure 3.4 ***Ecological status or potential of surface water bodies in France for the second RBMPs, for the first RBMPs and expected in 2015. The number in the parenthesis is the number of surface water bodies for each cycle. Note that the period of the assessment of status for the second RBMPs was 2006 to 2013 for rivers, 2004-2014 for lakes, 2008 to 2013 for coastal waters and 2008 to 2013 for transitional waters. The year of the assessment of status for the first RBMPs is not known***



Source: WISE electronic reports

Member States were asked to report the expected date for the achievement of good ecological status/potential. The information for France is shown in Figure 3.5.

Figure 3.5 ***Expected date of achievement of good ecological status/potential of surface water bodies in France. The number in the parenthesis is the number of water bodies in each category***

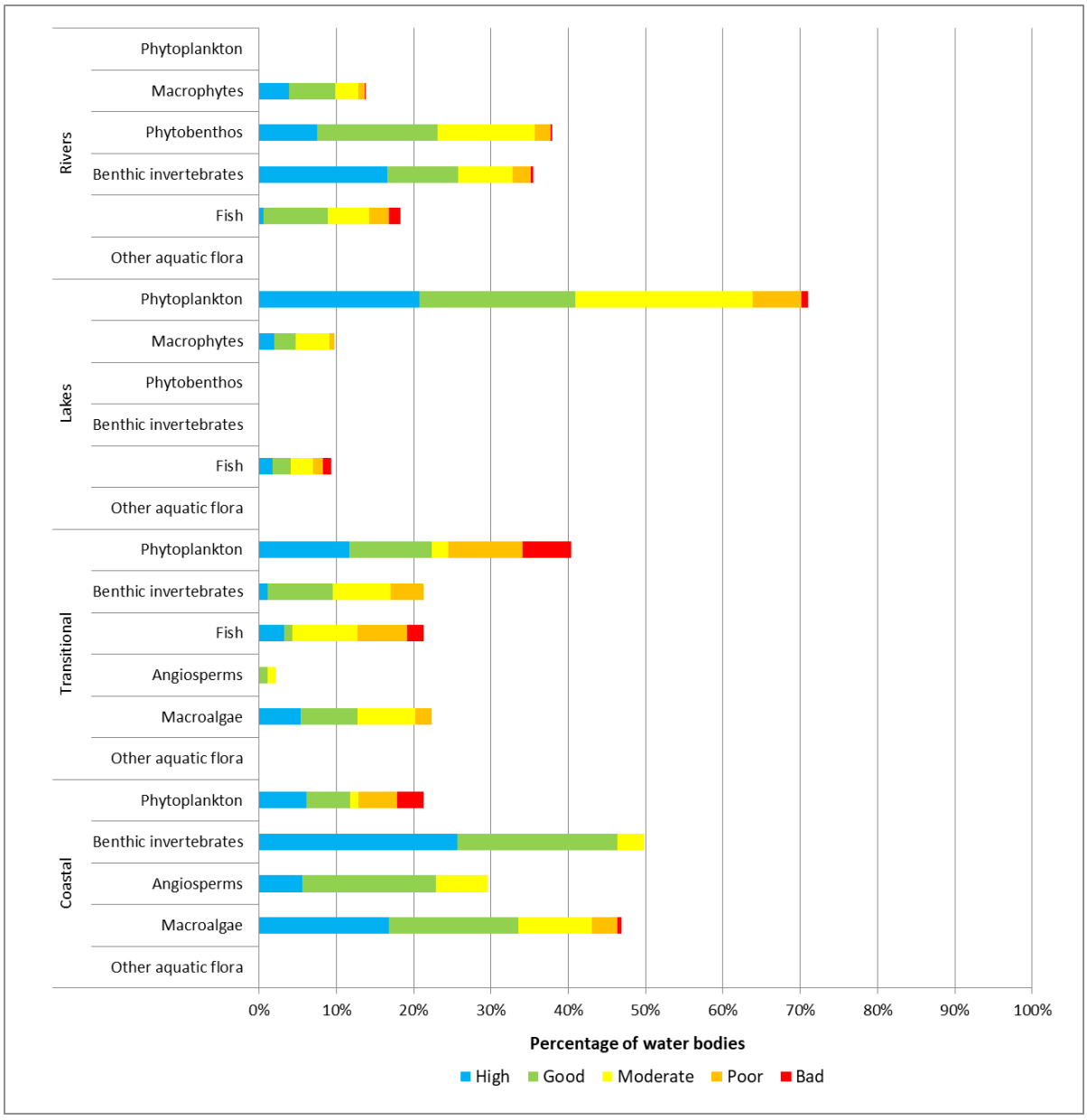


Source: WISE electronic reports

Classification of ecological status in terms of each classified quality element

Figure 3.6 illustrates the numbers of surface water bodies classified for different biological quality elements and their assessed ecological status/potential.

Figure 3.6 Ecological status/potential of the biological quality elements used in the classification of surface water bodies in France. Note that water bodies with unknown status/potential or those where the quality element was reported as not applicable or monitored but not used for classification are not presented.

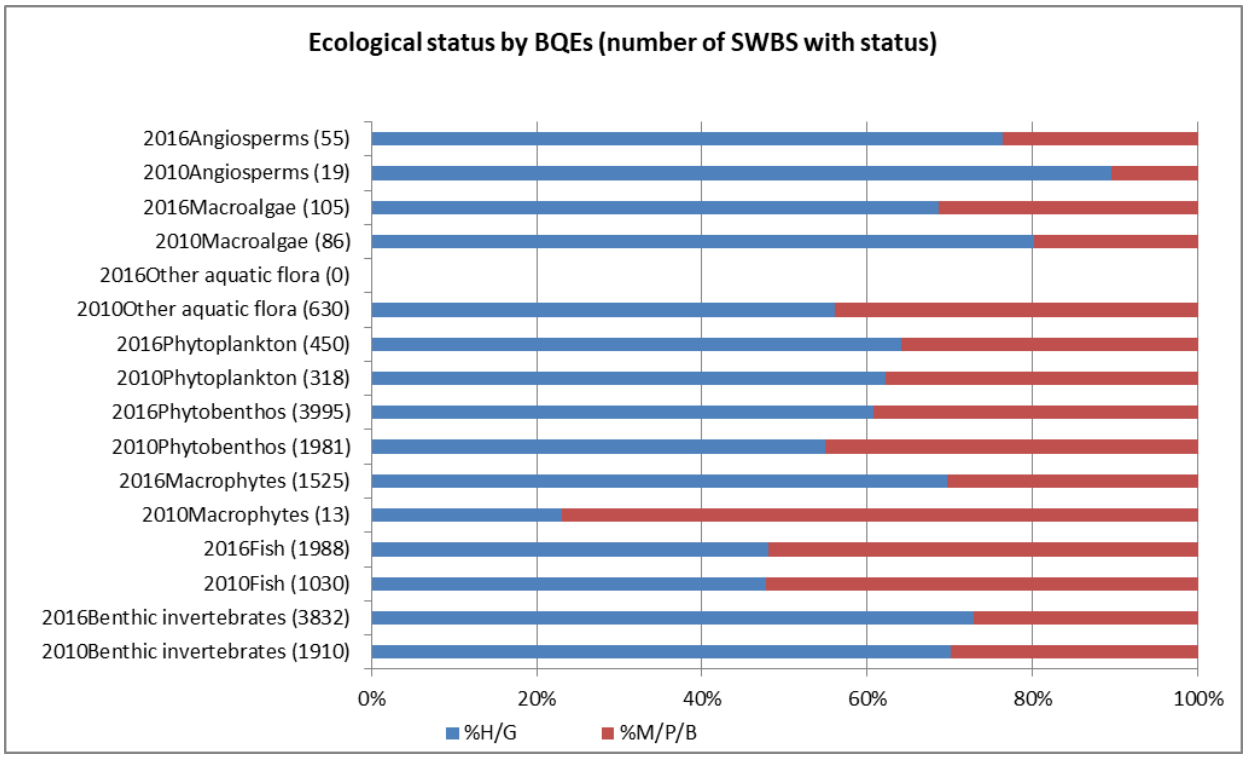


Source: WISE electronic reports. A differentiated presentation of this data between ecological status and potential and including all types of quality element can be viewed here: https://tableau.discomap.eea.europa.eu/t/Wateronline/views/WISE_SOW_QualityElement_Status_Compare/SWB_QualityElement_Group?iframeSizedToWindow=true&:embed=y&:display_count=no&:showAppBanner=false&:showVizHome=no

The change in status/potential at the quality element level is unknown for the vast majority of water bodies and for most quality elements. For the few that are known, most quality elements have no change, while in a few water bodies the status has improved and in others it has deteriorated. The reason for change is unknown for all quality elements and water bodies.

Figure 3.7 compares the classification of biological quality elements in terms of ecological status/potential for the first and second RBMPs. This comparison should be treated with some caution as there are differences between the numbers of surface water bodies classified for individual elements from the first to the second RBMPs.

Figure 3.7 Comparison of ecological status/potential in France according to classified biological quality elements in rivers and lakes from the first to the second RBMPs



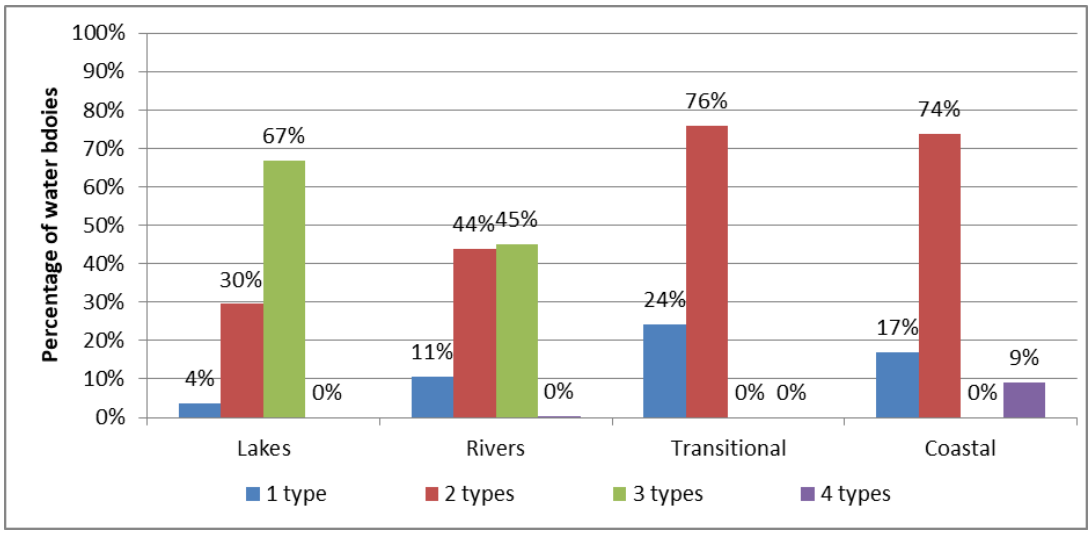
Source: WISE electronic reports

Hydromorphological quality elements are only classified in relatively few river and coastal water bodies and not in any lake or transitional water body, although relevant methods were developed. The monitoring of these quality elements is highly variable among the RBDs and water categories, but they are mostly not monitored or monitored in a few water bodies. Macrophytes and fish are classified in a small minority of rivers and in very few lake water bodies. Benthic invertebrates and fish are rarely classified in heavily modified and artificial rivers. Oxygen and acidification conditions are not classified in any lake water body.

Figure 3.8 and Figure 3.9 illustrate the basis of the classification of ecological status/potential of surface waters in France for the second RBMPs. The classification of the individual quality elements is illustrated in Figure 3.10.

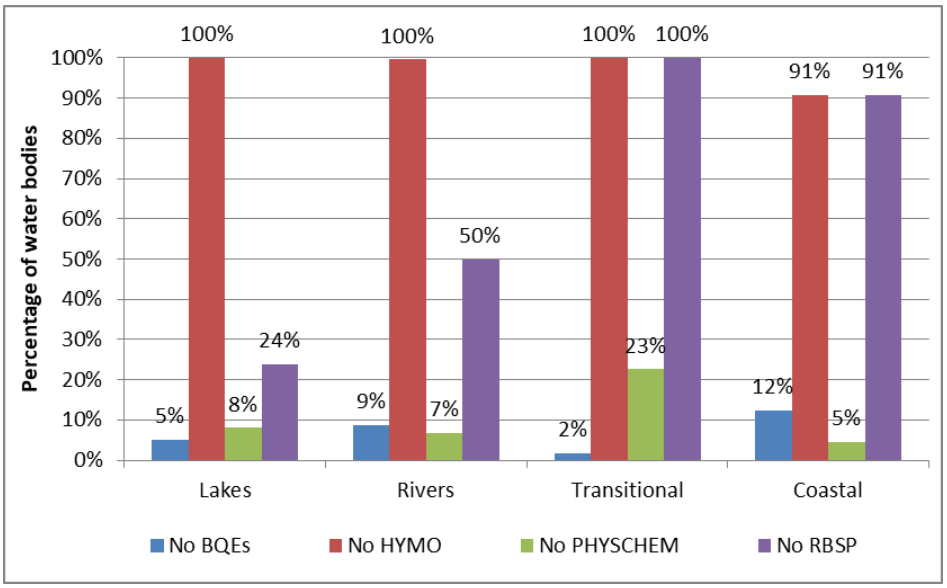
Figure 3.8 ***The classification of the ecological status or potential of surface waters in France using 1, 2, 3 or 4 types of quality element.***

Note: The 4 types are: biological; hydromorphological, general physicochemical and River Basin Specific Pollutants.



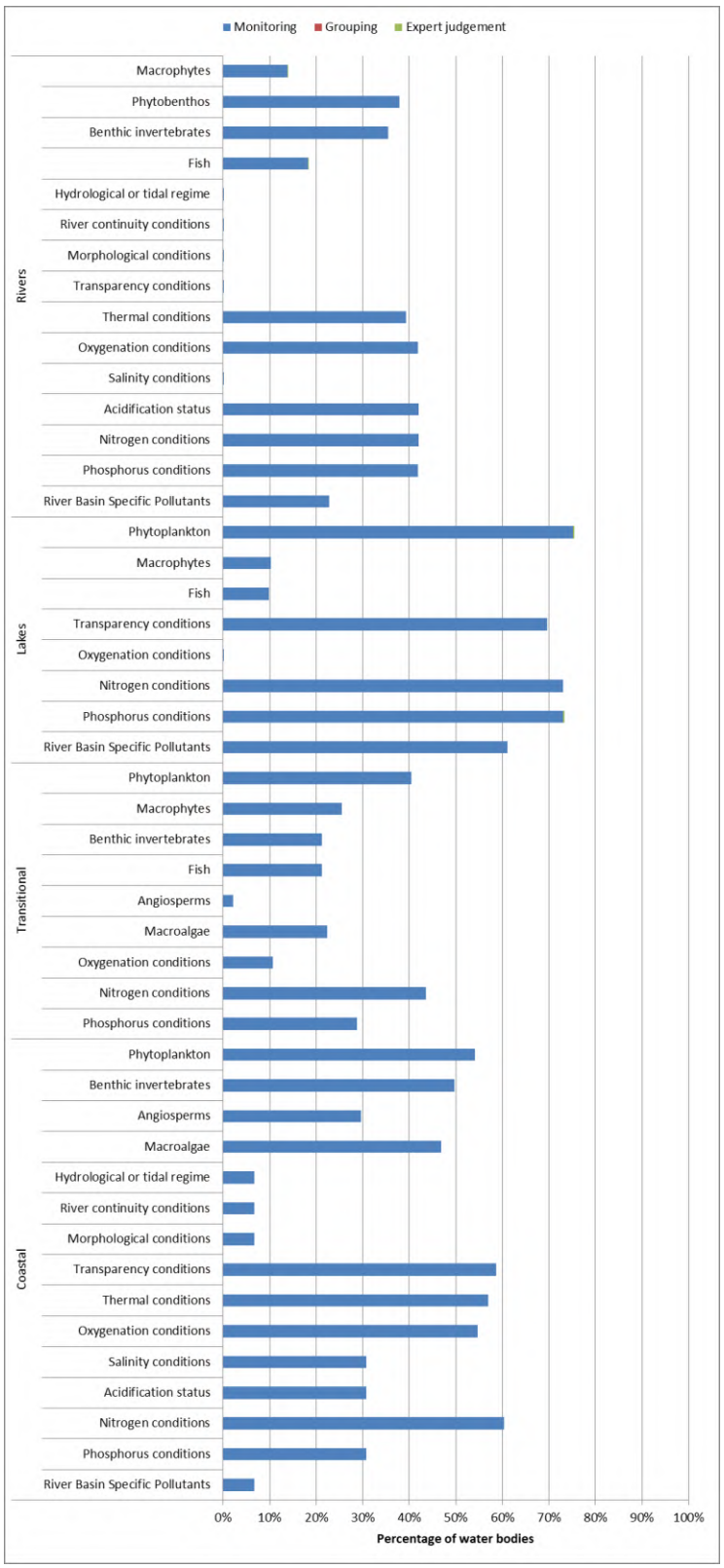
Source: WISE electronic reports

Figure 3.9 ***The percentage of surface water bodies in France where no biological quality elements (BQEs) or no hydromorphological (HYMO) or no general physicochemical (PHYSCHEM) or no River Basin Specific Pollutant (RBSP) has been used in the classification of ecological status or potential***



Source: WISE electronic reports

Figure 3.10 Basis of the classification of ecological status/potential in France. The percentages are in terms of all waterbodies in each category



Source: WISE electronic reports

Assessment methods and classification of biological quality elements

Assessment methods for macrophytes and fish in lakes have been developed, but not for phytobenthos and benthic invertebrates. Reference conditions are available for some biological quality elements in all water types for rivers and lakes. Methods have not been developed for phytoplankton in rivers, though they have been for the other required biological quality elements. All the required biological quality element assessment methods have been developed in transitional and coastal waters (although reference conditions were not developed). The sensitivity to impacts seems logical for all the biological quality elements in all water categories. Most national types are linked to an intercalibration type.

Examination of the RBMP for the Rhone-Mediterranean RBD indicated that work is currently underway to further develop the method for phytoplankton in coastal water but this does not prejudge that there will be a significant impact on the classification of coastal water bodies. It is also stated that there is insufficient knowledge on the relationship between pressures and the biological quality elements, as well as natural variability, which makes it difficult to see progress in status assessments in the short term.

Intercalibration of biological quality element methods

Most national types are linked to an intercalibration common type. It is not clear which biological quality elements are intercalibrated. 76 % of lake, 43 % of coastal water, 41 % of transitional water and 40 % of river types did not have a reported equivalent common intercalibration type.

Examination of the RBMP for the Rhone-Mediterranean RBD indicated that for coastal waters the first phase of the intercalibration exercise in 2012 resulted in an adjustment of the good-moderate status boundaries particularly for benthic invertebrates and macroalgae. Work is currently underway for phytoplankton but does not prejudge a significant impact on the classification of coastal water bodies. Class boundary changes, especially for benthic invertebrates, have led some water bodies to change status without this being linked to the effects of the Programme of Measures or any deterioration in the quality of the water body. There was no information on how the results of intercalibration have been translated to national types without an equivalent intercalibration type.

Assessment of hydromorphological quality elements

The hydromorphological quality elements are assessed in terms of ecological status/potential for rivers and lakes, but are not linked to sensitive biological quality elements. They are not assessed in terms of ecological status/potential in coastal and transitional waters. Hydromorphological quality elements are classified and monitored in coastal waters and rivers, and monitored but not classified in lakes and transitional waters.

Classification methods for physicochemical quality elements

Standards are developed for most required quality elements in rivers, lakes and transitional waters, and for some physicochemical quality elements (transparency, temperature and oxygenation conditions) in coastal waters. Standards for nutrient conditions are not developed for coastal waters and no nutrient standards are reported for this water category. Nevertheless, nitrogen and phosphorus are classified in some water bodies. The classification method is, therefore, unclear.

The RBMP for the Rhone-Mediterranean RBD states that the standards for the quality classes of physicochemical parameters (total phosphorus, nitrate, ammonium) have changed compared to those used in the first RBMP. The new standards are set out in the amended Decree on methods and criteria for assessing ecological status, of 25th January 2010.

Selection of River Basin Specific Pollutants and use of Environmental Quality Standards

There was no specific information in the RBMPs on how River Basin Specific Pollutants had been identified.

Environmental quality standard values are reported for four metals (arsenic, chromium, copper and zinc) and six organic pollutants in water in rivers and lakes, and for one organic substance (chlordecone) in water for coastal and transitional waters. An EQS has been set for one substance (chlordecone) in biota, applicable in all four water categories. The standards have been derived in accordance with the 2011 Technical Guidance Document No 27. The analytical methods are in line with either Article 4(1) or 4(2) of Directive 2009/90/EC[14].

In rivers and lakes, there are four metals (arsenic, chromium, copper and zinc) and two persistent organic pollutants (MCPA and chlordecone) that exceed their environmental quality

[14] Commission Directive 2009/90/EC of 31 July 2009 laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0090

standard values in some water bodies. River Basin Specific Pollutants are not included in the assessment of status in transitional waters, and they are included in the assessment of status for less than 10 % of coastal waters. There were no reported exceedances in coastal waters.

Overall classification of ecological status (one-out, all-out principle)

The one-out, all-out principle has been used in all RBDs, but the details on combination rules applied for the biological quality elements versus the supporting quality elements are not clear.

3.2 Main changes in implementation and compliance since first the RBMPs

There were small increases in the numbers of surveillance sites from the first to the second RBMPs in coastal, lake, river and transitional waters overall in the 13 RBDs that reported information for both cycles (the Mayotte RBD did not report separately in the first RBMP). Proportionally, the largest increase was in transitional waters, where numbers increased by 25 % from those reported in the first RBMPs. Surveillance sites were not reported in the second RBMPs for lakes in Guadeloupe, Martinique and Guyana even though lakes have been identified in the water body characterisation.

Overall, the number of operational monitoring sites decreased by about 72 % from the first to the second RBMPs in coastal waters, rivers and transitional waters in the 13 RBDs that reported for both RBMPs. There was a small increase (five sites) in operational sites in lakes. In rivers there was a decrease in numbers of operational sites in seven RBDs, an increase in four RBDs and no change in two RBDs.

The same proportion of coastal (65 %), lake (45 %) and river (14 %) water bodies were included in surveillance monitoring for the second RBMPs as had been for the first overall in the 13 RBDs which reported data for both cycles. For transitional waters the proportion included in surveillance monitoring increased from 58 % for the first RBMPs to 62 % for the second.

In contrast to surveillance monitoring, overall in the 13 RBDs with information for both cycles there was a decrease in the proportion of coastal water, lakes, rivers and transitional water bodies that were covered by operational monitoring for the second RBMPs compared to the first: 40 % to 29 % for coastal waters, 49 % to 48 % for lakes; 33 % to 26 % for rivers and 75 % to 53 % for transitional waters.

These changes in the proportion included in each type of monitoring is not seemingly explained by the relatively small decreases in the numbers of water bodies identified in each category from the first to the second RBMPs, which was around 1 % in each category.

The proportion of water bodies in less than good status/potential slightly decreased for the second RBMPs for many water categories in many RBDs, while in the first RBMPs a 22 % improvement in the proportion of surface water bodies at good or better ecological status/potential was anticipated. However, some improvements are seen in terms of lower proportions in less than good status for transitional waters in the Rhone-Mediterranean RBD and for coastal waters in the Loire-Brittany RBD, and Vendee RBD, for lakes in the Adour-Garonne RBD, and for coastal waters and rivers in the Guadeloupe RBD.

There are fewer unknown status/potential water bodies in all categories for the second RBMPs compared to the first. There was in particular a large decrease in the number of unknown status/potential lakes from 192 to 31. There were only one and two coastal and transitional water bodies, respectively, with unknown ecological status/potential for the second RBMPs.

Overall in France there was an increase in the proportion of coastal waters at less than good status/potential (39 % to 48 % of water bodies) from the first to the second RBMPs but a small increase in high status. The proportion of water bodies with unknown status decreased. There was also an increase in proportion of lake water bodies at less than good status/potential (40 to 63 %) but a small increase in high status. This was accompanied by a large decrease in unknown status/potential from 44 % to 7 %. There were only small changes in status/potential of rivers from the first to the second RBMPs: there was a decrease in less than good from 57 % to 55 %, no changes in the proportion of good status/potential water bodies and a small improvement in the proportion of high status. There was only a small proportion of unknown status/potential in rivers in both cycles.

The confidence in the classification of ecological status/potential has improved from 30 % to 50 % in high or medium confidence for rivers, and from 30 % to 70 % in high or medium confidence for transitional and coastal waters.

3.3 Progress with Commission recommendations

Recommendation: *"Where there are currently high uncertainties in the characterisation of the RBDs, identification of pressures, and in the assessment of status, these need to be addressed in the current cycle, to ensure that adequate measures can be put in place before*

the next cycle. To make wider use of monitoring results on biological quality elements in assessing the significance of pressures."

Assessment: In the second RBMPs, the classification at the quality element level is overwhelmingly based on monitoring results. Some water bodies are classified not using any biological quality elements but overall the results from the monitoring of biological quality elements have a significant role in the classification of ecological status/potential which should be responsive to all significant pressures. In summary, there has been some progress on this aspect of this recommendation and it has been partially fulfilled.

Some improvements of ecological status are seen in terms of lower proportions in less than good status for transitional waters in the Rhone-Mediterranean RBD and for coastal waters in the Loire-Brittany and Vendee RBD, for lakes in the Adour-Garonne RBD, and for coastal waters and rivers in the Guadeloupe RBD. Confidence in classification has improved from 30 % to 50 % in high or medium confidence for rivers, and from 30 % to 70 % in high or medium confidence for transitional and coastal waters. There is therefore indication of some improvements in the assessment of status: this aspect of the recommendation has been partially fulfilled.

Methods for macrophytes and fish in lakes have been developed. Reference conditions are available for some biological quality elements in all water types for rivers and lakes. All the required biological quality element methods have been developed in transitional and coastal waters (although reference conditions are not developed). The sensitivity to impacts seems logical for all the biological quality elements in all water categories. Most national types are linked to an intercalibration type.

These improvements indicate that this aspect of the recommendation has been partially fulfilled.

Recommendation: *"The current French assessment methods still need to be improved and further developed for the next cycle of RBMPs. A considerable effort has been made to develop a number of assessment methods for the biological quality elements, but there are still important gaps in the methodology. The methods for assessment of physicochemical and hydromorphological quality elements should also be further developed"*

Assessment: In general all expected biological quality elements are used in the monitoring, assessment and classification of ecological status/potential though not to the same extent for

each biological quality element in each water category, and there has been an apparent decrease in the number of biological quality elements monitored in some RBDs since the first RBMPs. In particular, there are still major gaps in the monitoring and assessment of the hydromorphological quality elements: there has been no progress in terms of this group of quality elements since the first RBMPs. This part of the recommendation has not been fulfilled.

Standards have been developed for most of the required physicochemical quality elements in rivers, lakes and transitional waters, and for some physicochemical quality elements (transparency, temperature and oxygenation conditions) in coastal waters. Hydromorphological quality element methods are now developed for rivers and lakes for all required hydromorphological quality elements in the freshwater categories.

Thus the development of methods for these supporting quality elements is partly in line with this recommendation, which is partially fulfilled.

Recommendation: *"The identification of River Basin Specific Pollutants needs to be more transparent, with clear information on how pollutants were selected, how and where they were monitored, where there are exceedances, and how such exceedances have been taken into account in the assessment of ecological status. It is important that there is an ambitious approach to combating chemical pollution and that adequate measures are put in place."*

Assessment: Information of what River Basin Specific Pollutants are monitored and in which matrix has been reported for the second RBMPs (it should be highlighted that River Basin Specific Pollutants are not included in the assessment of status in transitional waters, and they are included in the assessment of status for less than 10 % of coastal waters). There is no information in the RBMPs on how the substances have been selected. The one-out-all-out principle was used to assess status.

There has been progress on the monitoring aspect of this recommendation but information is still missing on the identification of River Basin Specific Pollutants.

The 2011 Technical Guidance Document 27 has been used to set the environmental quality standards for River Basin Specific Pollutants (four metals and six persistent organic pollutants). The analytical methods are in line with either Article 4(1) or 4(2) of Directive 2009/90/EC.

In conclusion, this recommendation has been partially fulfilled.

Topic 4 Monitoring, assessment and classification of chemical status in surface water bodies

4.1 Assessment of implementation and compliance with WFD requirements in the second cycle

4.1.1 Monitoring of chemical status in surface waters

Monitoring sites and monitored water bodies used for monitoring of chemical status

Member States have to implement surveillance and operational monitoring programmes in accordance with the requirements of the WFD and of the EQS Directive for the assessment of ecological status/potential and chemical status.

Surveillance monitoring programmes should allow Member States to supplement and validate the impact assessment procedure, to efficiently and effectively review the design of their monitoring programmes, and to assess the long-term changes in natural conditions and those resulting from widespread anthropogenic activity. For operational purposes, monitoring is required to establish the status of waterbodies identified as being at risk of failing to meet their environmental objectives, and to assess any changes in the status of such waterbodies resulting from the programmes of measures.

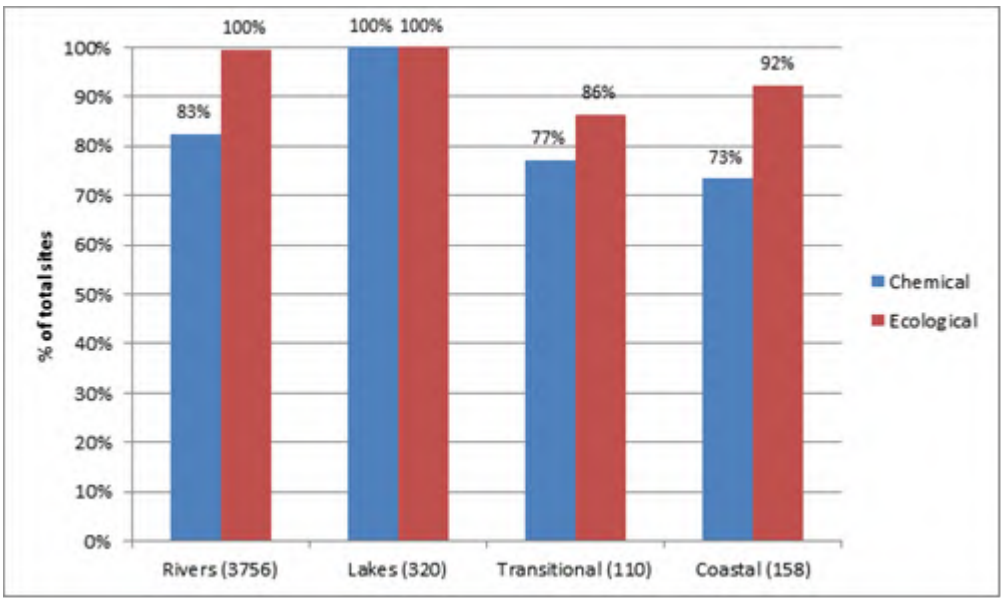
Section 3.1.1 of this report summarises the characteristics of the surveillance and operational monitoring programmes in France for the second RBMPs.

Figure 4.1 summarises the proportion of sites used for the monitoring of chemical status in surface waters for the second RBMPs. In this figure, no distinction is made between sites used for surveillance and/or operational purposes. Territorial waters have not been monitored or classified for chemical status. Between 73 % and 100 % of all monitoring sites (irrespective of purpose) are used for monitoring of chemical status for surface water bodies in France. More detailed information can be found on the website of the European Environment Agency[15].

Figure 4.1 Proportion of sites used for monitoring of chemical status and, for comparison, ecological status, in France. The number in parenthesis next to

[15] https://www.eea.europa.eu/publications/state-of-water

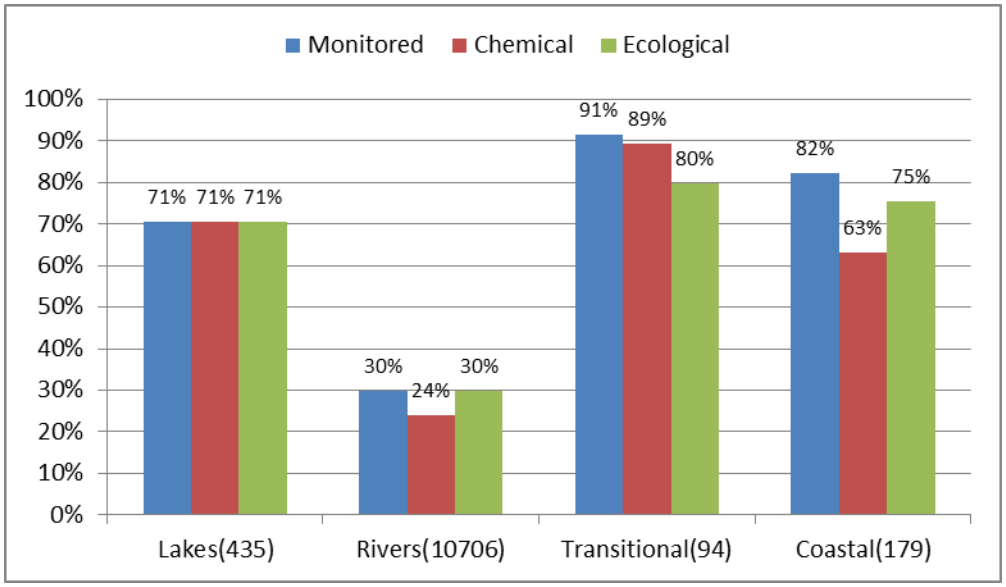
the category is the total number of monitoring sites irrespective of their purpose



Source: WISE electronic reporting

Figure 4.2 summarises the proportion of water bodies monitored for chemical status in surface waters for the second RBMPs. In this figure, no distinction is made between sites used for surveillance and/or operational purposes. Also given is the proportion of water bodies monitored for any purpose and, for comparison, those for ecological status. Figure 4.2 shows that, for rivers a lower proportion of water bodies was monitored for chemical status (24 %) compared to other water bodies although it should be pointed out that there are over 20 times more river water bodies than in any other category.

Figure 4.2 ***Proportion of total water bodies in each category monitored, monitored for chemical status and, for comparison, monitored for ecological status, in France. The number in parenthesis next to the category is the total number of water bodies in that category***



Source: WISE electronic reporting

Throughout France most of the water bodies that fail to achieve good status are monitored as part of the operational monitoring programme. In three RBDs (Martinique, Réunion and Mayotte) 100 % of the water bodies that fail to achieve good status are monitored.

Long-term trend monitoring and monitoring of Priority Substances in water, sediment and biota for status assessment

Monitoring for status assessment

Requirements

Article 8.1 of the WFD requires Member States to establish monitoring programmes in order to provide inter alia a coherent and comprehensive overview of water status within each RBD. The amount of monitoring undertaken in terms of priority substances, frequency and numbers of sites should be sufficient to obtain a reliable and robust assessment of status. According to the EQS Directive (version in force in 2009), mercury, hexachlorobenzene and hexachlorobutadiene had to be monitored in biota for status assessment, unless Member States derived a standard for another matrix which is at least as protective as the biota standard.

Spatial coverage

In four RBDs in France (Guadeloupe, Martinique, Réunion and Mayotte), 100 % of coastal water bodies are not monitored for any Priority Substances, while in the remaining RBDs coastal water bodies are monitored for more than 10 priority substances in varying amounts, from 57 % to 100 %. In thirteen RBDs in France, 50 % or more lake waters are monitored for more than 10 priority substances. In six of fourteen RBDs in France, 50 % or more river waters are monitored for more than 10 priority substances. In seven RBDs in France, 74 % or more transitional waters are monitored for more than 10 priority substances, in four of these 100 % of transitional waters are monitored for more than 10 priority substances.

Monitoring in water is reported for 41 Priority Substances in 12 of the 14 RBDs in France and also for 36 Priority Substances at site level in the other two RBDs (Martinique and Mayotte).

Mercury, hexachlorobenzene and hexachlorobutadiene are monitored in biota for status assessment in six RBDs (Guadeloupe, Loire-Brittany, Martinique, Rhone-Mediterranean and Corsica, Guyana). In rivers, monitoring (mercury only) is undertaken in the Guadeloupe, Martinique and Guyana RBDs (at 36, 20 and 51 sites respectively). In lakes, monitoring is restricted to a single site in the Martinique RBD. These substances are monitored in coastal waters in the Rhone-Mediterranean, Loire-Brittany and Corsica RBDs in 8 to 21 sites, with mercury also monitored in the Guyana RBD (at four sites). Monitoring in these RBDs is also undertaken in transitional waters in 4 to 20 sites. In all cases, monitoring is undertaken at a small proportion of sites.

Frequencies

The WFD indicates that, for the surveillance and operational monitoring of Priority Substances in water, the frequency of monitoring should be at least monthly for one year during the RBMP cycle and at least monthly every year, respectively. Monitoring in biota for status assessment should take place at least once every year according to the EQS Directive. In all cases greater intervals can be applied by Member States if justified on the basis of technical knowledge and expert judgement.

The reported frequency of monitoring ranged widely for different substances and different sites in the 14 RBDs.[16] France subsequently clarified that only the Guyana and Reunion RBDs

[16] France subsequently clarified that reported data is inaccurate due to confusion on how to report frequencies (Loire-Brittany RBD), a mix between operational monitoring and surveillance monitoring (Seine-Normandy

actually have frequencies less that the recommended minimum frequency on all waterbodies. This is due to local difficulties related to accessibility, specific seasonality, analytical capacities and costs. Priority Substances are monitored in all other RBDs with the recommended frequency (12 times per year, once in the cycle) and most monitor at a higher frequency (12 times per year in at least two years in the cycle). This meets the recommended minimum frequency for surveillance monitoring.

The reported frequencies for the monitoring of mercury, hexachlorobenzene and hexachlorobutadiene in biota for status assessment met the requirements of once every year in lakes and rivers. For transitional and coastal waters in the Loire-Brittany RBD, this was also the case; however, sampling was less frequent in some RBDs (Rhone-Mediterranean, Corsica and Guyana).

Monitoring for long-term trend assessment

Requirements

Article 3.3 of the EQS Directive (version in force in 2009) requires Member States to monitor 14 priority substances that tend to accumulate in sediment and/or biota, for the purpose of long-term trend assessment. Monitoring should take place at least once every three years, unless technical knowledge and expert judgment justify another interval.

Spatial coverage

All 14 Priority Substances were monitored in sediment and/or biota for trend assessment in four RBDs (Meuse, Rhine, Loire-Brittany and Seine-Normandy). Monitoring for trend assessment was not reported in the remaining 10 RBDs. France subsequently clarified that most of the remaining RBDs have sediment monitoring in place for at least the 14 substances required by WFD but this was not reported correctly. For some RBDs (e.g. the Réunion RBD), sediment monitoring is not possible due to local hydromorphological conditions. According to WISE, monitoring was performed in 60 sites in the Meuse RBD, 281 sites in the Rhine RBD, up to 76 sites in the Loire-Brittany RBD and up to 255 sites in the Seine-Normandy RBD. The true spatial extent is not known as France subsequently clarified that not all sediment monitoring has been reported.

Frequencies

RBD), use of average frequencies over 6 years (Meuse and Sambre RBDs), or lower monitoring frequencies for lake waters based on local expertise.

A range of monitoring frequencies were reported; the majority of sites met the recommended frequency of once every three years but some sites were reported to monitored less frequently.

Monitoring of Priority Substances that are discharged in each RBD

Annex V of the WFD states, in Section 1.3.1 (Design of surveillance monitoring), that "Surveillance monitoring shall be carried out for each monitoring site for a period of one year during the period covered by a river basin management plan for [inter alia]: priority list pollutants which are discharged into the river basin or sub-basin." Section 1.3.2 (Design of operational monitoring) of the Annex states that "In order to assess the magnitude of the pressure to which bodies of surface water are subject Member States shall monitor for those quality elements which are indicative of the pressures to which the body or bodies are subject. In order to assess the impact of these pressures, Member States shall monitor as relevant [inter alia]: all priority substances discharged, and other pollutants discharged in significant quantities."

Member States are therefore required to monitor all Priority Substances which are discharged.

In the Scheldt and Sambre RBDs, 38 Priority substances were listed in inventories. Of these 38, 34 were discharged and monitored. In the Meuse RBD, 41 Priority Substances were listed in an inventory. 25 of these were discharged, all of which were monitored. The situation was similar for the Rhine RBD: 38 priority substances were listed in an inventory, 31 were discharged, all of which were monitored.

In the Rhone RBD, 40 Priority substances were included in inventories, 37 of which are discharged and all were monitored. Three further substances were monitored but not discharged (Endosulfan, Total DDT (DDT, p,p' + DDT, o,p' + DDE, p,p' + DDD, p,p') and Brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154).

In the Corsica RBD, 40 priority substances were in inventories and 19 of these were discharged. 37 were monitored in this RBD, including those which were discharged.

In the Adour-Garonne RBD, 41 priority substances were in an inventory. 38 were discharged and were monitored. Three substances were monitored but not discharged (Hexachlorocyclohexane, DDT, p,p' and Brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154)).

In the Loire RBD, 41 priority substances were in inventories, 37 were discharged, all of which were monitored, along with the remaining four substances: DDT, p,p', Hexachlorobenze, Total cyclodiene pesticides (aldrin + dieldrin + endrin + isodrin) and Total DDT (DDT, p,p' + DDT, o,p' + DDE, p,p' + DDD, p,p').

In the Seine and Normandy RBDs, 41 priority substances were in inventories and 37 were discharged. Of these 37 discharged, all were monitored. Four further substances were monitored but not discharged.

In the Guadeloupe RBD, 41 Priority Substances were in inventories and 11 were discharged. All 41 Priority substances in inventories, and therefore all those discharged, were monitored.

In the Martinique RBD, 41 substances were also in inventories. 35 of these were discharged and all were monitored except for Total cyclodiene pesticides (aldrin + dieldrin + endrin + isodrin) and Total Benzo(g,h,i)-perylene (CAS_191-24-2) + Indeno(1,2,3-cd)-pyrene (CAS_193-39-5). Three further substances were monitored but not discharged, Benzo(a)pyrene, Pentachlorobenzene and Total DDT (DDT, p,p' + DDT, o,p' + DDE, p,p' + DDD, p,p').

In the Guyana RBD, 41 Priority substances were in inventories and 12 of these were discharged. 41 priority substances were monitored, including those that were discharged. The situation was similar in the Réunion RBD. All 41 priority substances were included in inventories and 16 of these were discharged; all were monitored.

No information was provided for the Mayotte RBD (see also section 2.19 of this report).

France has included all Priority Substances in inventories and monitored those discharged in all RBDs except the Mayotte RBD.

Performance of analytical methods used

In the Scheldt, Meuse, Sambre, Rhine, Guadeloupe and Martinique RBDs, for all 41 Priority Substances the analytical methods used meet the minimum performance criteria laid down in Article 4(1) of Directive 2009/90/EC for the strictest standard are applied. For the remaining RBDs, fewer than the 41 Priority Substances meet the Article 4(1) performance criteria (ranging from zero in Mayotte to 39 in Rhone-Mediterranean and Corsica RBDs) but in all

cases, the analytical methods complied with the requirements laid down in Article 4(2) of Directive 2009/90/EC for the strictest standard applied.

The method of dealing with measurements of Priority Substances lower than the limit of quantification is as specified in Article 5 of Directive 2009/90/EC.

4.1.2 Chemical Status of surface water bodies

Member States are required to report the year on which the assessment of chemical status is based. This may be the year that the surface water body was monitored. In case of grouping this may be the year in which monitoring took place in the surface water bodies within a group that are used to extrapolate results to non-monitored surface water bodies within the same group. Assessments for the Meuse, Sambre, Rhine, Adour-Garonne and Réunion RBDs were all carried out between 2011 and 2013. Assessments for Guadeloupe, Martinique and Mayotte RBDs were all carried out between 2012 and 2013. The assessment of Scheldt was carried out between 2009 and 2011, Rhone-Mediterranean was between 2004 and 2013, Corsica between 2008 and 2013, Loire-Brittany between 2008 and 2014, Seine-Normandy between 2010 and 2014 and finally the assessment for Guyana was carried out between 2006 and 2013. Some of these assessment periods were outside of the expected range (2010 – 2015).

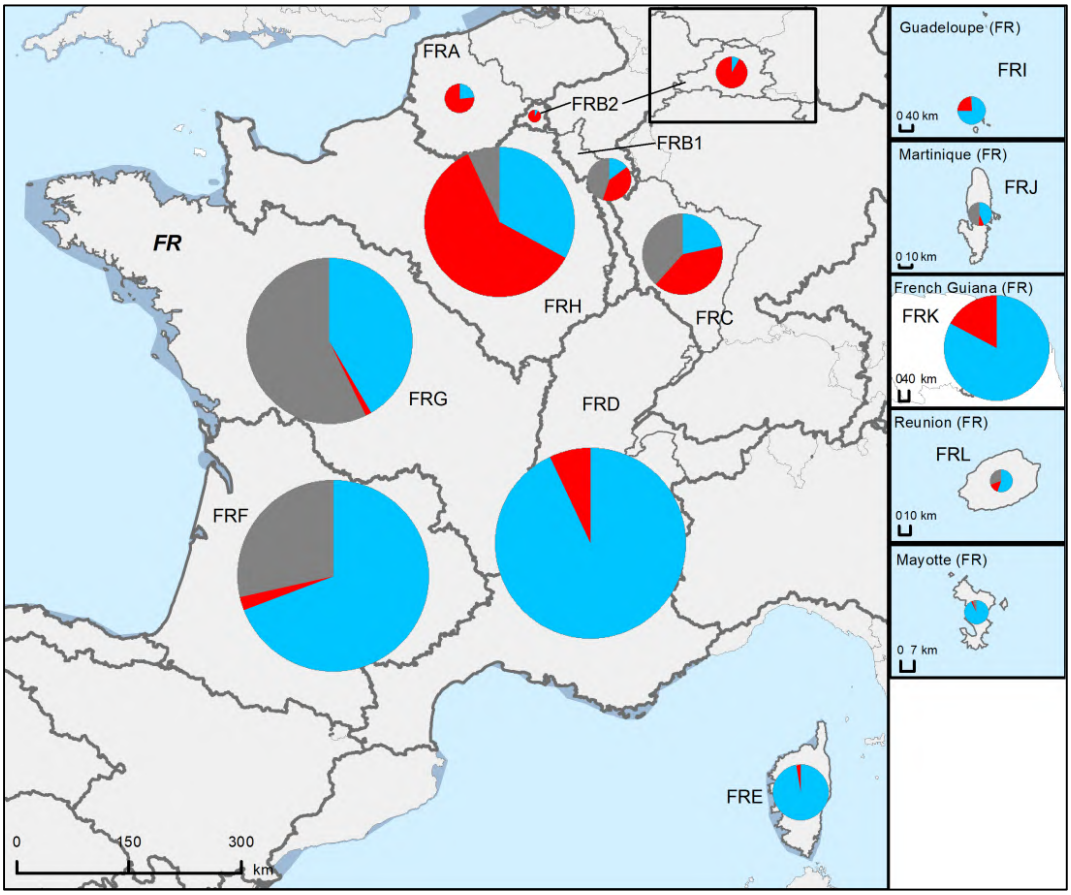
The chemical status of surface water bodies in France for the second RBMP is illustrated in Map 4.1. This is based on the most recent assessment of status.

The chemical status of surface waters in France for the first and second RBMPs is given in Table 4.1.

Overall, 63 % of surface water bodies are reported as being in good chemical status.

Map 4.1 ***Chemical status of surface water bodies in France based on the most recently assessed status of the surface water bodies***

Note: Standard colours based on WFD Annex V, Article 1(4)(3)



Source: WISE, Eurostat (country borders)

Good
Failing to achieve to good
Unknown
River Basin Districts
Countries outside the EU

Table 4.1 ***Chemical status of surface water bodies in France for the second and first RBMP. Note: the number in parenthesis next to the water category is the number of water bodies. Chemical status assessment is based on the standards laid down in EQS Directive (version in force on 13 January 2009). Some Member States did not implement the Directive in the first RBMPs as the transposition deadline was in July 2010, after the adoption of the first RBMPs***

Category	Good		Failing to achieve good		Unknown	
	Number	%	Number	%	Number	%
Second RBMP						
Lakes (435)	367	84 %	22	5 %	46	11 %
Rivers (10706)	6636	62 %	1738	16 %	2332	22 %
Coastal (179)	130	73 %	16	9 %	33	18 %
Transitional (94)	48	51 %	38	40 %	8	9 %
Total (11414)	7181	63 %	1841	16 %	2419	21 %
First RBMP						
Lakes (439)	125	28 %	18	4 %	71	16 %
Rivers (10824)	4733	44 %	2548	24 %	3543	33 %
Coastal (164)	70	43 %	23	14 %	71	43 %
Transitional (96)	37	39 %	38	40 %	21	22 %
Total (11523)	4965	43 %	2627	23 %	3931	34 %

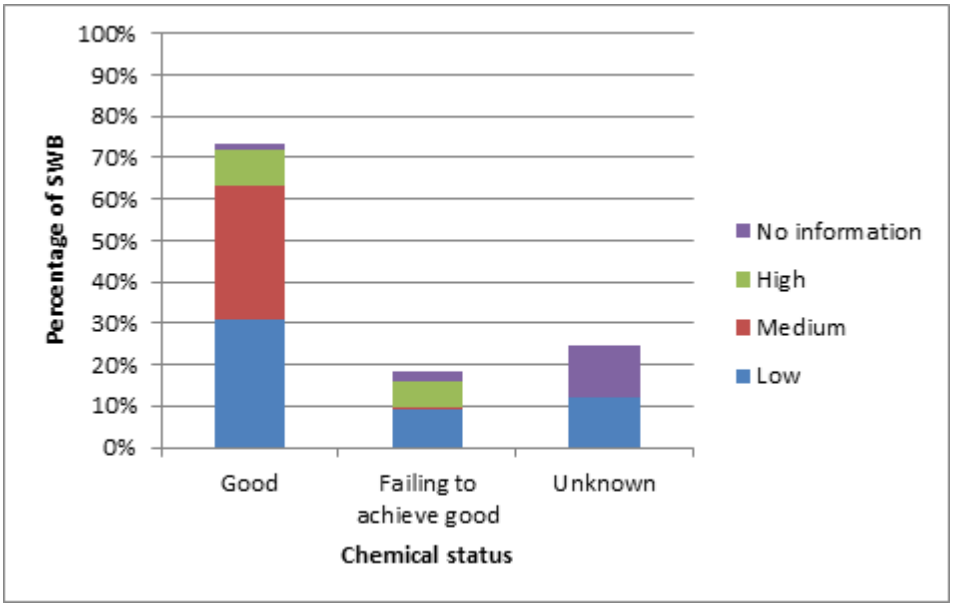
Overall, between the first and second RBMPs there was an increase in proportion of surface water bodies with good chemical status from 43 % to 63 % (Figure 4.4). The proportion of surface water bodies failing to achieve good chemical status decreased from 23 % in the first RBMPs to 16 % in the second. The proportion of surface water bodies with unknown chemical status also decreased, from 34 % to 21 %.

There are different approaches to the assessment of chemical status in unmonitored surface water bodies among the RBDs in France. Scheldt and Sambre reported that this issue was not relevant as all surface water bodies have been sufficiently monitored for chemical status. The Meuse, Rhine, Loire-Brittany, Martinique and Réunion RBDs reported that unmonitored water bodies were classified as unknown status (38 to 57 % of water bodies not monitored). The remaining RBDs reported that chemical status had been derived or extrapolated from monitoring available in comparable water bodies.

Figure 4.3 shows the confidence in the classification of chemical status for the second RBMPs. Overall, 52 % of surface water bodies were classified for chemical status with low confidence, 33 % with medium confidence and 15 % with high confidence. Confidence in the classification of chemical status for the first RBMPs was not reported.

Confidence in the classification is linked to the extent to which it is based on monitoring and on the use of grouping and expert judgement. All of the surface water bodies in Guyana RBD have been classified through expert judgement. The Rhone-Mediterranean RBD was predominantly classified through monitoring, with some exceptions: 15 % of transitional water bodies, 9 % of coastal water bodies and 82 % of river water bodies were classified through expert judgement. The Corsica and Adour-Garonne RBDs surface water bodies were mostly classified through monitoring, but with 87 % of river water bodies and 70 % of river water bodies being classified through expert judgement in Corsica and Adour-Garonne respectively. River water bodies in the Guadeloupe RBD were classified through a mix of expert judgement (26 %), grouping (11 %) and monitoring (64 %). The remaining RBDs were classified through a combination of expert judgement and monitoring. The one-out-all-out principle has been applied in the classification of chemical status where monitoring data is available.

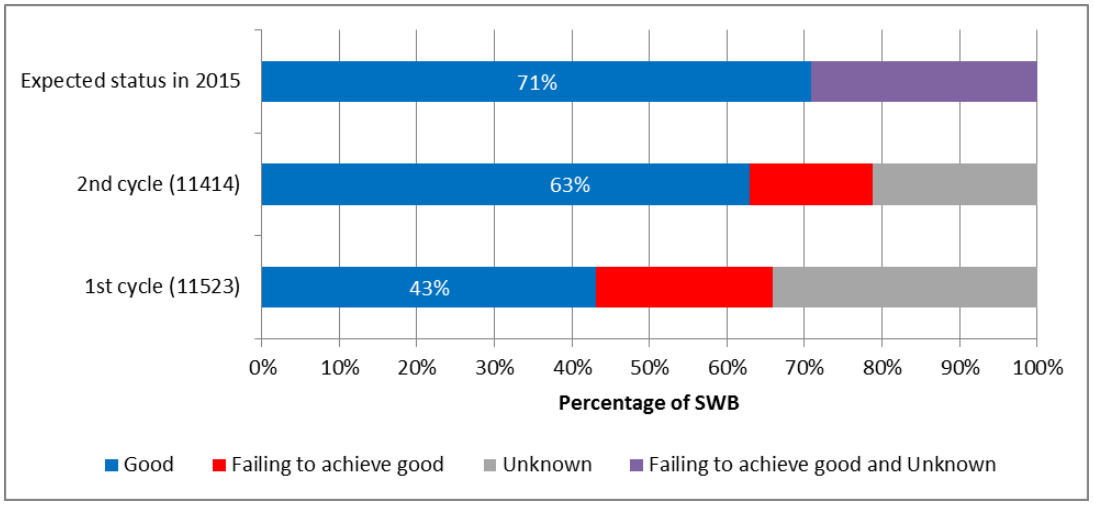
Figure 4.3 Confidence in the classification of chemical status of surface water bodies in France based on the most recently assessed status/potential



Source: WISE electronic reporting

Figure 4.4 compares the chemical status of surface water bodies in France for the first RBMPs with that for the second RBMPs (based on the most recent assessment of status) and that expected by 2015. It shows that 71 % of surface water bodies were expected to achieve good status in 2015 against 63 % reported in the second RBMPs.

Figure 4.4 ***Chemical status of surface water bodies in France for the second RBMPs, for the first RBMPs and expected in 2015. The number in the parenthesis is the number of surface water bodies for each cycle. Note that the period of the assessment of status for the second RBMPs was 2004 to 2014. The year of the assessment of status for first RBMPs is not known.***



Source: WISE electronic reporting

More information on the chemical status in each RBD and water category can be found on the website of the European Environment Agency[17].

Directive 2013/39/EU amended the EQS Directive. In particular, it set more stringent environmental quality standards for seven substances. Member States were required to indicate if the new standards caused the status of the surface water body to appear to deteriorate. The Environmental Quality Standards associated with benzo(a)pyrene, fluoranthene, lead, nickel, brominated diphenylethers were reported to cause the status of surface water bodies to appear to deteriorate, affecting river water bodies in two RBDs (Scheldt and Sambre) with benzo(a)pyrene and fluoranthene causing the greatest number of water bodies to appear to deteriorate (56-64 % and 71-91 % of river water bodies respectively in the two RBDs) but only a small proportion of surface water bodies in France as a whole with regard to fluoranthene. No information was reported for the Corsica, Réunion and Mayotte RBDs.[18]

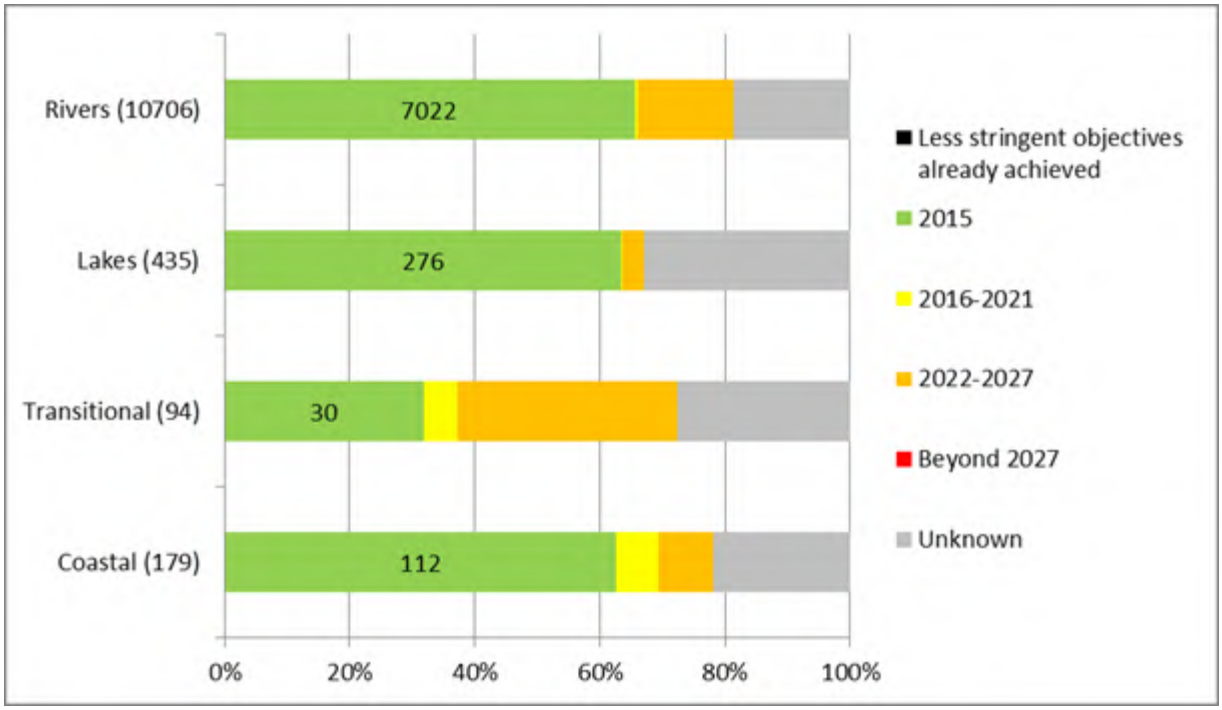
[17] https://www.eea.europa.eu/publications/state-of-water

[18] A RBMP for the Mayotte RBD was prepared for the first time in 2015 and so reporting of these changes was not expected.

Good chemical status should be reached by 2021 in relation to the revised environmental quality standards, unless Member States apply exemptions under WFD Article 4(4) or less stringent objectives under WFD Article 4(5).

The expected date for the achievement of good chemical status is shown in Figure 4.5. The expected date for the achievement of good status remains unknown for a significant proportion of water bodies in each water category.

Figure 4.5 ***Expected date of achievement of good chemical status of surface water bodies in France. The number in the parenthesis is the number of water bodies in each category***



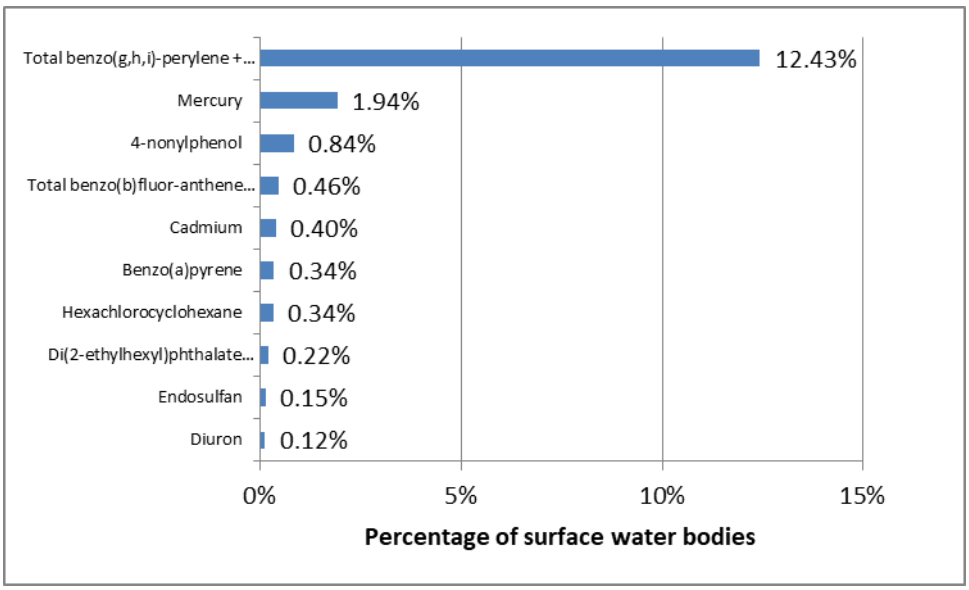
Source: WISE electronic reporting

Priority Substances causing the failure of good chemical status

Member States were expected to report exceedances for individual substances on the basis of the revised, more stringent standards from Directive 2013/39/EU. However it seems that France reported the exceedances below based on the 2008 standards.

The substance causing the greatest proportion of surface water bodies to fail good chemical status was total benzo(g,h,i)-perylene + indenol(1,2,3-cd)-pyrene. The “top-ten” in terms of the proportion of water bodies failing because of the substance are shown in Figure 4.6.

Figure 4.6 The top-ten Priority Substances causing failure to achieve good chemical status in surface water bodies in France



Source: WISE electronic reporting

Overall for surface water bodies in France, the largest proportion of exceedances were for the annual average Environmental Quality Standard for total benzo(g,h,i)-perylene + indeno(1,2,3-cd)-pyrene. Exceedances of maximum allowable concentration Environmental Quality Standards were largest for mercury.

Ubiquitous persistent, bioaccumulative and toxic Priority Substances

According to Article 8(a) of the EQS Directive, eight priority substances and groups of priority substances are behaving like ubiquitous, persistent, bioaccumulative and toxic substances. These substances are generally expected to cause widespread exceedances, and their emissions can be challenging to tackle (e.g. due to long-range atmospheric transport and deposition). In order to show the progress made in tackling other priority substances, Member States have the possibility to present the information related to chemical status separately for these substances.

Overall in France 16 % of surface water bodies are failing to achieve good chemical status. If the ubiquitous, persistent, bioaccumulative and toxic substances are omitted, the proportion of surface water bodies failing to achieve good chemical status decreases to 5 %.

This is illustrated in the 2018 State of Water report of the European Environment Agency[19].

[19] https://www.eea.europa.eu/publications/state-of-water (p40-41 of the report). Also available in a more interactive format at :

Priority Substances used in the assessment of chemical status compared to those monitored

All Priority Substances monitored are reported to be used in the classification of chemical status in all RBDs with two exceptions, where substances are used in the assessment of chemical status, but not monitored: Trichlorobenzenes (all isomers) in the Martinique RBD and Hexachlorobutadiene in Mayotte RBD. In these, as well as some other RBDs, expert judgement and grouping or extrapolation have been used to classify some surface water bodies on the basis on monitoring undertaken elsewhere in the RBD.

Application of alternative environmental quality standards for water, biota and sediment

According to the EQS Directive, Member States may opt to apply Environmental Quality Standards for another matrix than the one specified in the Directive for a given substance. If they do so, they have to ensure the Environmental Quality Standard they set in the other matrix (or matrices) offers at least the same level of protection as the standard established in the Directive. France reported that all of the Environmental Quality Standards had been applied and alternative and/or additional standards for particular Priority Substances had not been applied.

Use of mixing zones

Article 4 of the EQS Directive provides Member States with the option of designating mixing zones adjacent to points of discharge in surface waters. Concentrations of Priority Substances may exceed the relevant Environmental Quality Standard within such mixing zones if they do not affect the compliance of the rest of the surface water body with those standards. Member States that designate mixing zones are required to include within their RBMPs a description of the approaches and methodologies applied to define such zones, and a description of the measures taken to reduce the extent of the mixing zones in the future.

Mixing zones have not been designated in France.

Background Concentrations and Bioavailability

The EQS Directive stipulates that Member States have the possibility, when assessing the monitoring results against the Environmental Quality Standard, to take into account:

https://tableau.discomap.eea.europa.eu/t/Wateronline/views/WISE_SOW_SWB_Chemical_Status_Maps/SWB_Failing_Good_Chemical_Status_RBD?iframeSizedToWindow=true&:embed=y&:showAppBanner=false&:display_count=no&:showVizHome=no

(a) natural background concentrations for metals and their compounds, if they prevent compliance with the Environmental Quality Standard, and;

(b) hardness, pH or other water quality parameters that affect the bioavailability of metals.

Natural background concentrations for metals and their compounds are taken into consideration in five of the RBDs of France, but not in the other nine.

The bioavailability of metals has been taken into account in 3 of the 14 RBDs, but not in the other 11.

4.2 Main changes in implementation and compliance since the first cycle

In comparing the number of sites and water bodies monitored for operational and surveillance purposes (though not specific to chemical status) between the first and second RBMPs there appears to be a net decrease in monitoring sites and surface water bodies monitored for operational purposes (a decrease of 1210 sites and 801 water bodies), both due to a large reduction in river water monitoring. For surveillance monitoring, the number of sites has increased by 69 and the number of water bodies has increased by 39 since the first RBMPs.

Overall, between the two cycles there has been an increase in the proportion of surface water bodies with good chemical status from 43 % to 63 %. The proportion of surface water bodies that fail to achieve good chemical status decreased from 23 % in the first RBMPs to 16 % in the second. The proportion of surface water bodies with an unknown chemical status also decreased between the first and second RBMPs, from 34 % to 21 %. In some RBDs (such as the Scheldt RBD) polycyclic aromatic hydrocarbons are considered to be having more of an impact on chemical status than in the first RBMP but, apart from these exceptions, the chemical status of water bodies has improved. In other RBDs, such as the Rhone-Mediterranean RBD, it is stated that monitoring has improved and allowed a better insight into the assessment of chemical status.

In France, 24 Priority Substances were reported to be responsible for the improvement of water bodies from failing to achieve good chemical status to achieving good chemical status since the first RBMPs. For example, 7 % water bodies showed improvements in terms of total benzo(g,h,i)-perylene + indenol(1,2,3-cd)-pyrene and 2 % in terms of diuron and isoproturon. The remainder were accountable for improvements in smaller percentages of water bodies.

4.3 Progress with Commission recommendations

- Recommendation: *The biota standards for mercury, hexachlorobenzene and hexachlorobutadiene in the Environmental Quality Standards Directive, or standards providing an equivalent level of protection, should be applied where not already used. Trend monitoring in sediment or biota as specified for several Priority Substances in Directive 2008/105/EC Article 3(3) will also need to be reflected in the next French RBMPs.*

  Assessment: Mercury, hexachlorobenzene and hexachlorobutadiene are monitored in biota for status assessment in six RBDs. Monitoring was undertaken at what seems to be a small proportion of sites. The reported frequencies met the recommended minimum at the majority of sites.

  France has monitored all 14 Priority Substances in sediment and/or biota for trend assessment (except in the Réunion RBD, where trend monitoring is reported in water as sediment monitoring is not possible due to local hydromorphological conditions). The spatial extent could not be determined (as not properly reported to WISE). The reported frequency met the recommended minimum frequency at the majority of sites.
  This recommendation is partially fulfilled.

- Recommendation: *The assessment of chemical status should be clearly defined in the RBMP, including the methodology and which substances have been used in the different plans.*
  Assessment: Progress is evident as a large list of substances is monitored (including all those discharged) in all RBDs in water, but in fewer RBDs for the required substances in biota, and used in the assessment of chemical status. The one-out-all-out principle has been applied in the classification of chemical status where this is based on monitoring.
  This recommendation has been fulfilled.

Topic 5 Monitoring, assessment and classification of quantitative status of groundwater bodies

5.1 Assessment of implementation and compliance with WFD requirements in the second cycle

5.1.1 Monitoring of quantitative status in groundwater

The total number of groundwater bodies in France is 645 (Table 2.3). 163 groundwater bodies (25 % of the total) are not subject to monitoring for quantitative status (Table 5.1). Between 50 % and 100 % of the groundwater bodies in each RBD are subject to monitoring for quantitative status. There were no indications that groundwater bodies had been grouped.[20]

The number of groundwater bodies increased by 12 % from 574 in the first to 645 in the second RBMPs and the total groundwater body area increased slightly. 498 groundwater bodies remained unchanged since the first RBMPs.[21]

The number of monitored groundwater bodies increased from 445 (13 RBDs) in the first to 482 (14 RBDs) in the second RBMPs. The number of monitoring sites for quantitative status is listed in Table 14 and shows an increase from 1674 in the first to 1729 in the second RBMPs.

579 of 645 groundwater bodies are identified as Drinking Water Protected Areas, in all 14 RBDs.

[20] France subsequently clarified that not all groundwater bodies are directly monitored but are indirectly assessed by pressure and/or model approach.

[21] France clarified that the significant increase of the number of groundwater bodies is due to the reference system for groundwater bodies having evolved to become more relevant.

Table 5.1 Number of water bodies in France directly monitored and the purpose of monitoring

RBD	Total ground-water bodies directly monitored	Monitoring Purpose						
		CHE - Chemical status	NID - Nutrient sensitive area under the Nitrates Directive - WFD Annex IV.1.iv	OPE – Operational monitoring	QUA – Quantitative status	SOE - EIONET State of Environ-ment monitor-ing	SUR – Surveil-lance monitor-ing	TRE - Chemical trend assessment
FRA	16	15	13	16	16	15	16	15
FRB1	10	10	10	4	7		10	10
FRB2	2	2	2	2	2		2	2
FRC	15	13	13	9	14		15	13
FRD	205	191	185	71	160	185	202	185
FRE	12	10			9	10	12	10
FRF	98	92	74	45	84	92	98	92
FRG	135	132	130	86	113		135	
FRH	53	53	52	49	46	52	52	52
FRI	5	5		3	3		5	
FRJ	6	6		6	6		6	
FRK	2	2			2		2	2
FRL	15	13		10	14		14	
FRM	6	5			6		6	

Source: WISE electronic reporting

Table 5.2 Proportion of groundwater bodies in France monitored for quantitative status

RBD	No of groundwater bodies with quantitative monitoring	Total No. groundwater bodies	% of total groundwater bodies monitored for quantitative status
FRA	16	16	100.00 %
FRB1	7	11	63.64 %
FRB2	2	2	100.00 %
FRC	14	15	93.33 %
FRD	160	238	67.23 %
FRE	9	15	60.00 %
FRF	84	105	80.00 %
FRG	113	143	79.02 %
FRH	46	53	86.79 %
FRI	3	6	50.00 %
FRJ	6	6	100.00 %
FRK	2	2	100.00 %
FRL	14	27	51.85 %
FRM	6	6	100.00 %

Source: WISE electronic reporting

Table 5.3 Number of groundwater monitoring sites in France and their purpose

RBD	Total ground-water monito-ring sites	Monitoring Purpose						
		CHE - Chemical status	NID - Nutrient sensitive area under the Nitrates Directive - WFD Annex IV.1.iv	OPE - Operational monitoring	QUA - Quantitative status	SOE - EIONET State of Environment monitoring	SUR - Surveillance monitoring	TRE - Chemical trend assessment
FRI	33	12		7	22		33	
FRA	251	183	85	207	68	50	118	183
FRB1	84	68	68	21	16		70	54
FRB2	12	6	4	9	6		11	6
FRC	263	194	186	80	63		209	148
FRD	912	579	506	350	365	337	672	337
FRE	45	18			28	18	45	18
FRF	697	365	227	185	409	312	646	312
FRG	745	358	330	204	402		745	
FRH	776	495	377	354	281	709	724	443
FRJ	19	19		19	19		19	
FRK	18	13			11		18	13
FRL	51	31		16	22		37	
FRM	22	7			17		22	

Source: WISE electronic reporting

5.1.2 Assessment and classification of quantitative status for groundwater

Map 5.1 displays the most recently assessed quantitative status of groundwater bodies. It shows that 579 of 645 groundwater bodies (90 %) were in good quantitative status and 66 (4 %) were failing good status (Figure 5.1). This compares with the 13 % of groundwater bodies predicted to be at risk of failing good status from the risk assessment (Figure 6.6). In terms of area this means that about 11 % are failing good quantitative status. Figure 5.2 shows the confidence in status classification. All groundwater bodies had a clear status in the second RBMPs. This is an improvement from the first RBMPs where 13 groundwater bodies had an unknown status.

About 13 % of the groundwater bodies are at risk of failing good quantitative status. The total number of groundwater bodies failing good quantitative status increased significantly, from 48 in the first to 66 in the second RBMPs, but in terms of groundwater body area failing good quantitative status, the situation improved significantly from 16 % groundwater body area in the first to 11.2 % in the second RBMPs. A more detailed assessment of the Rhone-Mediterranean RBMP showed that the change of status is due to changes in the classification methodology, which is now more precise. The samples are better quantified and associated with the relevant water bodies, thanks to the evaluation studies about the available groundwater resource. In this RBD, 116 of 131 groundwater bodies have unchanged good status, three bodies that were in poor status do now reach good status,eight groundwater bodies that were in poor status remain in poor status, and five bodies that were in good status are now in poor status. Only the methodological explanation is given towards this apparent deterioration.

In all 14 RBDs water balance was assessed by a comparison of annual average groundwater abstraction against the ‘available groundwater resource’ for every groundwater body.

The reasons for the failure of good quantitative status of groundwater bodies are shown in Figure 5.3. The expected date of achievement of good quantitative status in France is shown in Figure 5.4.

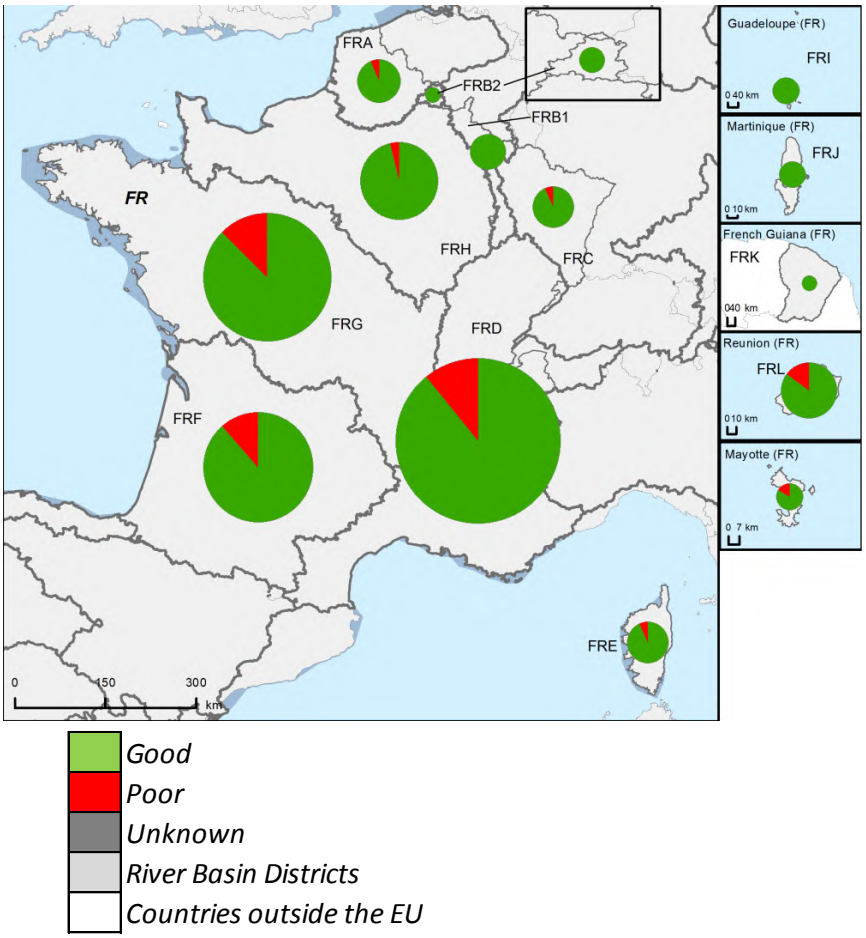
The criterion of ‘available groundwater resource’ has not been applied in accordance with Article 2(27) of the WFD.

In the Loire-Brittany and Martinique RBDs, all environmental objectives have been considered in the status assessment. In the Guyana RBD, no environmental objectives have been

considered. In the remaining 11 RBDs environmental objectives have been partially considered. In 10 of 14 RBDs saline intrusions have been considered.

In total, 82 groundwater bodies are at risk of failing good quantitative status. 33 groundwater bodies are at risk of failing good quantitative status due to harm to actual or potential legitimate uses or functions of groundwater, 49 groundwater bodies due to damage to groundwater dependent terrestrial ecosystems and/or to diminution of the status of groundwater associated aquatic ecosystems.

Map 5.1 Map of the most recently assessed quantitative status of groundwater bodies



Note: Standard colours based on WFD Annex V, Article 2(2)(4).
Source: WISE, Eurostat (country borders)

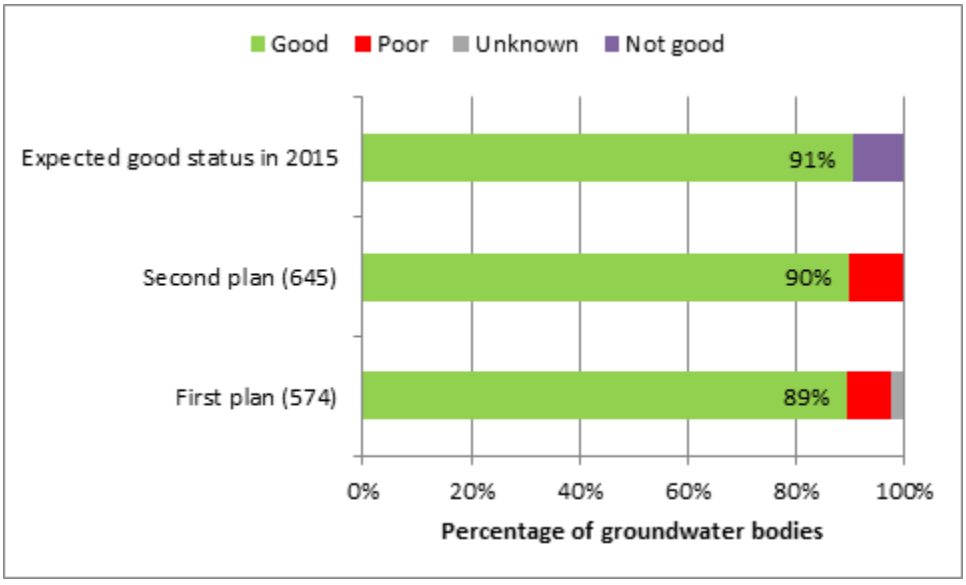
5.1.3 Consideration of groundwater associated surface waters and/or groundwater dependent ecosystems

In 12 of 14 RBDs groundwater associated surface waters have been reported. For 42 groundwater bodies (in four RBDs) risk is related to the associated surface waters. Surface

water objectives were considered in three RBDs but not in three RBDs where such ecosystems cause risk. Diminution of the status of associated surface waters was considered in nine RBDs

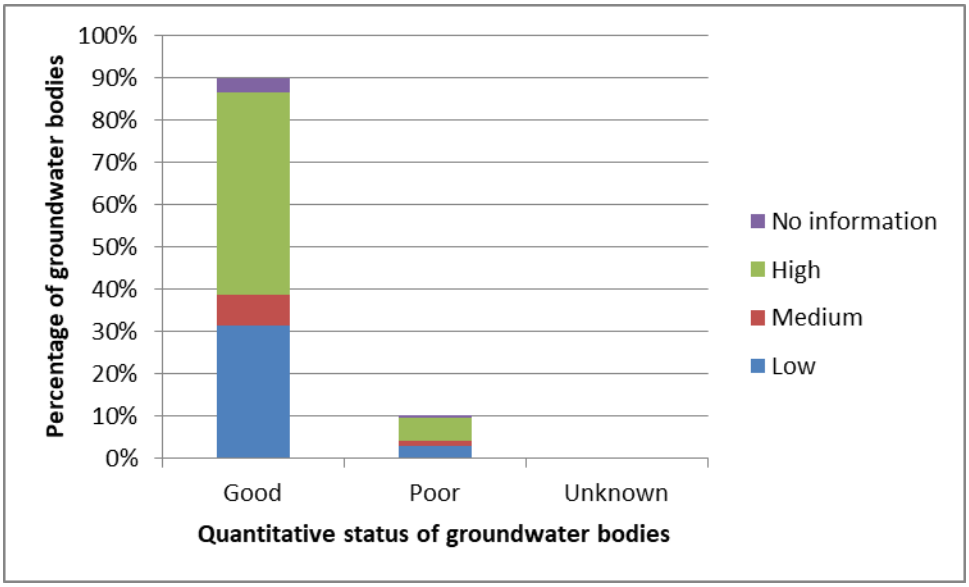
In 9 of 14 RBDs groundwater bodies are linked with groundwater dependent terrestrial ecosystems. Groundwater dependent terrestrial ecosystems have been considered in status assessment in 7 of 14 RBDs. In four RBDs damage to groundwater dependent terrestrial ecosystems is causing risk of failure. The needs of terrestrial ecosystems have not been considered in status assessment in any RBD.

Figure 5.1 ***Quantitative status of groundwater bodies in France for the second RBMsP, for the first RBMPs and expected in 2015. The number in parenthesis is the number of groundwater bodies for each cycle. Note the period of the assessment of status for the second RBMPs was 1944 - 2015. The year of the assessment of status for first RBMPs is not known***



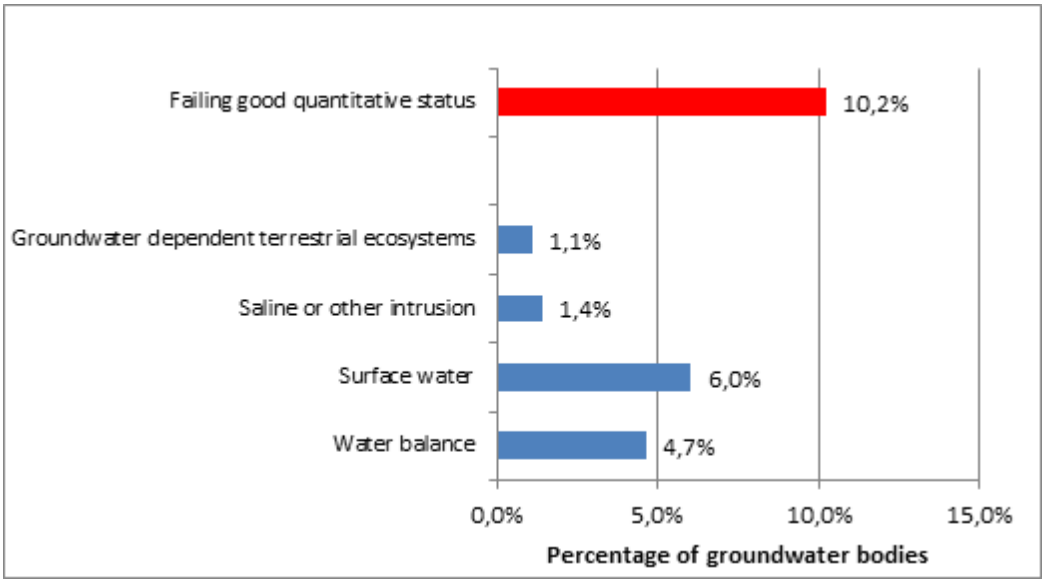
Source: WISE electronic reporting

Figure 5.2 Confidence in the classification of quantitative status of groundwater bodies in France based on the most recent assessment of status



Source: WISE electronic reporting

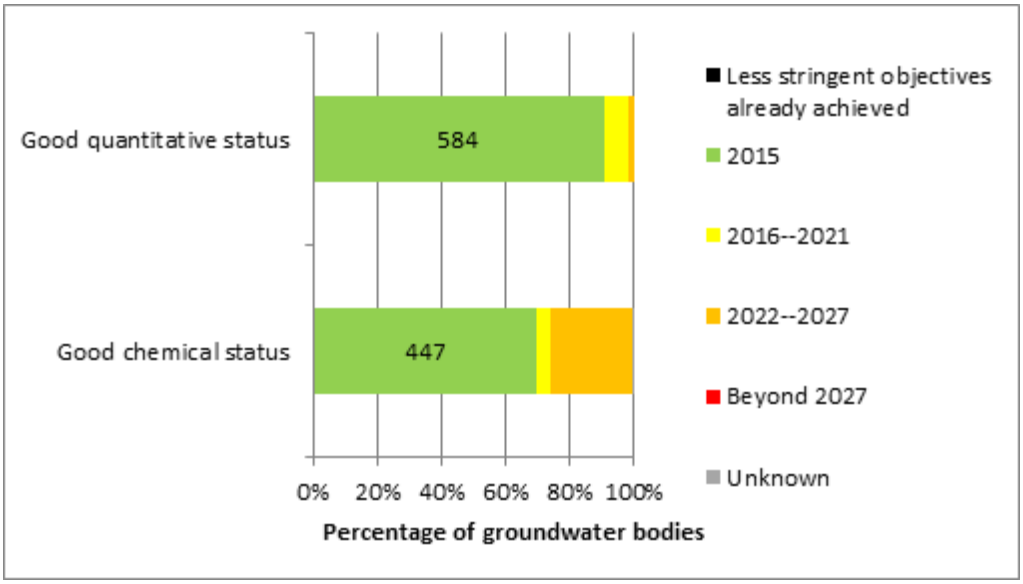
Figure 5.3 Reasons for the failure of good quantitative status of groundwater in France based on the most recent assessment of status



Source: WISE electronic reporting

Notes: 'Water balance' = long-term annual average rate of abstraction exceeds the available groundwater resource which may result in a decrease of groundwater levels.
'Surface water' = Failure to achieve Environmental Objectives (Article 4 WFD) for associated surface water bodies resulting from anthropogenic water level alteration or change in flow conditions; significant diminution of the status of surface waters resulting from anthropogenic water level alteration or change in flow conditions.
'Groundwater dependent terrestrial ecosystems' = Significant damage to groundwater dependent terrestrial ecosystems resulting from an anthropogenic water level alteration.
'Saline or other intrusion' = Regional saline or other intrusions resulting from anthropogenically induced sustained changes in flow direction.

Figure 5.4 ***Expected date of achievement of good quantitative and good chemical status of groundwater bodies in France. 645 groundwater bodies were delineated for second RBMPs***



Source: WISE electronic reporting

5.2 Main changes in implementation and compliance since the first cycle

There was a significant increase of the number of groundwater bodies, from 547 to 645, but the total groundwater body area increased only very slightly. 498 of 645 groundwater bodies remained unchanged since the first RBMPs. There was also a significant increase of the number of monitored groundwater bodies and in the number of monitoring sites.

All groundwater bodies have a clear status.

Although the number of groundwater bodies failing good status increased, the overall area of groundwater bodies failing good status decreased by one third, from 16 % of the total groundwater body area in the first to 11.2 % in the second RBMPs.

In the Rhone-Mediterranean RBMP, for example, it is stated that the changes in status are due to a change of the assessment methodology, causing the results to be more precise. The samples are better quantified and associated with the relevant water bodies, thanks to the evaluation studies of the global available groundwater resources that were carried out.

5.3 Progress with Commission recommendations

- Recommendation: *Assessment of groundwater status should be better harmonised among RBDs to increase the knowledge base and the transparency. Trend assessment and reversals should be performed in the second RBMP cycle.*

  Assessment: Not enough information on progress could be found in the second RBMPs. In fact, for all RBDs it is reported that water balance was assessed by a comparison of annual average groundwater abstraction against the 'available groundwater resource' for every groundwater body. Further information on the harmonisation of methods could not be identified in the RBMPs. Therefore the recommendation is not fulfilled.[22]

[22] France subsequently clarified that national evaluation rules already existed for the first and second cycles, and it was chosen for the next cycle to improve and clarify them for a coherent and harmonious implementation by all basins (specific national guidelines will be published shortly).

Topic 6 Monitoring, assessment and classification of chemical status of groundwater bodies

6.1 Assessment of implementation and compliance with WFD requirements in the second cycle

6.1.1 Monitoring of chemical status in groundwater

The total number of groundwater bodies in France is 645 (Table 2.3). About 35 % of the groundwater bodies are at risk but not all are subject to operational monitoring: in the Meuse and Rhine RBDs the total number of groundwater bodies at risk is higher than the number of groundwater bodies under operational monitoring. No indication of grouping of groundwater bodies for monitoring and assessment of chemical status was found in the RBMPs [23].

The number of groundwater bodies increased by 12 % from 574 in the first to 645 in the second RBMPs and the total groundwater body area increased slightly. 498 groundwater bodies remained unchanged since the first RBMPs.

The number of groundwater bodies with surveillance monitoring increased from 513 (89 %) in the first RBMPs to 575 (84 %) of 645 groundwater bodies in the second RBMPs (Table 5.1). The number of monitoring sites is listed in Table 5.3 and shows that the number of surveillance monitoring sites has significantly increased, from 1775 in the first to 3369 in the second RBMPs. The number of operational monitoring sites has decreased since the first RBMPs, from 3005 to 1452 in 301 groundwater bodies.

Not all substances at risk of causing deterioration in chemical status are subject to surveillance and operational monitoring. All WFD core parameters (nitrate, ammonium, electrical conductivity, oxygen and pH) are monitored in four RBDs. In the oher RBDs, dissolved oxygen is not monitored. In the Martinique RBDs, electrical conductivity is missing and in the Réunion RBD none of the WFD core parameters seem to be monitored.

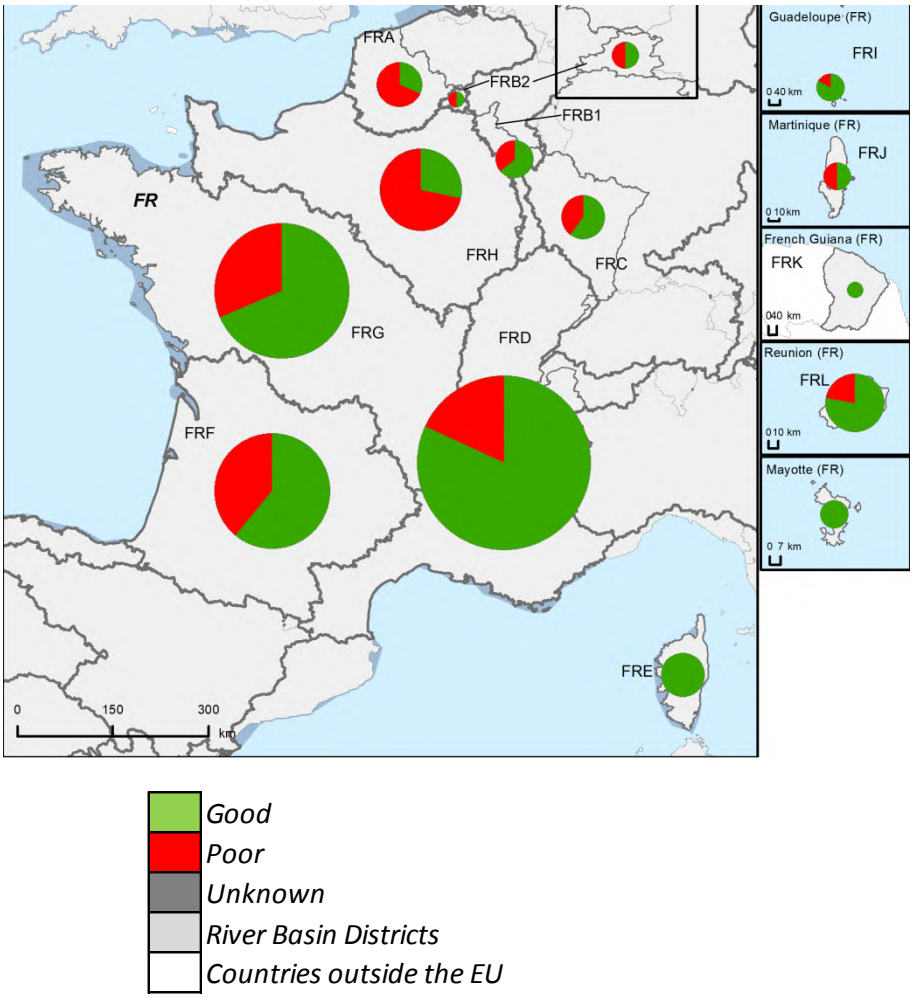
6.1.2 Assessment and classification of chemical status in groundwater

Map 6.1 and Figure 6.1 display the most recently assessed chemical status of groundwater bodies. They show that 446 of 645 groundwater bodies (69 %) were in good chemical status, and the remaining 199 groundwater bodies (31 %) were failing good status. In terms of area,

[23] France subsequently clarified that indeed, for the quantitative aspect, not all groundwater bodies are directly monitored by monitoring stations but are evaluated indirectly by pressure and/or model approach.

this means that about 25 % were failing good chemical status. Figure 6.2 shows the confidence in status classifications. All groundwater bodies have a clear status in the second RBMPs. This is an improvement from the first RBMPs where one groundwater body had an unknown status.

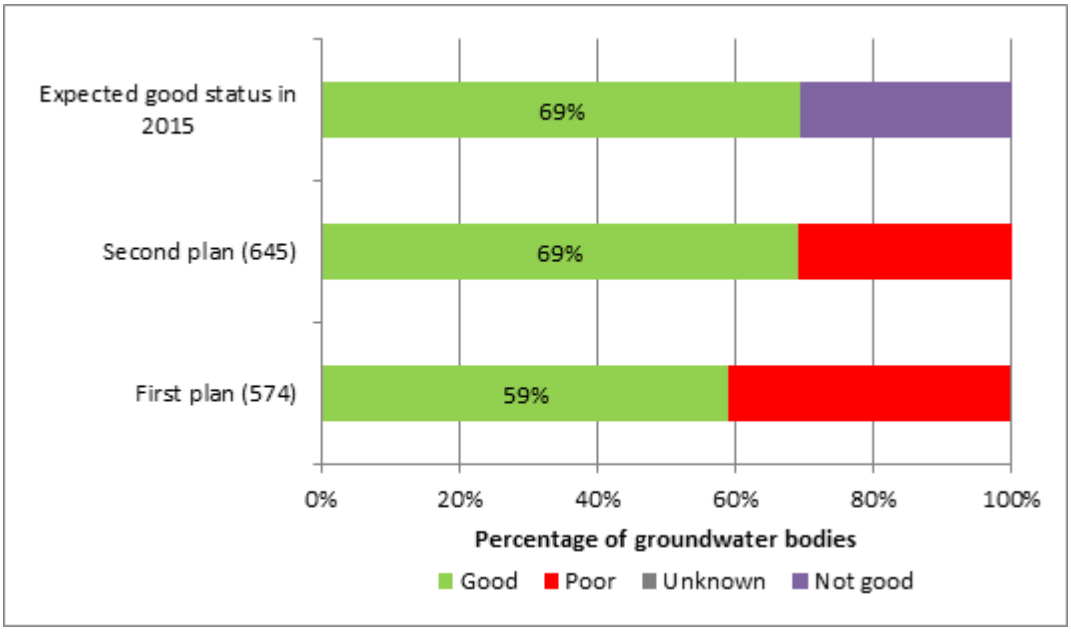
Map 6.1 Map of the most recently assessed chemical status of groundwater bodies in France



Note: Standard colours based on WFD Annex V, Article 2(4)(5)

Source: WISE, Eurostat (country borders)

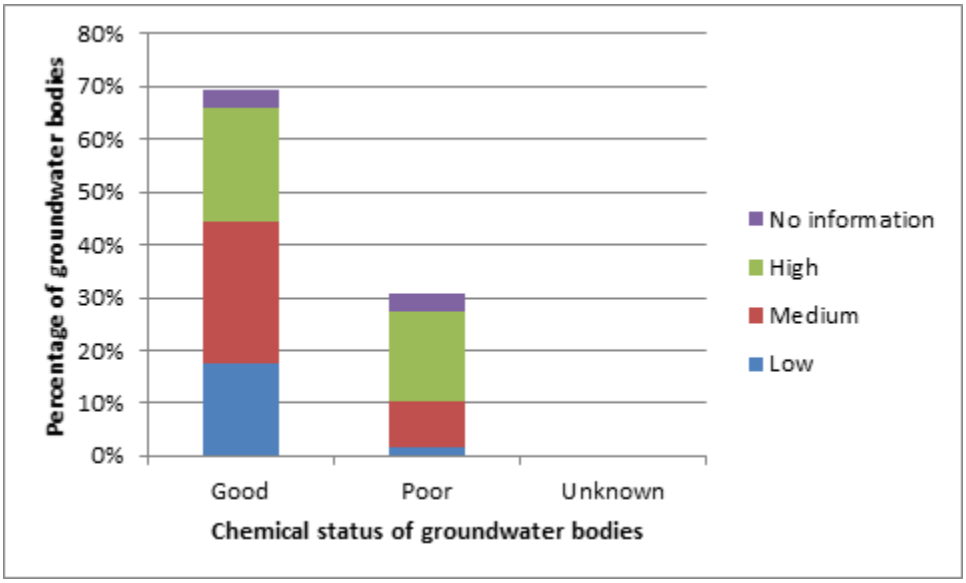
Figure 6.1 ***Chemical status of groundwater bodies in France for the second RBMPs, for the first RBMPs and expected in 2015. The number in the parenthesis is the number of groundwater bodies for each cycle. Note the period of the assessment of status for the second RBMPs was 2007 to 2014. The year of the assessment of status for first RBMPs is not known***



Source: WISE electronic reporting

The total number of groundwater bodies failing good chemical status decreased since the first RBMPs from 235 (41 %) to 199 (31 %) (see Figure 6.1). This compares with the 35 % of groundwater bodies predicted to be at risk of failing good status from the risk assessment (Figure 6.6). In terms of groundwater body area, the percentage of groundwater bodies at poor chemical status decreased from 31 % in the first to 25 % in the second RBMPs. The expected date of achievement of good chemical status in France is shown in Figure 5.4.

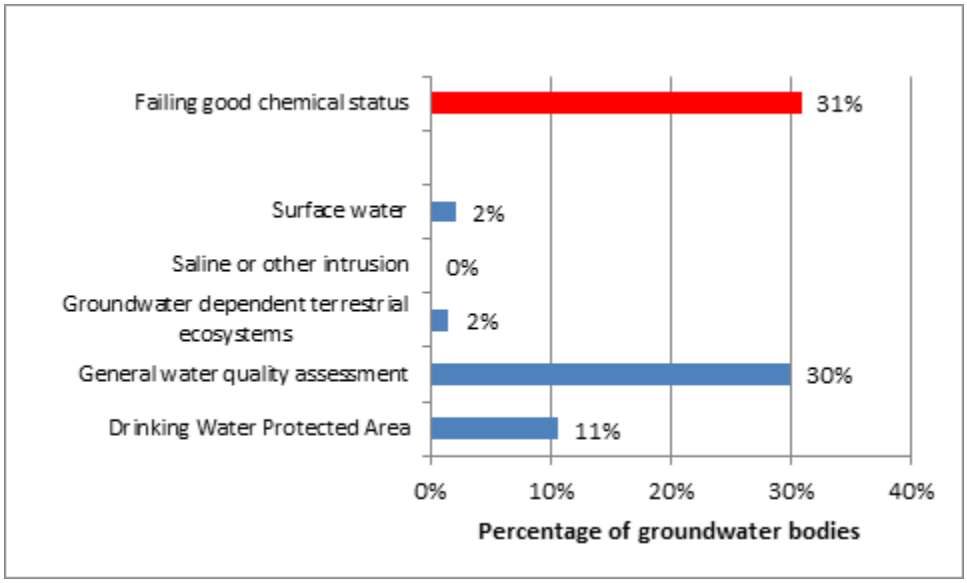
Figure 6.2 Confidence in the classification of chemical status of groundwater bodies in France based on the most recent assessment of status



Source: WISE electronic reporting

The reasons for the failure of good chemical status of groundwater bodies are shown in Figure 6.3. For 193 groundwater bodies the general assessment of the chemical status for the groundwater body as a whole was failed. This assessment considers the significant environmental risk from pollutants across a groundwater body and a significant impairment of the ability to support human uses. 69 groundwater bodies are failing the drinking water test, which means that the requirements of Drinking Water Protected Areas have not been met. 14 groundwater bodies are failing the groundwater associated surface water test, which means that there is diminution of the status of groundwater associated surface water. 10 groundwater bodies are failing the groundwater dependent terrestrial ecosystem test, which means that there is damage to groundwater dependent terrestrial ecosystems. Figure 6.4 shows the most common pollutants causing failure of status (pesticides and nitrate) and Figure 6.5 the pollutants causing a sustained upward trend (tetra- and trichloroethylene and, to a lesser extent, pesticides and nitrate).

Figure 6.3 Reasons for failing good chemical status in France for the most recent assessment of status



Source: WISE electronic reporting

Notes:

'Surface water' = Failure to achieve Environmental Objectives (Article 4 WFD) in associated surface water bodies or significant diminution of the ecological or chemical status of such surface water bodies.

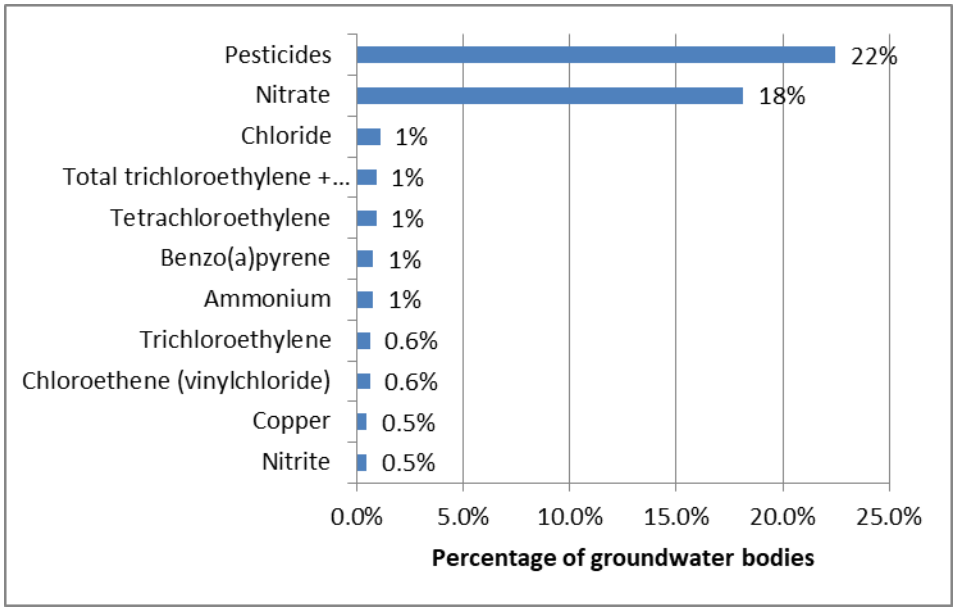
'Groundwater dependent terrestrial ecosystems' = Significant damage to terrestrial ecosystems which depend directly on the groundwater body.

'Saline or other intrusion' = Regional saline or other intrusions resulting from anthropogenically induced sustained changes in flow direction.

'Drinking Water Protected Area' = Deterioration in quality of waters for human consumption.

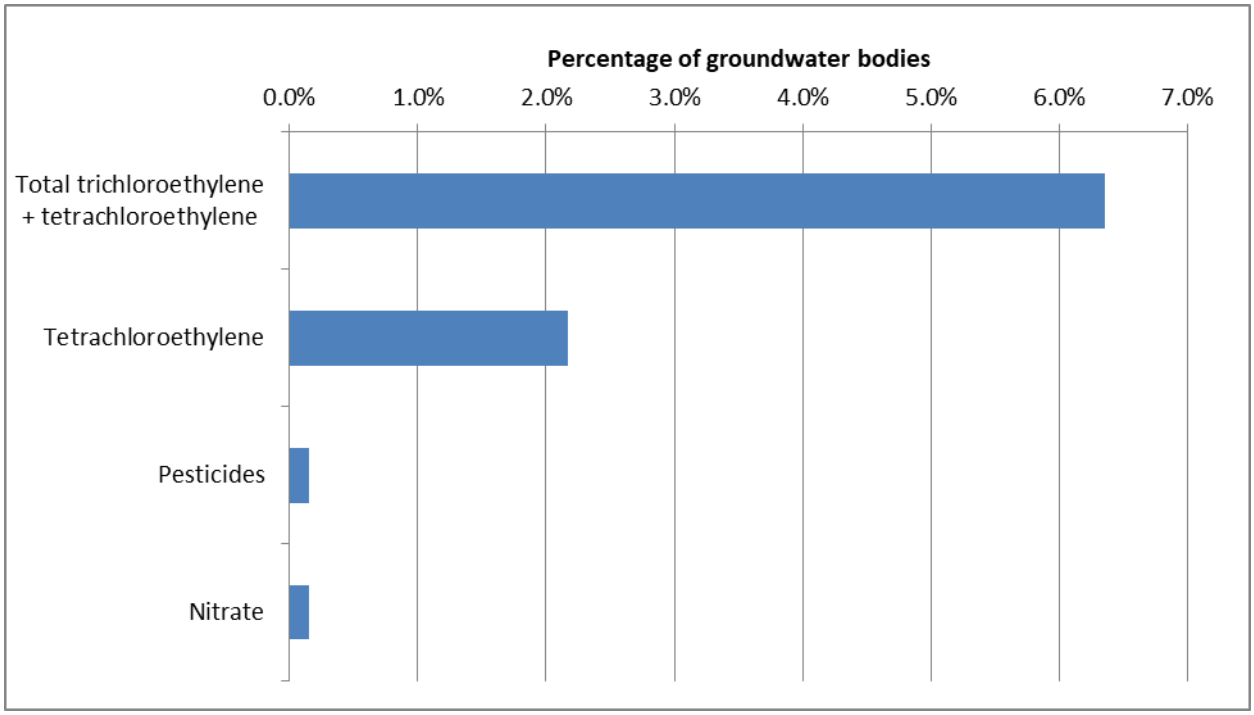
'General water quality assessment' = Significant impairment of human uses; significant environmental risk from pollutants across the groundwater body.

Figure 6.4 Most common groundwater pollutants causing failure of good chemical status in France.



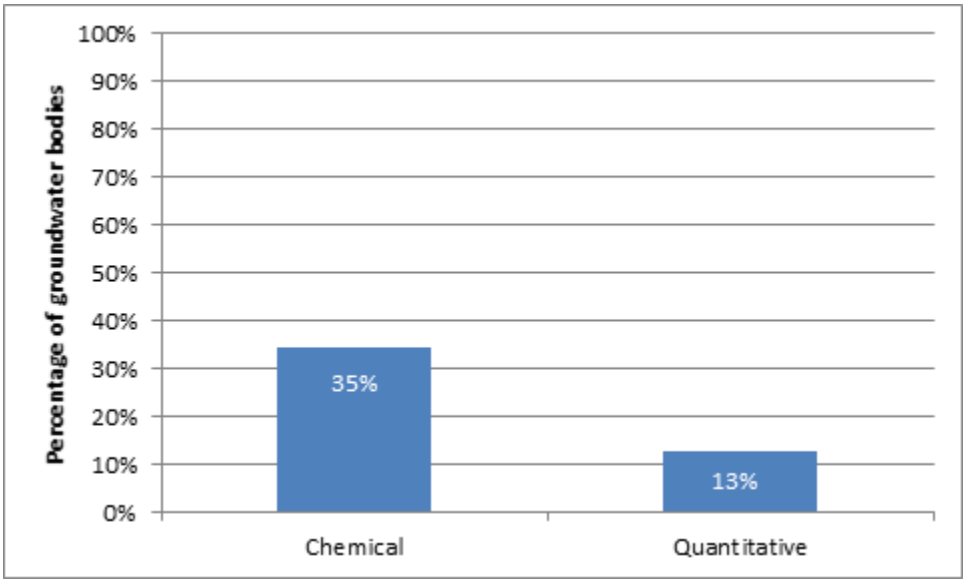
Source: WISE electronic reporting

Figure 6.5 Pollutants with upward trends in groundwater bodies in France



Source: WISE electronic reporting

Figure 6.6 Percentage of groundwater bodies in France at risk of failing good chemical status and good quantitative status for the second RBMP



Source: WISE electronic report

The calculation of the extent of exceedance of a groundwater quality standard or a groundwater threshold value is in all RBDs based on the groundwater body area.

In all RBDs, groundwater threshold values have been established for all pollutants or indicators of pollution causing a risk of failure of good chemical status. There is no indication that the Groundwater Directive[24] Annex II substances have been considered.[25]

In four RBDs, natural background levels have been considered in the groundwater threshold value establishment, in six RBDs they have been considered in status assessment and in four RBDs natural background levels have not been considered in the establishment of groundwater threshold values (although in the Rhine RBD chloride and sulphate are causing risk).[26]

[24] Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006L0118-20140711

[25] France subsequently clarified that the Groundwater Directive Annex II substances were included in the 2008 decree and its 2012 application circular.

[26] France clarified that this is due to lack of knowledge. Specific studies have been launched and the consideration of the geochemical background is included in the forthcoming chemical status guidance.

A trend methodology is available and assessments have been performed in all RBDs. There is no trend reversal assessment although the time series are quite long.[27]

6.1.3 Consideration of groundwater associated surface waters and/ or groundwater dependent ecosystems

In 12 of the 14 RBDs, groundwater associated surface waters have been reported. In three RBDs, risk is related to these associated surface waters and 14 groundwater bodies are failing good chemical status. Surface water objectives were considered in status assessment in five RBDs but not in the Rhone-Mediterranean RBD where the links to such ecosystems cause risk.

In 9 of the 14 RBDs, groundwater bodies are linked with groundwater dependent terrestrial ecosystems and 10 groundwater bodies are failing good chemical status. In three RBDs risk is related to groundwater dependent terrestrial ecosystems. However, these have not been considered in status assessment in any of the RBDs.

Groundwater associated aquatic ecosystems and groundwater dependent terrestrial ecosystems have not been considered in the establishment of groundwater threshold values.

6.2 Main changes in implementation and compliance since the first cycle

There was a significant increase of the number of groundwater bodies, from 547 to 645, but the total groundwater body area increased only very slightly. 498 of the 645 groundwater bodies remained unchanged since the first RBMPs. According to the information in the RBMP, for the Réunion RBD the development of a new national reference system for groundwater and the recent improved knowledge of hydrology led to a new delimitation of groundwater bodies with an identification of 11 homogenous systems.

The monitoring situation deteriorated slightly, from 89 % coverage of all groundwater bodies by surveillance monitoring in the first RBMPs to 84 % in the second. Not all groundwater bodies at risk in the Meuse and Rhine RBDs are subject to operational monitoring.

[27] France clarified that work on trend reversal methodologies has been carried out at the national level in connection with research organisations. This work has been presented and taken up in the framework of the CIS Working Group Groundwater in 2017. Moreover, for the next cycle, it has been decided to improve and clarify the trend and trend reversal calculations for a coherent and harmonised implementation in all basins (specific national guidance will be published shortly).

The overall status situation improved significantly, as the number of groundwater bodies failing good status dropped from 235 to 199 (from 31 % to 25 % in terms of total groundwater body area failing good status).

6.3 Progress with Commission recommendations

- Recommendation: *Assessment of groundwater status should be better harmonised among RBDs to increase the knowledge base and the transparency. Trend assessment and reversals should be performed in the second cycle RBMP cycle.*

- Assessment: The recommendation has been fulfilled with respect to trend assessment, as a trend methodology exists and was applied in all RBDs. The initial assessment showed that trend reversal was not reported to be performed in any of the 18 RBDs. France however clarified that assessment of trend reversal has been carried out at the national level[30]. It was not possible in this assessment to conclude whether assessment methodologies have been better harmonised. [28]

[28] France subsequently clarified that the national evaluation rules already existed for the first and second cycles, and it was chosen for the next cycle to improve and clarify them for a coherent and harmonised implementation by all RBDs (specific national guidance will be published shortly).

Topic 7 Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential

7.1 Assessment of implementation and compliance with WFD requirements in the second cycle for designation

7.1.1 Designation of Heavily Modified and Artificial Water Bodies

Heavily modified water bodies and/or artificial water bodies are designated in 13 RBDs. No heavily modified water bodies or artificial water bodies are designated in Guadeloupe, which was also the case in the first RBMP. There are also no heavily modified water bodies or artificial water bodies reported in Mayotte. The proportion of water bodies in each water category designated as heavily modified or artificial in each of the two planning cycles is summarised in Figure 7.1. The WFD requires a review of designation every six years. As noted further below in this chapter, compared to the first RBMPs, there are a few changes in the extent of designations in some of the RBDs.

In nine RBDs, there are reservoirs which were originally rivers and have been designated as lake heavily modified water bodies. The highest number of such reservoirs is in the Rhine, Rhone-Mediterranean, Adour-Garonne, Loire-Brittany and Seine-Normandy RBDs. According to Common Implementation Strategy guidance on this issue, though, it is recommended to designate these as river heavily modified water bodies. In two RBDs, there are reservoirs which were originally lakes and are designated as lake heavily modified water bodies (87 water bodies in the Loire-Brittany and one water body in Seine-Normandy RBDs).

The main water uses for which river water bodies are designated as heavily modified water bodies are flood protection, urban development (for other uses or drinking water supply) and navigation. Hydropower is also linked to the designation of river heavily modified water bodies, especially in the Rhone-Mediterranean and Adour-Garonne RBDs.

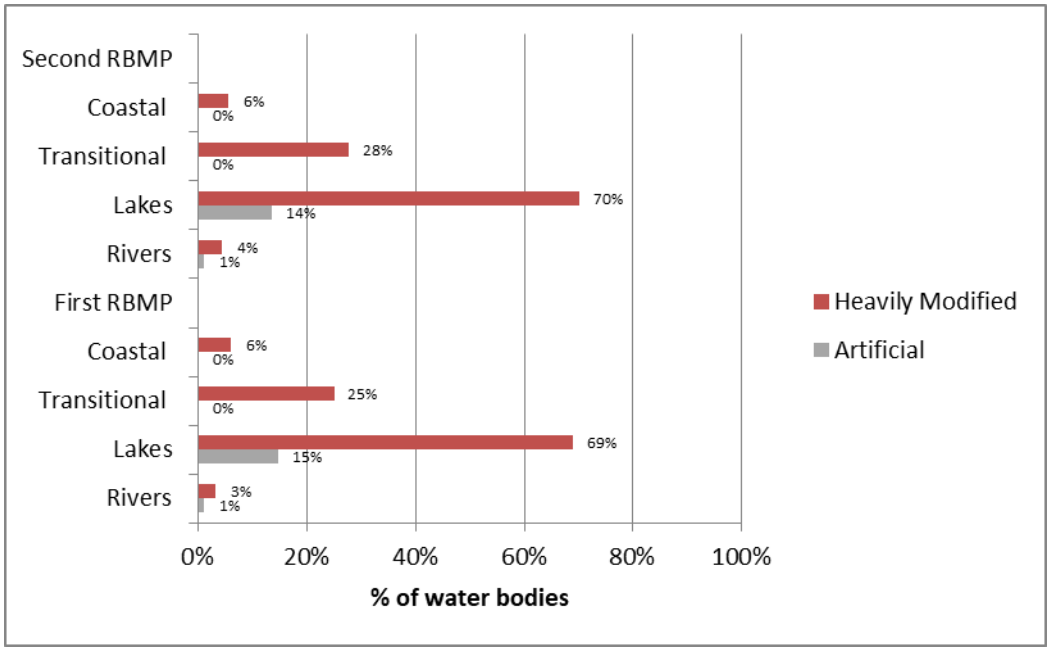
The lake heavily modified water bodies are designated mainly due to hydropower, agriculture, tourism and recreation. In the Loire-Brittany RBD, storage for fisheries/aquaculture/fish farms and drinking water supply are also reported as uses for the designation of numerous lake heavily modified water bodies. Coastal heavily modified water bodies are mainly designated due to transport-navigation and urban development. The main uses leading to the designation of transitional heavily modified water bodies are transport-navigation and flood protection.

The main physical alterations of river heavily modified water bodies are channelisation / straightening / bed stabilisation / bank reinforcement, other alterations which are not specified in the WISE reporting and weirs / dams / reservoirs. For lake heavily modified water bodies, the main physical alterations are weirs / dams / reservoirs and others which are not specified.

For coastal heavily modified water bodies, land reclamation / coastal modifications / ports are key alterations and for transitional heavily modified water bodies, channelisation / straightening / bed stabilisation / bank reinforcement, land reclamation / coastal modifications / ports and other alterations.

Information on how the significant adverse effects of restoration measures on the use and the wider environment (Article 4(3)(a)) and better environmental options (Article 4(3)(b)) have been defined is found in a general national guidance document. Although this is not very specific, it describes general types of restoration measures, as well as examples on how these aspects of the heavily modified water body designation can be applied.

Figure 7.1 Proportion of total water bodies in each category in France that has been designated as heavily modified or artificial



Source: WISE electronic reports

7.1.2 Definition of Good Ecological Potential for Heavily Modified and Artificial Water Bodies

Good ecological potential is reported as defined in 11 RBDs using a hybrid approach which combines elements of the Common Implementation Strategy Guidance approach (based on biological quality elements as illustrated in Common Implementation Strategy Guidance No 4) and the Prague approach (based on the identification of mitigation measures). Good ecological potential definition has taken place at water body level.

Good ecological potential is reported as not defined in three RBDs (Guyana, Réunion and Mayotte). For the Guyana and Réunion RBDs, good ecological potential definition should have taken place, as there are designated heavily modified water bodies or artificial water bodies in these RBDs.

Good ecological potential has also been defined in terms of biology in the 11 RBDs with defined good ecological potential. In these 11 RBDs, the biological quality elements for which biological values have been derived to define maximum ecological potential and good ecological potential are phytoplankton and phytobenthos.

The second RBMPs refer to a national decree of 2015[29], including criteria for defining the ecological potential of heavily modified and artificial water bodies. To evaluate the ecological potential of heavily modified water bodies in rivers, indicators and class limits established on diatoms have been used. For physico-chemical elements, reference is made to rules on general physicochemical elements and specific pollutants of the ecological status. Some physico-chemical parameters can be impacted by the morphological changes and in that case expert knowledge may lead to adapting new thresholds, or even not to use these parameters in the assessment of the ecological potential. For lakes, indicators and class limits established on phytoplankton are used. No information on coastal and transitional waters is provided.

According to the national decree, the values of the quality elements corresponding to the good ecological potential are those obtained when all the mitigation measures are implemented, which have an effect on the improvement of the quality and functionality of the environment and are technically and socio-economically feasible without compromising the use(s) of the

[29] Arrêté du 27 juillet 2015 modifiant l'arrêté du 25 janvier 2010 relatif aux méthodes et critères d'évaluation de l'état écologique, de l'état chimique et du potentiel écologique des eaux de surface pris en application des articles R. 212-10, R. 212-11 et R. 212-18 du code de l'environnement http://www.rapportage.eaufrance.fr/sites/default/files/DCE/2016/documents/FRN_Arrete_Evaluation-2015.pdf

heavily modified or artificial water body. In addition, measures may be necessary to ensure in particular ecological continuity, even when the good potential of a body of water is reached, in particular to respect the objective of non-deterioration of this body of water or to respect or reach the good condition / potential of other water bodies. However, the decree also makes reference to hydromorphological assessment leading to the assessment of good ecological potential, in case no biological data are available. One of the Annexes of the decree indicates that in order to compensate for the absence, at the present time, of all the biological indicators adapted to evaluate the good potential (references, sampling protocols), the ecological potential class can be defined according to certain principles of hydromorphological conditions.

For rivers, two methods are reported for fish and one for benthic invertebrates as sensitive to both hydrological and morphological changes. Two other methods for benthic invertebrates are sensitive to morphological but not to hydrological changes. One method for fish is sensitive to hydrological, but not to morphological changes.

For lakes, there are no biological quality elements assessment methods which are sensitive to hydromorphological changes. For coastal waters, three methods are reported as sensitive to morphological changes. These methods are used to assess macroalgae or angiosperms. For transitional waters, one method for assessing fish is sensitive to hydrological and morphological changes. Another method for angiosperms is only sensitive to morphological changes.

Mitigation measures for defining good ecological potential have been reported for the 11 RBDs with defined good ecological potential. However, there is no description provided of the ecological changes expected due to the mitigation measures.

A comparison between good ecological potential and good ecological status has not been done in any of the RBDs.

7.2 Main changes in implementation and compliance since the first cycle

Compared to the first RBMPs, there are a few changes in the extent of designations in some of the RBDs. There is especially some increase in the percentage of river water bodies designated as heavily modified water bodies, e.g. in the Rhone-Mediterranean, Adour-Garonne and Seine-Normandy RBDs. However, the overall share of river heavily modified water bodies in these RBDs remains below 7 %. In the Rhone-Mediterranean RBD, a reduction of lake artificial water bodies is noted, from 22 to 13. In general, it is indicated that new water bodies have been

designated because of changed water body delineation and/or modification of the water courses, but this is applicable to all water categories and not only to heavily modified water bodies.

No major changes in the methodology for heavily modified water body designation have been reported.

Although the second RBMPs do not explicitly describe changes to the method for defining good ecological potential since the first cycle, the decree to which reference is made was adopted in 2015, modifying the decree of 2010 on methodologies and criteria for the evaluation of good ecological status, chemical status and ecological potential. The amendment to the decree of 2010 aims to update the rules for the assessment of status, in particular with new indices, harmonised thresholds at European Union level, and an updated list of chemical pollutants. There is no specific reference concerning new criteria or thresholds that have been established for good ecological potential, as the methodology has not been changed.

7.3 Progress with Commission recommendations

There were no recommendations in in the first cycle relating to this Topic.

Topic 8 Environmental objectives and exemptions

8.1 Assessment of implementation and compliance with WFD requirements in the second cycle

8.1.1 Environmental objectives

The environmental objectives are defined in Article 4 of the WFD. The aim is long-term sustainable water management based on a high level of protection of the aquatic environment. Article 4(1) defines the WFD general objective to be achieved in all surface and groundwater bodies, i.e. good status by 2015. Within that general objective, specific environmental objectives are defined for heavily modified water bodies (good ecological potential and good chemical status by 2015[30]), for groundwaters (good chemical and quantitative status by 2015) and for Protected Areas (achievement of the objectives of the associated Directive by 2015 unless otherwise specified).

Environmental objectives for ecological and chemical status of surface water have been reported in all RBDs, and also for chemical and quantitative status of groundwater. Information is also provided on when the objectives will be achieved, although for some water bodies the date for achievement of good status is unknown.

Assessments of the current status of surface and groundwater bodies in France are provided elsewhere in this report: for ecological status/potential of surface waters (Chapter 3); chemical status of surface waters (Chapter 4); quantitative status of groundwater bodies (Chapter 5); chemical status of groundwater bodies (Chapter 6); status of surface and groundwater bodies associated with Protected Areas (Chapter 15).

For the second RBMPs, Member States were required to report the date when they expect each surface and groundwater body to meet its environmental objective. This information is summarised for France elsewhere in this report, in the same chapters mentioned above.

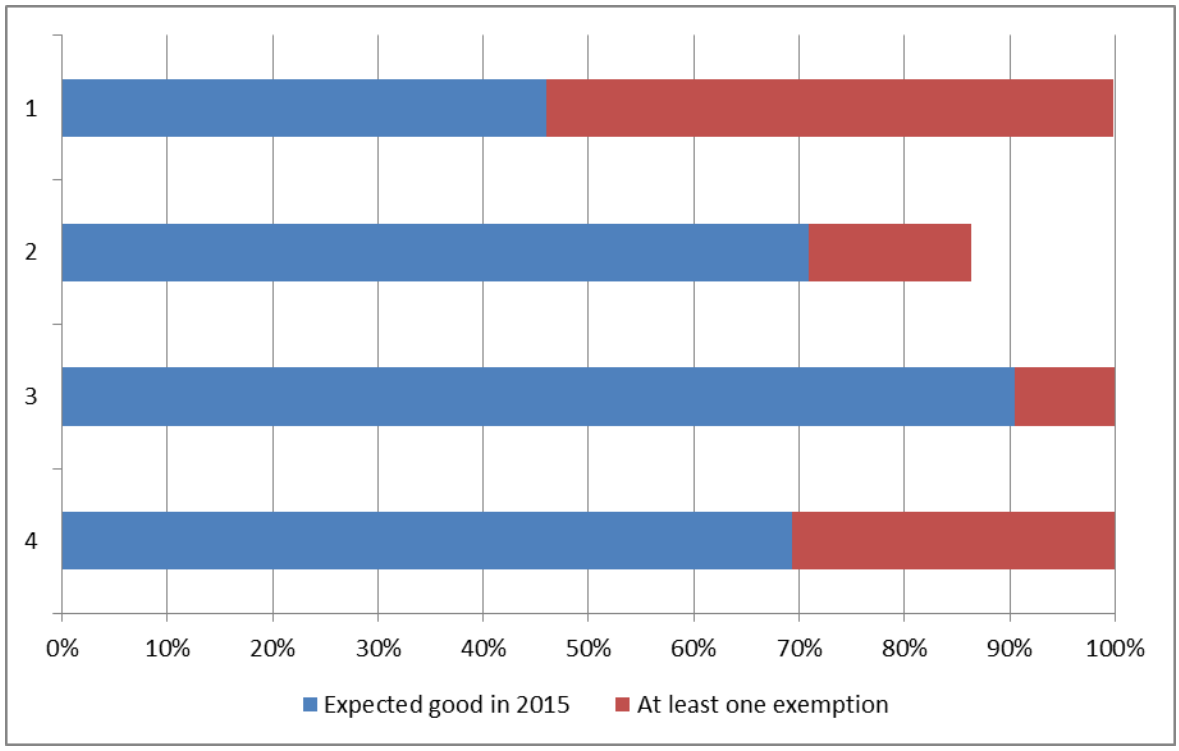
8.1.2 Exemptions

Where environmental objectives are not yet achieved exemptions can be applied in case the respective conditions are met and the required justifications are presented in the RBMPs.

[30] For priority substances newly introduced by Directive 2013/39/EU, good status should be reached by 2027, and for the 2008 priority substances, for which the Environmental Quality Standards were revised by Directive 2013/39/EU, good status should be reached in 2021.

Figure 8.1 summarises the percentage of water bodies expected to be at least in good status in 2015 and the use of at least one exemption in France for the four main sets of environmental objectives.

Figure 8.1 ***Water bodies in France expected to be in at least good status in 2015 and use of exemptions. 1 = Surface water body ecological status/potential; 2 = Surface water body chemical status; 3 = Groundwater body quantitative status; 4 = Groundwater body chemical status***

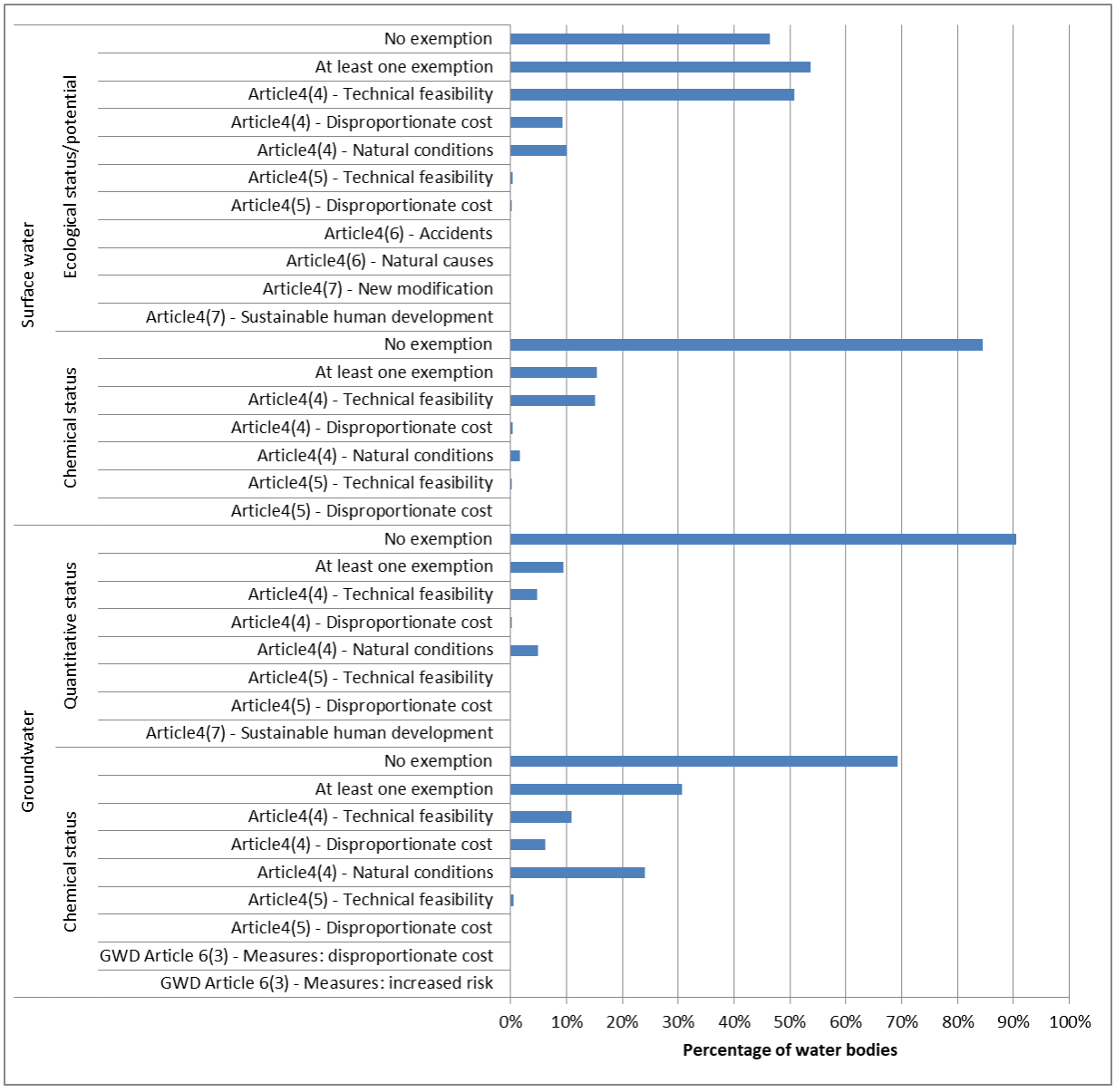


Source: WISE electronic reports. For some water bodies the date for achievement of good status is unknown

Article 4 of the WFD allows for different exemptions to the objectives: extension of deadlines beyond 2015, less stringent objectives, a temporary deterioration, or deterioration / non-achievement of good status / potential due to new modifications, provided a set of conditions are fulfilled. The exemptions under WFD Article 4 include the provisions in Article 4(4) - extension of deadline, Article 4(5) - lower objectives, Article 4(6) - temporary deterioration, and Article 4(7) - new modifications / new sustainable human development activities. Article 4(4) exemptions may be justified by: disproportionate cost, technical feasibility or natural conditions, and Article 4(5) by disproportionate cost or technical feasibility.

Figure 8.2 summarises the percentage of water bodies subject to each type of exemption (and reason) in relation to the four types of environmental objective in France.

Figure 8.2 ***Type of exemptions applied to surface water and groundwater bodies for the second RBMP in France. Note: Ecological status and groundwater quantitative status exemptions are reported at the 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***



Source: WISE electronic reports

Application of Article 4(4)

Article 4(4) was applied in the first cycle. In the second cycle the number of exemptions under Article 4(4) has changed in all RBDs: in some there has been a decrease (such as Scheldt and Sambre) and in some there has been an increase (such as Rhone-Mediterranean and Meuse).

In the first RBMPs, the justification for surface waters and groundwaters in relation to Article 4(4) referred to technical feasibility, natural conditions and disproportionate costs. The reasons used in the second cycle are the same. Disproportionate costs are justified by affordability, Cost-Benefit Analysis and/or Cost-Effectiveness Analysis and/or the distribution of costs.

The main pressures to surface waters (Table 8.1) come from a broad range of activities including urbanisation, industry, agriculture, atmospheric deposition and activities causing changes in hydro-morphology. In groundwaters, the main pressure concerning quantitative status (Table 8.2) is abstraction from agriculture, industry and public water supply. Diffuse pollution from urban areas and agriculture and point pollution from urban waste water and industry are the main pressures on groundwater chemical status.

The main drivers for exemptions in surface waters are agriculture, industry and urban development. Energy is mentioned as a driver in surface waters in the Rhone-Mediterranean, Corsica, Adour-Garonne, Guyana and Seine-Normandy RBDs and climate change is mentioned in the Mayotte RBD. Tourism and recreation are drivers in surface waters in the Rhone-Mediterranean, Corsica and Loire-Brittany RBDs. For groundwater, the main driver is agriculture (except for the Mayotte, Guyana and Guadeloupe RBDs where no exemptions are applied and for Corsica where the main driver is urban development). Urban development is also mentioned in addition to agriculture in the Scheldt, Sambre, Rhone-Mediterranean, Seine-Normandy and Réunion RBDs. Climate change is mentioned as a driver for exemptions in groundwater in the Scheldt and Sambre RBD. Industry is mentioned as a driver in groundwater in the Réunion, Seine-Normandy, Adour-Garonne, Rhone-Mediterranean, Rhine, Scheldt, Meuse and Sambre RBDs. The Adour-Garonne RBD also mentioned energy (non-hydropower) as a driver for exemptions in groundwater. The Réunion RBD refers to flood protection and Seine-Normandy to transport as drivers for exemptions in groundwater.

The main impacts in surface waters caused by the exemptions are chemical, nutrient and organic pollution and altered habitats in all RBDs. For groundwaters the main impacts are chemical pollution in all RBDs, except Corsica, Guadeloupe and Guyana.

Table 8.1 Pressure in surface waters responsible for Priority Substances in France failing to achieve good chemical status and for which exemptions have been applied

Significant pressure on surface water bodies	Failing Priority Substances	Article 4(4) - Technical feasibility exemptions	Article 4(4) – Disproportionate costs exemptions	Article 4(4) – Natural conditions exemptions	Article 4(5) - Technical feasibility exemptions
	Number	Number	Number	Number	Number
1.1 - Point - Urban waste water	21	614	55	38	
1.2 - Point - Storm overflows	19	804	81	57	
1.3 - Point - IED plants	25	542	42	22	
1.4 - Point - Non IED plants	11	68	17	8	
1.5 - Point - Contaminated sites or abandoned industrial sites	2	6		4	
1.6 - Point - Waste disposal sites	2	9		13	
1.8 - Point - Aquaculture	3	19			
1.9 - Point - Other	2	2			1
2.1 - Diffuse - Urban run-off	8	88		1	
2.10 - Diffuse - Other	8	88		4	
2.2 - Diffuse - Agricultural	26	968	86	85	5
2.5 - Diffuse - Contaminated sites or abandoned industrial sites	5	47	9	2	
2.6 - Diffuse - Discharges not connected to sewerage network	17	367	40	35	
3.1 - Abstraction or flow diversion - Agriculture	14	75	7	12	
3.2 - Abstraction or flow diversion - Public water supply	10	37	7	9	
3.3 - Abstraction or flow diversion - Industry	11	66	7	7	
3.7 - Abstraction or flow diversion - Other	8	19	1		
4.1.5 - Physical alteration of channel/bed/riparian area/shore - Unknown or obsolete	20	862	67	42	
4.2.9 - Dams, barriers and	18	537	15	14	

Significant pressure on surface water bodies	Failing Priority Substances	Article 4(4) - Technical feasibility exemptions	Article 4(4) – Disproportionate costs exemptions	Article 4(4) – Natural conditions exemptions	Article 4(5) - Technical feasibility exemptions
locks - Unknown or obsolete					
4.3.6 - Hydrological alteration - Other	14	175		4	
7 - Anthropogenic pressure - Other	2	128		127	
8 - Anthropogenic pressure - Unknown	13	303	1		
9 - Anthropogenic pressure - Historical pollution	1	1			

Source: WISE electronic reports

Table 8.2 Pressure responsible for pollutants in France failing to achieve good chemical status in groundwater and for which exemptions have been applied

Significant pressure on groundwater	Number of failing pollutants	Number of exemptions			
		Article 4(4) - Technical feasibility	Article 4(4) – Disproportion-ate cost	Article 4(4) - Natural conditions	Article 4(5) - Technical feasibility
1.1 - Point - Urban waste water	6	2	2	22	
1.2 - Point - Storm overflows	5			21	
1.3 - Point - IED plants	2	1	2	1	
1.4 - Point - Non IED plants	3	1	2	2	
1.5 - Point - Contaminated sites or abandoned industrial sites	17	25	5	37	
1.6 - Point - Waste disposal sites	1	1	1	1	
2.1 - Diffuse - Urban run-off	5			22	
2.10 - Diffuse - Other	5			22	
2.2 - Diffuse - Agricultural	6	82	47	209	1
2.4 - Diffuse - Transport	1	1	1	1	
2.6 - Diffuse - Discharges not connected to sewerage network	1		2	2	
3.1 - Abstraction or flow diversion - Agriculture	5			20	
3.2 - Abstraction or flow diversion - Public water supply	7	2		26	

Significant pressure on groundwater	Number of failing pollutants	Number of exemptions			
		Article 4(4) - Technical feasibility	Article 4(4) – Disproportion-ate cost	Article 4(4) - Natural conditions	Article 4(5) - Technical feasibility
3.3 - Abstraction or flow diversion - Industry	6			23	
6.2 - Groundwater - Alteration of water level or volume	5			22	
9 - Anthropogenic pressure - Historical pollution	4	2		3	3

Source: WISE electronic reports

Application of Article 4(5)

Article 4(5) was applied in the first cycle but is applied more widely in all RBDs except Mayotte, Guyana and Seine-Normandy. Article 4(5) is justified by technical feasibility.

Application of Article 4(6)

Article 4(6) exemptions are not applied.

Application of Article 4(7)

In the first RBMPs there were a number of projects for which Article 4(7) was applied. However, in the second RBMPs Article 4(7) exemptions are not applied in all RBDs. It remains unclear if for all projects planned an assessment of the impacts on the water body has been carried out

Application of Article 6(3) of the GWD

No exemptions according to Article 6(3) of the Groundwater Directive have been applied.

8.2 Main changes in implementation and compliance since the first cycle

The number of exemptions under Article 4(4) has changed in all RBDs (in some the numbers decreased, for example Scheldt and Sambre RBDs; in some it increased (Rhone-Mediterranean, Meuse RBDs). Article 4(5) is applied more widely in all RBDs except the Mayotte, Guyana and Seine-Normandy RBDs.

8.3 Progress with Commission recommendations

The Commission recommendations based on the first RBMPs and Programme of Measures requested action on the following:

- Recommendation: *The application of exemptions under Article 4(4) and Article 4(5) has not been thoroughly justified in the French RBMPs. In particular, the use of disproportionate costs as the reason to apply the exemptions has not been sufficiently justified.*

  Assessment: The recommendation has been implemented. In the second cycle it has been reported that alternative sources of financing have been considered.

- Recommendation: *France is expected to provide a more consolidated methodology for justification of exemptions to the achievement of environmental objectives (in particular as regards the assessment of affordability and disproportionate costs).*

  Assessment: Progress with this recommendation could not be assessed without a detailed assessment of background documents.

- *Recommendation: The use of exemptions under Article 4(7) should be based on a thorough assessment of all the steps as requested by the WFD, in particular an assessment of whether the project is of overriding public interest and whether the benefits to society outweigh the environmental degradation, and the absence of alternatives that would be a better environmental option. Furthermore, these projects may only be carried out when all possible measures are taken to mitigate the adverse impact on the status of the water. All conditions for the application of Article 4(7) in individual projects must be included and justified in the RBMPs as early in the project planning as possible.*

  Assessment: No Article 4(7) exemptions were applied in the second cycle, but it remains unclear if for all projects planned an assessment of the impacts on the water body has been carried out.

Topic 9 Programme of measures

The aim of this chapter is to provide an overview of the Programmes of Measures reported by Member States; more specific information on measures relating to specific pressures (for example arising from agriculture) is provided in subsequent chapters.

The Key Types of Measure (KTM) referred to in this section are groups of measures identified by Member States in the Programme of Measures, which target the same pressure or purpose. The individual measures included in the Programme of Measures (being part of the RBMP) are grouped into Key Types of Measure for the purpose of reporting. The same individual measure can be part of more than 1 Key Type of Measure because it may be multi-purpose, but also because the Key Types of Measure are not completely independent silos. Key Types of Measure have been introduced to simplify the reporting of measures and to reduce the very large number of Supplementary Measures reported by some Member States (WFD Reporting Guidance 2016).

A Key Type of Measure may be one national measure but it would typically comprise more than one national measure. The 25 predefined Key Types of Measure are listed in the WFD Reporting Guidance 2016.

The Key Types of Measure should be fully implemented and made operational within the RBMP planning period to address specific pressures or chemical substances and achieve the environmental objectives.

9.1 Assessment of implementation and compliance with WFD requirements in the second cycle

9.1.1 General issues

An indication as to whether or not measures have been fully implemented and made operational is when they have been reported as being planned to tackle significant pressures (at the Key Types of Measure level). Significant pressures are also reported at the water body level. It would therefore be expected that there would be measures planned in the RBMPs to tackle all significant pressures. Information of KTMs for significant pressures is provided for

all RBDs, including Mayotte. With a few exceptions, most significant pressures seem to be covered by operational KTMs. To gain a picture of the implementation in relation to this topic in France, four representative RBDs were examined in more detail. It should be noted that none of the RBDs included information (pressures or KTMs) for individual substances. In the Scheldt RBD, all significant pressures causing failure of WFD objectives in both groundwater and surface water are covered by KTMs and there are no "Other significant pressures" identified. In the Rhone-Mediterranean RBD all significant pressures on surface waters were covered by KTMs, but no KTM was identified for the significant pressures Anthropogenic - other and other significant pressures relating to hydroelectric developments. In the Adour-Garonne RBD, all significant pressures on groundwater bodies were covered by KTMs, but for surface water the significant pressures Point – Other and Anthropogenic – unknown were not addressed by KTMs. In the Loire-Brittany RBD, no KTMs were identified to address the significant pressure Anthropogenic unknown in groundwater, and none were identified to address the significant pressures Point – other, Hydromorphological alterations, Exploitation or removal of animals and plants and Anthropogenic unknown in surface waters[31].

38 national basic measures and 204 national supplementary measures have been mapped against predefined KTMs and the basic measure types are indicated for all RBDs. Of these national basic measures 13 % are mapped against KTM24 - Adaptation to climate change, and another 13 % are mapped against KTM14 - Research, improvement of knowledge base reducing uncertainty. 27 % of supplementary measures are mapped against KTM24 - Adaptation to climate change with the remainder being spread over other KTMs. All KTMs have been used for either basic or supplementary measures. New KTMs have been developed in the Loire-Brittany and Martinique RBDs.

A comparison of KTMs reported to be tackling significant pressures with national measures mapped against KTMs shows a good match for some RBDs. However, in others it includes larger numbers of predefined KTMs, and a small number of new KTMs, tackling significant pressures for all RBDs. This suggests that many national measures are available but have not been made operational, although significant pressures have been identified; e.g. in the Adour-Garonne RBD national measures have been mapped to 25 KTMs compared with 15 KTMs where operational measures are reported to be in place whilst in the Loire-Brittany RBD

[31] France subsequently clarified that for the Rhone-Meditarranean RBD there are many measures to reduce the pressures mentioned in this report (Other, anthropogenic, hydroelectric developments). However, they are linked to another pressure label (e.g. hydroelectricity is attached to levy). This is due to a slight discrepancy between the list of pressures reported to the water body and for the RBD, time pressures did not allow to a coherence of the lists to be achieved before the information was reported to WISE.

national measures have been mapped to 19 KTMs compared to 12 KTMs where operational measures are reported to be in place. In the Guadaloupe RBD, national measures have been mapped to 22 KTMs, but measures in only 10 KTMs are reported to be operational. In the Martinique RBD, national measures have been mapped to 29 KTMS, but measures in only 15 KTMs are reported to be operational and in the Mayotte RBD national measures have been mapped to 18 KTMs but measures in only eight KTMs are reported to be operational. All water bodies are expected to achieve good status/potential by 2027 (Figure 3.5).

The number of groundwater bodies failing to be in good status due to individual chemical pollutants has been reported for 11 RBDs (not the Corsica, Guyana or Mayotte RBDs) but no information has been provided for any RBDs on failures due to River Basin Specific Pollutants in surface water bodies. No information has been reported on the KTMs used to tackle these substances in the second cycle. The number of surface water bodies causing failure of objectives due to Priority Substances has been reported for all 14 RBDs, but there is no information reported on the KTMs used to tackle these substances in the second cycle.

Indicators of the gap to good status caused by significant pressures and a quantification of that gap in terms of "the number of water bodies for which the pressure is significant" have been reported for 2015 and 2021 (no value for 2027). Information on the KTMs planned for the second cycle is also provided (including those mapped against national measures but not indicated as operational in the first cycle), with quantitative indicators of the level of progress expected provided for 2015 only. France has defined its own KTM indicators which are given as, for example, "number of water bodies for which measures are planned for 2016-2021". A national approach is used in France, and therefore, one RBD, the Scheldt, was examined in further detail. In this RBD, gap value indicators are given as number of water bodies under significant pressures; for groundwater no improvements are expected between 2015 and 2021, although measures are planned for the period 2016-21 for all significant pressures. Modest improvements are expected for surface water, although there are planned measures for the period 2015-21 for all significant pressures. A number of individual chemicals, including priority pollutants, are indicated as causing significant pressures or failure of objective in groundwater and surface water, but these are not addressed separately, i.e. there are no indications of any specific measures or gap analyses.

Cost-effectiveness analysis is an appraisal technique that provides a ranking of alternative measures on the basis of their costs and effectiveness, where the most cost-effective has the highest ranking. In the first Programmes of Measures, whilst cost-benefit analysis was applied

to each water body with consideration given to affordability, a cost-effectiveness analysis was undertaken only for supplementary measures. For the second Programmes of Measures a combination of qualitative and quantitative cost-effectiveness analysis was reported to have been carried out in all 14 RBDs. Three representative RBDs were selected for further assessment. In the Scheldt RBD, cost-effectiveness analysis has not been studied in the literal sense of the term. That is to say that each service, when choosing from various possible measures aimed at achieving a goal of good status, relied on its expertise, its detailed knowledge of the constraints and possibilities of each measure in order to select the most efficient. This selection was based on both qualitative and quantitative elements and was dictated by a time constraint. In fact, a tight schedule did not allow for the use of an experienced organisation to obtain data or perform the cost-effectiveness analysis. By relying on the experience and knowledge of the services of the Water Agency and those of the State, a robust selection could be realised. For the Rhone-Mediterranean RBD, the Programme of Measures identifies a combination of best cost-effectiveness measures to address the impacts of identified pressures on different bodies of water. This combination can however, be adjusted, for example when there is a better technique available or the experts will identify a variant that is at least as effective to achieve the goals. It can also be completed when new data on the status is available. For the Réunion RBD, there was no indication on how the cost effectiveness of measures was determined. However, indicators for the evaluation for measures have been used, and these are (1) relevance (if right objectives have been set to address a problem), (2) effectivity (if means are put into place to address the problem), (3) efficiency (if results are obtained) and (4) coherence (if the link between problem, objectives, means and results is done in a coherent way). From this assessment it can be concluded that France has taken steps to include a cost-effectiveness analysis in the selection of measures, but there is more work to be done.

A critical factor in the success of the implementation of the Programmes of Measures is the availability of funding to support the investments required. Investment costs have been reported for 13 RBDs[32] for the first cycle, covering years 2009-15 for the Scheldt and Sambre RBDs, 2009-2014 for the others, but only as total values for all measures. A very high figure has been reported for the Guyana RBD, which is probably reported in Euros rather than million Euros as required – if this is so, the total investment in France for the first Programme of Measures is €22 979 million. For the second cycle, investment costs have been reported for all RBDs, separately for Article 11(3)(a) requirements (measures required to implement Community legislation for the protection of water) and Articles 11(3)(b-l), Article 11(4) and

[32] Mayotte did not have a separate RBMP in 2009.

Article 11(5) (all other measures). The total capital investment planned for Article 11(3)(a) measures is €2 805 million and for Articles 11(3) (b-l), Article 11(4) and Article 11(5) measures is €15 046 million. No annual operation and maintenance costs have been reported and depreciation has not been included in any calculations.

A clear financial commitment has been secured for the implementation of Programmes of Measures in all 13 previously reported RBDs[33]. On a sectoral basis, commitments have been secured in the 13 RBDs for Agriculture, Industry, and Urban, and for others (Energy, Aquaculture, Recreation) where applicable. Transport and Flood Protection were marked "not applicable" in all RBDs. Information on European Union funding is provided for six RBDs (Scheldt, Sambre, Rhone-Mediterranean, Adour-Garonne, Loire-Britanny and Seine-Normandy) for 2009-2015 only.

Co-ordination of the preparation of all RBMPs and Programmes of Measures with the Marine Strategy Framework Directive is reported for all 10 European RBDs – the Marine Strategy Framework Directive does not apply to France's overseas territories. Joint consultation on the RBMPs and the Marine Strategy, as well as consideration of the need for additional or more stringent measures beyond those required by the WFD in order to contribute to the achievement of the relevant Marine Strategy Framework Directive objectives in coastal and marine environments, are indicated for all seven relevant RBDs. (Additional measures for litter were implemented for 6 of the relevant RBDs, but not in the Loire-Brittany RBD). KTMs that are relevant to the Marine Strategy Framework Directive are listed for all relevant RBDs except the Sambre, with an indication of the type of measure, but not indicating the pressures they are addressing.

The RBMPs and Floods Directive Flood Risk Management Plans have not been integrated into a single plan in any of the RBDs. However, joint consultation of RBMPs and Flood Risk Management Plans, and consideration of the objectives and requirements of the Floods Directive in the second RBMPs and Programmes of Measures was carried out in all RBDs. Win-win measures in terms of achieving the objectives of the WFD and Floods Directive, drought management and use of Natural Water Retention Measures have also been included in the Programmes of Measures, and the design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, have been adapted to take account of WFD Environmental Objectives in all RBDs. However, financial commitments for the implementation of Programmes of Measures in the flood protection areas are marked "not

[33] Mayotte did not have a separate RBMP in 2009.

applicable" in all RBDs, and WFD Article 9(4) has not been applied to impoundment for flood protection, while it would be an activity/use which should be subject to cost recovery under Article 9[34].

9.1.2 Measures related to other significant pressures

Most of the other significant pressures relate to unknown anthropogenic pressures - other, unknown, and historical pollution, exploitation of animals or plants, introduced species or diseases. In the Martinique and Mayotte RBDs litter and fly tipping are also identified as significant pressures. The gap indicator values are shown in terms of water bodies affected by significant pressures for 2015 and 2021, but none for 2027. Whilst in a small number of cases the numbers of water bodies affected are expected to remain the same by 2021 as in 2015, others are expected to improve, some closing the gap completely, mainly due to planned measures for the period 2016-2021; i.e. KTM14 - research, KTM4 - remediation of contaminated sites, KTM19 - measures to control the impact of recreation, KTM18 - measures to control alien species and KTM 24 - adaptation to climate change.

9.1.3 Mapping of national measures to Key Types of Measure

It was expected that Member States would be able to report their Programmes of Measures by associating their national measures with predefined Key Types of Measure. Key Types of Measure are expected to deliver the bulk of the improvements through reduction in pressures required to achieve WFD Environmental Objectives. A Key Type of Measure may be one national measure but it would typically comprise more than one national measure. Member States are required to report on the national measures associated with the Key Types of Measure, and whether the national measures are basic (Article 11(3)(a) or Article 11(3)(b-l)) or supplementary (Article 11(4)).

Table 9.1 summarises the number of national measures that have been mapped to the relevant Key Types of Measure in France. Also shown is the number of RBDs for which each Key Type of Measure has been reported. Table 9.2 then summarises the types of basic measures associated with the national measures mapped against the Key Type of Measure.

[34] France subsequently clarified that a mistake was made when reporting financing for measures linked to the Floods Directive. It should have been indicated that financial commitments were secured. For all other services, French water agencies collect dedicated taxes listed on section 5 of the « Guide DCE - PdM » reported. There is no specific water tax targeting flood protection, however water agencies do finance measures in this area. Additionally, there is a national fund called « Fonds Barnier » created specifically to prevent natural disasters such as floods. Further information on the financing mechanisms of the Programmes of Measures is available on section 4 of the document «Guide DCE - PdM ». Financing mechanisms are secured to cover the costs of the implementation of Programmes of Measures in the flood protection areas.

Table 9.1 Mapping of the types of national measures to Key Types of Measure in France

Key Type of Measure	National basic measures	National supplemen-tary measures	Number of RBDs where reported
KTM1 - Construction or upgrades of wastewater treatment plants	4	10	14
KTM10 - Water pricing policy measures for the implementation of the recovery of cost of water services from industry	2	2	13
KTM11 - Water pricing policy measures for the implementation of the recovery of cost of water services from agriculture	1	2	13
KTM12 - Advisory services for agriculture		1	12
KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)	3	7	14
KTM14 - Research, improvement of knowledge base reducing uncertainty	5	9	14
KTM15 - Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances	2	4	13
KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms).	3	7	14
KTM17 - Measures to reduce sediment from soil erosion and surface run-off	1	6	8
KTM18 - Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases		1	6
KTM19 - Measures to prevent or control the adverse impacts of recreation including angling		1	7
KTM2 - Reduce nutrient pollution from agriculture	2	8	14
KTM20 - Measures to prevent or control the adverse impacts of fishing and other exploitation/removal of animal and plants		1	5
KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure		4	13
KTM22 - Measures to prevent or control the input of pollution from forestry		1	6
KTM23 - Natural water retention measures	1	19	14
KTM24 - Adaptation to climate change	5	56	14
KTM3 - Reduce pesticides pollution from agriculture.	1	16	13
KTM4 - Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)		3	13
KTM5 - Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)		4	14
KTM6 - Improving hydromorphological conditions of water bodies other than longitudinal continuity		15	14
KTM7 - Improvements in flow regime and/or establishment of ecological flows	1	4	14
KTM8 - Water efficiency, technical measures for irrigation, industry, energy and households	2	10	12
KTM9 - Water pricing policy measures for the implementation of the recovery of cost of water services from households	1	4	13
KTM99 - Other key type measure reported under PoM - Gestion des déchets		1	1
KTM50 - Reduce pesticides pollution excluding agriculture		1	1
KTM50 - Limiter les apports diffus ou ponctuels en pesticides non agricoles et/ou utiliser des pratiques alternatives		1	1

KTM50 - Reduce pesticides pollution excluding agriculture		1	4
KTM50 - reduction des pesticides hors agriculture		1	1
KTM50 - Reduce pesticides pollution excluding agriculture.		2	4
KTM99 - Other key type measure reported under PoM - Mesure d'amÃ©lioration des rÃ©seaux d'assainissement	1	2	1
KTM99 - Other key type measure reported under PoM - Refus autorisation d'un plan d'eau	1		1
KTM99 - Other key type measure reported under PoM - Refus autorisation ou arrêt concession d'un ouvrage	1		1
KTM99 - Other key type measure reported under PoM - Révision autorisation ou révision concession d'un ouvrage	1		1
Total number of Mapped Measures	**38**	**204**	**14**

Source: Member States reports to WISE

Table 9.2 Type of basic measures mapped to Key Type of Measures in France

Key Type of Measure	Basic Measure Type													
	Accidental pollution	Controls water abstraction	Cost recovery water services	Efficient water use	Hydromorphology	IPPC IED	Nitrates	Other	Point source discharges	Pollutants diffuse	Protection water abstraction	Recharge augmentation groundwaters	Surface Priority Substances	Urban Waste Water
KTM1 - Construction or upgrades of wastewater treatment plants														4
KTM10 - Water pricing policy measures for the implementation of the recovery of cost of water services from industry			1	1										
KTM11 - Water pricing policy measures for the implementation of the recovery of cost of water services from agriculture			1											
KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)											3			
KTM14 - Research, improvement of knowledge base reducing uncertainty	1		1	2		1			3	1			2	1
KTM15 - Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances	1												1	
KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms).	1					2	1							
KTM17 - Measures to reduce sediment from soil erosion and surface run-off							1							
KTM2 - Reduce nutrient pollution from agriculture							2							
KTM23 - Natural water retention measures							1							
KTM24 - Adaptation to climate change		1		2	1		2	1			1			1
KTM3 - Reduce pesticides pollution from agriculture.										1				
KTM7 - Improvements in flow regime and/or establishment of ecological flows		1		1							1			
KTM8 - Water efficiency, technical measures for irrigation, industry, energy and households				1								1		
KTM9 - Water pricing policy measures for the implementation of the recovery of cost of water services from households			1											
KTM99 - Other key type measure reported under PoM		3												1

Source: Member States reports to WISE

Key

'Accidental pollution' = Article 11(3)(l): Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents.
'Controls water abstraction' = Article 11(3)(e): Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment.
'Cost recovery water services' = Article 11(3)(b): Measures for the recovery of cost of water services (Article 9).
'Efficient water use' = Article 11(3)(c): Measures to promote efficient and sustainable water use.
'Hydromorphology' = Article 11(3)(i): Measures to control any other significant adverse impact on the status of water, and in particular hydromorphological impacts.
'IPPC IED' = Integrated Pollution Prevention Control Directive (96/61/EC) and the Industrial Emissions Directive (2010/75/EU).
'Nitrates' = Nitrates Directive (91/676/EEC).
'Other' = Other Directives mentioned in Part A of Annex VI of the WFD.
'Point source discharges' = Article 11(3)(g): Requirement for prior regulation of point source discharges liable to cause pollution.
'Pollutants diffuse' = Article 11(3)(h): Measures to prevent or control the input of pollutants from diffuse sources liable to cause pollution.
'Protection water abstraction' = Article 11(3)(d): Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water.
'Recharge augmentation groundwaters' = Article 11(3)(f): Controls, including a requirement for prior authorisation of artificial recharge or augmentation of groundwater bodies.
'Surface Priority Substances' = Article 11(3)(k): Measures to eliminate pollution of surface waters by Priority Substances and to reduce pollution from other substances that would otherwise prevent the achievement of the objectives laid down in Article 4.
'Urban Waste Water' = Urban Waste Water Treatment Directive (91/271/EEC).

9.1.4 Pressures for which gaps are to be filled to achieve WFD objectives and the Key Types of Measure planned to achieve objectives

Member States are required to report the gaps that need to be filled to achieve WFD Environmental Objectives in terms of all significant pressures on surface waters and groundwaters, in terms of Priority Substances causing failure of good chemical status and in terms of River Basin Specific Pollutants causing failure of good ecological status/potential. Member States were asked to report predefined indicators of the gaps to be filled or other indicators where relevant. Values for the gap indicators were required for 2015 and 2021, and were optional for 2027.

The information reported in WISE on the gaps to fulfil to achieve good ecological status include detailed data on the significant pressures on surface and groundwaters that may cause failure on the environmental objectives. For chemical status, the Member States reported the specific chemical substances causing failure.

This information is reported at the sub-unit level. Sub-units are smaller geographic areas within particular RBDs identified by Member States. Not all Member States have defined and reported sub-units.

Member States were required to report which KTMs are to be made operational to reduce the gaps to levels compatible with the achievement of WFD environmental objectives. A number of indicators were predefined for each KTM. Values of the indicators for the second and subsequent planning cycles were also to be reported to give an indication of the expected progress and achievements: the values for 2027 could be optionally reported. This means that the value of the indicator will be reduced with time as measures are implemented. A value of zero is comparable with 100 % good ecological status or potential or good chemical status.

This information was reported at sub-unit level, or at RBDs level if sub-units have not been reported by the Member State.

9.2 Main changes in implementation and compliance since the first cycle

Progress since the first RBMPs was reported as “some measures completed” for all 13 previously reported RBDs. The main obstacles reported were “Governance”, “Lack of finance”

and “Lack of mechanism” (all RBDs), whereas “Extreme events” were obstacles in three of the overseas RBDs (Guadeloupe, Martinique and Mayotte). The most significant progress seems to be in the identification of many more significant pressures and planning appropriate measures for the second cycle, as well as performing gap analyses, although only up to 2021. It was difficult to find specific information, and the information varied among the RBDs examined. It was noted that, in the Scheldt RBD the level of remediation foreseen in the second Programme of Measures is less than in the first. This is linked to the completion of the upgrade of public sewage treatment works, and an improvement in knowledge of the sewage collection network which has made it possible to better target the measures. In the Réunion RBD, it is indicated that the second Programme of Measures has built on the first, taking account of changes in pressures that have occurred.

New legislation or regulations to implement the Programmes of Measures in the first cycle was reported necessary and already adopted in all 13 previously reported RBDs.

9.3 Progress with Commission recommendations

- Recommendation: *Where there are currently high uncertainties in the characterisation of the RBDs, identification of pressures, and in the assessment of status, these need to be addressed in the current cycle, to ensure that adequate measures can be put in place before the next cycle.*

  Assessment: Many more basic measures have been identified to tackle significant pressures, not previously reported, and have been planned for 2016-2021; this seems to be based on an improved assessment of pressures. This recommendation appears to have been fulfilled with respect to measures (see Chapter 2 for progress with respect to characterisation).

- Recommendation: *Meaningful information regarding the scope, the timing and the funding of the measures should be included in the Programme of Measures so the approach to achieve the objectives is clear and the ambition in the Programme of Measures is transparent. All the relevant information on basic and supplementary measures should be included in the summary of the Programme of Measures to ensure transparency on the planned actions for the achievement of the environmental objectives set out in the WFD.*

Assessment: Indicators of the gap to good status have been reported for 2015 and 2021, but indicators of the level of implementation of measures have only been reported for 2015. Costs (capital investment only, no annual costs) of basic and supplementary measures have been provided for the first and second cycles. This recommendation has been partially fulfilled.

- Recommendation: *The RBMPs are expected to make a clear distinction between mandatory measures and voluntary ones that will be funded under the European Agricultural Fund for Rural Development.*

  It is not possible to draw any conclusions from this assessment concerning the distinction between mandatory and voluntary measures. This recommendation has not been fulfilled.

- Recommendation: *Assess the reduction in pressures required to achieve the environmental objectives.*

  Assessment: Gap indicators and gap values as number of water bodies under significant pressure for 2015 and 2021 (none for 2027) are presented. Information on KTMs planned for the second cycle is also provided (including those mapped against national measures but not indicated as operational in the first cycle), with gap values for 2015 only, given as "number of water bodies for which measures are planned for 2016-2021". Generally rather modest improvements are expected between 2015 and 2021, although more measures have been planned for the second cycle for all significant pressures, except individual chemicals, including priority pollutants which do not seem to be addressed separately. This recommendation has been partially fulfilled.

- Recommendation: *Improve knowledge about the link between pressures and impacts in designing and making operational the measures for the second cycle.*

  Assessment: Many more significant pressures have been identified and basic measures to tackle these have been planned for 2016-2021; this seems to be based on an improved assessment of significant pressures and the results of gap analyses. This recommendation has been fulfilled.

- Recommendation: *Ensure that the RBMPs clearly identify the gap to good status, and that the PoMs are designed and implemented to close that gap with transparent and meaningful information regarding the scope, the timing and the funding of the measures.*

  Assessment: Although gap analyses have been made for 2015 and 2021 (none for 2027), the gap indicators were reported as number of water bodies under significant pressure, and number of WBs for which measures were planned for 2016-2021, not in terms of achieving good status. This recommendation has been partially fulfilled.

Topic 10 Measures related to abstractions and water scarcity

10.1 Assessment of implementation and compliance with WFD requirements in the second cycle and main changes in implementation and compliance since the first cycle

10.1.1 Water exploitation and trends

Water abstraction (understood as consumptive use) has not been identified as a significant pressure at the RBD level (or in significant portions of the RBDs); however, several RBDs have more than 10 % of groundwater bodies in bad quantitative status (Rhone-Mediterranean, Adour-Garonne, Loire-Brittany, Réunion, Mayotte) or more than 20 % of surface water bodies with significant abstraction pressures (Scheldt, Rhone-Mediterranean, Adour-Garonne, Loire-Brittany, Martinique, Réunion, Mayotte). The Water Exploitation Index + was not calculated, although water quantity data have been previously reported to support the European State of the Environment Report in relation to Water Quantity. Water scarcity is not considered by France to be an issue at the international level. Water resource planning in relation to abstractions is included in the RBMPs (no separate water resource allocation and management plans have been developed).

10.1.2 Main uses for water consumption

No data have been reported for the uses responsible for water consumption, as water quantity pressures are not reported as significant.

10.1.3 Measures related to abstractions and water scarcity

Regarding basic measures (Article 11(3)(e)), in France there is a concession, authorisation and/or permitting regime to control water impoundment and abstractions as well as a register of impoundments and abstractions; small abstractions are exempted from these controls. These exemptions or the allocation system might hamper achievement of objectives for the large number of water bodies concerned with quantitative or abstraction pressures[35]. Measures under Article 11(3)(c) were implemented in the previous cycle and no new measures and/or significant changes are planned for the 2016-2021 period.

[35] France subsequently clarified that a reduction of abstraction pressures is expected during the next implementation cycle.

Measures for the prior authorisation of artificial recharge or augmentation of groundwater bodies (Article 11(3)(f)) were implemented in the previous cycle, and no new measures or significant changes are planned for the next cycle for all RBDs.

Complementary measures under KTMs are reported for addressing abstraction pressures, applying a rather varied set in the different RBDs. KTM5 - Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams), and KTM6 - Improving hydromorphological conditions of water bodies other than longitudinal continuity, are listed for the Rhone-Mediterranean RBD. Measures under KTM7 - Improvements in flow regime and/or establishment of ecological flows are considered for closing gaps in some RBDs, such as the Rhone-Mediterranean, Seine-Normandy and Réunion RBDs. Measures under KTM8 - Water efficiency, technical measures for irrigation, industry, energy and households will address gaps in the Meuse, Rhone-Mediterranean, Corsica, Adour-Garonne, Loire-Brittany, Seine-Normandy, Martinique and Réunion RBDs, with different proportions by 2021. Additional measures addressing gaps by 2021 include KTM9 - Water pricing policy measures for the implementation of the recovery of cost of water services from households, KTM10 - Water pricing policy measures for the implementation of the recovery of cost of water services from industries, KTM11 - Water pricing policy measures for the implementation of the recovery of cost of water services from agriculture, KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones) (in Scheldt and Sambre).

KTM14 - Research, improvement of knowledge base reducing uncertainty is addressing existing gaps in the Rhone RBD. KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms) is addressing existing gaps, some of which are expected to be solved by 2021. KTM19 - Measures to prevent or control the adverse impacts of recreation including angling is addressing existing gaps due to urban water supply pressures in Adour-Garonne and KTM23 - Natural water retention measures is applied in Rhone-Mediterranean. Also, KTM24 - Adaptation to climate change is being applied in Rhone-Mediterranean and other RBDs.

The list of measures under KTMs proposed for addressing water abstraction pressures seems rather casual and is very different among the RBDs, with some KTMs listed that do not necessarily have an apparent influence in reducing pressures (especially in Rhone-Mediterranean). On the other hand, it is also noteworthy that water pricing is apparently not foreseen for the Réunion RBD, whilst it is facing water quantity issues.

Water reuse is foreseen as a measure in most of the RBDs, with the exceptions of the Seine-Normandy, Martinique and Réunion RBDs.

10.2 Progress with Commission recommendations

There were no European Commission recommendations from the first cycle for this topic.

Topic 11 Measures related to pollution from agriculture

11.1 Assessment of implementation and compliance with WFD requirements in the second cycle

Agriculture has been identified as one of the main pressures in all European RBDs in France, mainly for diffuse pollution, including nitrogen, phosphorus and chemicals, but also for altered habitats due to hydro-morphological changes. In the first cycle, water abstraction and transfers for agricultural purposes were considered as significant pressures in the Martinique and Guadeloupe RBDs.

No gap assessment in terms of load reduction was done but there is information on the number of water bodies for which a measure is planned in the second cycle.

Measures match the identified pressures. KTM12 - Advisory services for agriculture, KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.), KTM17 - Measures to reduce sediment from soil erosion and surface run-off, KTM2 - Reduce nutrient pollution from agriculture, KTM23 - Natural water retention measures, KTM3 - Reduce pesticides pollution from agriculture, are applied in all RBDs. Implementation of basic measures (the minimum requirement to be complied with) under Article 11(3)(h) for the control of diffuse pollution from agriculture at source is applied in all RBDs, with differentiated rules for different parts of the RBDs. Supplementary measures are applied in all RBDs. General binding rules for nitrates, pesticides, phosphorus and sediments to control diffuse pollution from agriculture are set and applied in all RBDs.

For the Scheldt RBD, two basic measures and two supplementary measures have been implemented to reduce nutrient pollution from agriculture, and one supplementary measure for pesticide reduction. For the Rhone-Mediterranean RBD, four supplementary measures are included for reducing nutrient pollution from agriculture, and two basic measures. For pesticides, two supplementary measures are implemented. For the Réunion RBD, five supplementary measures for nutrient reduction and two supplementary measures for pesticide reduction are implemented. In relation to Article 11(3) specifically, it is indicated for all RBDs that there are differentiated rules for different parts of the RBD.

Assessment of the RBMPs and background documents indicated coordinated action at the national level in all RBMPs, namely:

- Implementation of the law of 6 February 2014, the loi Labbé[36], which aims to better control the use of phytosanitary products at national level for the management of green spaces, forests and walkways, which are accessible or open to the public, from the start of January 2020.[37] This is also relevant for measures to tackle pollution from sources other than agriculture (non-agricultural use of pesticides), discussed in the next chapter of this report.

- Reducing the use of plant protection products under the Ecophyto plan: Farmers, communities and other managers (communication routes, gardeners, activity zones, golf courses, parks, etc.) are encouraged to be part of a process to reduce the use of plant protection products. This approach is carried out in coherence with the implementation of the Ecophyto Plan and more particularly with its axes 2 (identify and generalize agricultural systems and known ways to reduce the use of pesticides), 3 (innovate in the design and development of pesticide-saving crops) and 7 (reduce and secure the use of plant protection products in non-agricultural areas). The Eecophyto Plan was already established in the first RBMPs at a national scale.

- Developing specific pesticide reduction plans as part of the consultation with the SAGE (which is the RBMP at a more detailed scale).

- France has also informed the European Commission of further coordinated action put in place, in particular the implementation of the Nitrates Directive at a national level and at regional scale as well as the implementation of action plans on diffuse pollution for drinking abstraction points that are designated as “priority”.

The background documents of the RBMPs include a map indicating the drinking water protection areas. Within each area, it is indicated where there is a priority abstraction point, either based on "critical quality" or on "volume of abstraction > 500,000 cubic metres per year”. Action plans for agriculture for drinking water zones will be elaborated for the Scheldt and Rhone-Mediterranean RBDs, which were assessed in more detail concerning measures

[36] https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000028571536&categorieLien=id

[37] In the meantime, France has sent updated/corrected information to the Commission with reference to the Implementation of the law of 17 August 2017 (article L.253-7 of the rural and fishery code), which is the “loi sur la transition énergétique pour la croissance verte”. This bans the use of chemical pesticides at national level for the management of green spaces, forests and walkways, which are accessible or open to the public, from the start of January 2017, and bans the use of chemical pesticides for private individuals use from the start of January 2019.

related to pollution from agriculture.[38] KTM 13 relates to drinking water protection measures: two basic and one supplementary measure have been implemented for this KTM in the Scheldt, Rhone-Mediterranean and Réunion RBDs.

Farmers/Farmers' Unions have been consulted under the Public Consultation process in all RBDs.

Financing of agricultural measures is secured in all RBDs. It remains unclear if the application of the polluter pays principle in the agricultural sector has been fully implemented.

11.2 Main changes in implementation and compliance since first cycle

In the first cycle water abstraction and transfers for agriculture purposes were considered as significant pressures in the Martinique and Guadeloupe RBDs. Morphological pressures due to farming activity were highlighted in the Scheldt, Sambre and Loire-Brittany RBDs. This is no longer the case in the second cycle. In the first cycle, no precise information was provided in the RBMPs on the planned financing of the agricultural measures. This information is now available.

11.3 Progress with Commission recommendations

- Recommendation: *Check that nutrient standards are consistent and provide a more coherent strategy encompassing WFD with: the Nitrates Directive and Common Agricultural Policy in agriculture.*

  Assessment: Concerning links with the Nitrates Directive[39], general binding rules for nitrates (among others) to control diffuse pollution from agriculture are set and applied in all RBDs. In addition, France has informed the Commission of ongoing coordinated action for the implementation of the Nitrates Directive at a national level and at regional scale and control mechanisms under the Nitrates Directive and Common Agricultural Policy for the implementation of RBMP measures.

[38] France subsequently informed the Commission that such action plans will in fact be elaborated for all French RBDs.

[39] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:31991L0676

Information on nutrient standards is available in Chapter 3, according to which standards are developed for most required quality elements in rivers, lakes and transitional waters, and for some physicochemical quality elements (transparency, temperature and oxygenation conditions) in coastal waters. Standards for nutrient conditions are not developed for coastal waters and no nutrient standards are reported for this water category.

This recommendation is considered as partially fulfilled.

- Recommendation: *Review the regulation of the use of pesticides in order to effectively reduce current levels of contamination of rivers and groundwater, making clear linkages with the implementation of the Directive on the Sustainable Use of Pesticides.*

  Assessment: There is no specific link made to the Directive on Sustainable Use of Pesticides[40], but the Programmes of Measures relate to the content of this Directive. These actions are aimed at achieving reduction of pesticide concentrations in groundwater and in surface water as this is recognised as a major issue for not reaching good status. For all RBMPs, reducing the use of plant protection products is done under the Ecophyto Plan: Farmers, communities and other managers (communication routes, gardeners, activity zones, golf courses, parks, etc.) are encouraged to be part of a process to reduce the use of plant protection products. This approach is carried out in coherence with the implementation of the Ecophyto Plan and more particularly with its axes 2 (identify and generalise agricultural systems and known ways to reduce the use of pesticides), 3 (innovate in the design and development of pesticide-saving crops) and 7 (reduce and secure the use of plant protection products in non-agricultural areas). The Ecophyto Plan was already established in the previous RBMPs at a national scale. France subsequently informed the Commission that there are different types of control mechanisms for the implementation of the Programmes of Measures, including controls under the Nitrates Directive, controls under CAP and controls on mandatory measures linked to the protection of the environment against pesticides pollution. Therefore, this recommendation is partially fulfilled.

- Recommendation: *Define measures targeted to agriculture at an appropriate level of detail to ensure their uptake by farmers and their inspection by relevant agencies.*

[40] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0128

Assessment: The level of detail at which measures targeted to agriculture are defined varies among RBDs. For example, in the Programme of Measures for Artois-Picardie, some limited details on the implementation of measures are included, but no examples are provided. Information on location (only available for some measures) relates to the catchment, or vulnerable zones in the RBD. There is little information related to timing (one measure discusses winter ground covering), or any further detail. However, in other RBDs, for example the Rhone RBD, the Programme of Measures provides more detail on exactly what each measure may consist of, and examples of how to implement the measure, during which periods (that is, related to spreading periods or seasons), and in what areas (Nitrate Vulnerable Zones and eutrophic zones, but also measures specifically for storage areas and equipment, or a certain distance related to buffer strips). No detailed information was found in the Programmes of Measures on control mechanisms for measures related to agriculture. Nevertheless, France subsequently informed the Commission that there are different types of control mechanisms for the implementation of the Programmes of Measures, such as controls under the Nitrates Directive, controls under CAP and controls on mandatory measures linked to the protection of the environment against pesticides pollution. Therefore, this recommendation is considered as partially fulfilled.

- Recommendation: *On measures related to agriculture, the baseline for water protection needs to be very clear so all farmers are informed, and the authorities in charge of the Common Agricultural Policy funds can adequately set up Rural Development programmes and cross compliance water requirements.*

  Assessment: Information on how much of the gap to the achievement of the WFD objectives is expected to be closed by measures related to agriculture is provided in terms of the number of water bodies for which a measure is planned in the 2016-2021 Programmes of Measures. However, there is no clear information as to whether measures are obligatory or voluntary. This recommendation is therefore partially fulfilled.

- Recommendation: *Enhance measures to tackle pollution by nutrients (nitrogen and phosphorus), considering their impact on ecological status. Full consideration of the RBD-wide impact is needed in this respect (local and downstream up to transitional and coastal waters).*

Assessment: In some RBDs, the Programmes of Measures (e.g. the Programme for Artois-Picardie) mention the implementation of a nitrates action plan for the RBD – referring specifically to increased manure storage capacity for new vulnerable zones. In other RBDs, the Programmes of Measures go one step further. For instance, the Programme of Measures of the Rhone RBD includes a measure to go beyond the requirements of the Nitrates Directive. This measure, and others on nutrient pollution, appear to be applied for all farmable land, though it is unclear if there is consideration of "RBD-wide impact". Therefore, this recommendation is partially fulfilled.

- Recommendation: *In particular, it is expected that RBMPs, based on the necessary reduction in nutrient load, clearly identify the extent to which the measures already taken under the implementation of Nitrates Directive and Urban Wastewater Treatment Directive*[41] *contribute to the achievement of WFD objectives and which additional measures should be taken to actually achieve these objectives. A clear identification of basic (mandatory) measures is expected to be made transparent both to the sectors and to the general public.*

  Assessment: No gap assessment was done but there is information on the number of water bodies for which a measure is planned in the second Programme of Measures. However, it remains unclear to what extent the various measures (under various pieces of legislation) will contribute to closing the distance to the target. Supplementary measures are applied in all RBDs. General binding rules for nitrates, pesticides, phosphorus and sediments to control diffuse pollution from agriculture are set and applied in all RBDs. Hydromorphological pressures from agriculture are no longer reported. This recommendation has not been fulfilled.

[41] Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271

Topic 12 Measures related to pollution from sectors other than agriculture

12.1 Assessment of implementation and compliance with WFD requirements in the second cycle

In the context of this topic, pollution is considered in terms of nutrients, organic matter, sediment, saline discharges and chemicals (priority substances, river basin specific pollutants, groundwater pollutants and other physico-chemical parameters) arising from all sectors and sources apart from agriculture. Key Types of Measure (KTM) are groups of measures identified by Member States in their Programmes of Measures which target the same pressure or purpose. A KTM could be one national measure but would typically comprise more than one national measure. The same individual measure can also be part of more than one KTM because it may be multipurpose, but also because the KTMs are not completely independent of one another.

A total of 17 KTMs relevant to non-agricultural sources of pressures causing failure of WFD objectives have been reported for all French RBDs. These KTMs include those measures that are relevant to this topic such as:

KTM1 - "Construction or upgrade of wastewater treatment plants",

KTM4 - "Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)",

KTM15 – "Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances",

KTM16 – "Upgrades or improvements of industrial wastewater treatment plants (including farms)" and

KTM21 - "Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure".

The WFD specifies that Programmes of Measures shall include, as a minimum, “basic measures” and, where necessary to achieve objectives, “supplementary measures” when basic

measures are not enough to address specific significant pressures. French RBMPs contain quantitative information on basic and supplementary measures used to tackle pollution from non-agricultural sources. The number of basic measures to tackle pollution from non-agricultural sources is provided for three measure types for 13 of 14 French RBDs. For the Corsica RBD, this information is missing.

France provided more targeted information on basic measures required under Article 11(3)(c to k). Use of an authorisation and/or permitting regime to control waste water point source discharges (Basic measures Article 11(3)(g)) is available in all French RBDs for surface and groundwater. A Register of waste water discharges (Basic measures Article 11(3)(g)) is also available in all French RBDs for surface and groundwater.

As regards thresholds below which waste water discharges do not require permits and are not subject to registration, the small discharges are exempted from controls in all French RBDs. Some direct discharges to groundwater are authorised in France in accordance with Article 11(3)(j).

It can be stated in general terms that there are measures in place to eliminate or reduce pollution from Priority Substances and other substances in all RBDs in France.

However, in all the second RBMPs that were assessed more in depth (Rhone-Mediterranean, Scheldt and Martinique), there are Priority Substances causing failure of WFD objectives for which no measures have been planned. In the Réunion RBD, measures are described in general with the aim of reducing emissions of the Priority Substances and eliminating emissions of the Priority Hazardous Substances. In RBDs Scheldt and Rhone-Mediterranean, actions to reduce pollution by Priority Substances have been explicitly included as KTMs. In the Rhone-Mediterranean RBD, measures have been established to address pharmaceuticals that need to be better controlled, improve sediment management, better control pesticide use, and mitigate pollution following storm events. In the Scheldt RBD, the measures cover better control of industrial waste and further innovation of technologies that can reduce the emissions of dangerous substances.

As far as measures for Priority Substances causing failure are concerned, in the Rhone-Mediterranean and Scheldt RBDs the following measures are planned:

- Authorisation, registration and declaration of regime for installations classified for protection of the environment; Articles L. 511-1 to L. 512-20 and R. 511-1 to R. 512-75 of the Code of the environment; Order of February 2, 1998 related to levies and water consumption and emissions of any kind of classified installations for the protection of the environment subject to authorisation;

- Control and sanction measures for installations classified for the protection of the environment; Articles L. 514-4 to L. 514-17 and R. 514-1 to R. 514-5 of the Code of the environment Order of February 2, 1998 related to levies and water consumption and emissions of any kind of classified installations for the protection of the environment subject to authorisation;

- Definition of national research actions and reduction of hazardous substances;

- Establishment of a list of dangerous substances in the field of water;

- Procedures for the application of the activity tax;

- Water protection measures and fight against all pollution from spills, deposits, runoff or releases;

- Regulation of works and activities resulting in water pollution by discharges;

- Definition of criminal penalties relating to pollution of waters in any way whatsoever;

- Obligation of waste disposal and liability of actors in this operation;

- Determination of limitation and use measures concerning the volume of thermal discharges for the establishments industrial producers of these releases; Circular of 4 February 2002 Circular of January 5, 2009 Articles L. 151-1, L. 211-1 to L. 211-3, L. 214-1, L. 216-6, L. 541-2, L. 541-4, L. 541-37 and L. 541-38 of the Code of the environment.

- Measures taken pursuant to the Directive on plant protection products[42].

As far as measures for River Basin Specific Pollutants causing failure are concerned, in the Réunion RBD, there is a micropollutant plan in place, according to which monitoring of these substances has been carried out and specific pollutants have been characterised, but no specific list of measures to address these substances has been produced. Measures to reduce specific pollutants are included in the list in a general way and targeted to sectors. For all French RBDs, there is the Ecophyto Plan in place, which aims at reducing pesticide use. Other measures are taken at an RBD scale with support of OSMOSES, the general tool for selecting measures. In the Scheldt RBD a problem with polycyclic aromatic hydrocarbons and chlorinated substances is mentioned specifically.

Concerning pollutants causing failure of good chemical status in groundwater, monitoring of sensitive areas under the Urban Waste Water Treatment Directive in France applies to discharges from treatment plants in and outside of sensitive areas. These discharges are monitored by means of self-checks carried out by a treatment plant operator. Measures to reduce nutrient pollution are also linked to the unsatisfactory nutrient concentrations in the marine environment, and the flux of nutrients towards the sea is measured. In the Rhone-Mediterranean RBMP it is mentioned that restoration of degraded environments will be acted on in a coordinated way at the watershed scale, in which nutrient management is included. The capacity of the "self-cleaning potential" of the riverine environment and actions to improve this has been referred to. In the Rhone-Mediterranean RBMP, the measures on nutrient pollution apart from agriculture are included in a general way, and reference is made to the SAGEs, which are the more comprehensive local water management plans where measures are described in more detail.

12.2 Main changes in implementation and compliance since the first cycle

The first RBMPs reported that different general measures had been included in the Programmes of Measures to address chemical pollution and that some specific measures had also been taken as necessary in specific RBDs, but no measures for specific substances causing failure were reported.

[42] Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:31991L0414

The 2018 assessment shows that there are measures in place to eliminate / reduce pollution from Priority Substances and other substances (Basic measures Article 11(3)(k)) in all RBDs. However, information reported to WISE shows that no KTMs have been made operational based on pressures from specific Priority Substances, despite a number of Priority Substances causing failure to reach good status (see chapter 4 for more information).

It can be summarised that the Programmes of Measures do not explicitly link measures to single Priority Substances causing failure. In the Rhone-Mediterranean, Scheldt and Martinique RBMPs there are Priority Substances which are causing failure of WFD objectives for which no measures have been planned. In the Martinique RBD, the measures are described in general terms.[43]

12.3 Progress with Commission recommendations

- Recommendation: "*The identification of River Basin Specific Pollutants needs to be more transparent, with clear information on how pollutants were selected, how and where they were monitored, where there are exceedances, and how such exceedances have been taken into account in the assessment of ecological status. It is important that there is an ambitious approach to combating chemical pollution and that adequate measures are put in place."*

  Assessment: RBMPs show that there are measures in place to eliminate / reduce pollution from chemical substances. However, no KTMs have been made operational based on pressures from specific substances, despite a number of them potentially causing non-compliance. It is not possible to determine whether the measures in place will be sufficient to tackle chemical pollution related problems. This recommendation is therefore considered partially fulfilled.

- Recommendation: "*Check that nutrient standards are consistent and provide a more coherent strategy encompassing WFD with the Urban Waste Water Treatment Directive in urban areas."*

[43] France subsequently clarified that it was a national choice to report KTMs for pressures and not for individual priority substances, as they consider that significant pressures are the right scale of action. France also highlighted that all significant pressures related to chemical pollution are covered by the reported KTMs for surface waters.

Assessment: The only information found refers to monitoring of sensitive areas under the Urban Waste Water Treatment Directive, which applies to discharges from treatment plants in and outside sensitive areas having an impact on the sensitive areas. These discharges are monitored by means of self-checks carried out by the operator. Further information on nutrient standards is available in Chapter 3. The recommendation is considered partly fulfilled.

- Recommendation: "*Enhance measures to tackle pollution by nutrients (nitrogen and phosphorus), considering their impact on ecological status. Full consideration of the basin-wide impact is needed in this respect (local and downstream up to transitional and coastal waters).*"

  Assessment: Measures to reduce nutrient pollution are linked to the unsatisfactory nutrient concentrations in the marine environment, and the flux of nutrients towards the sea is measured. In the Rhone-Mediterranean RBD, it is mentioned that restoration of degraded environments will be acted on in a coordinated way at the watershed scale, in which nutrient management is included. The capacity of the "self-cleaning potential" of the riverine environment and actions to improve this has been referred to. Furthermore, the objectives include achieving good status based, in part, on phosphorus and nitrogen parameters.

  The recommendation is partly fulfilled since the impact of measures on ecological status has could not be assessed.

- Recommendation: "*In particular, it is expected that RBMPs, based on the necessary reduction in nutrient load, clearly identify the extent to which the measures already taken under the implementation of the Nitrates and Urban Waste Water Treatment Directives contribute to the achievement of WFD objectives and which additional measures should be taken to actually achieve these objectives. A clear identification of basic (mandatory) measures is expected to be made transparent both to the sectors and the general public."*

  Assessment: For example in the Rhone-Mediterranean RBD, the measures on nutrient pollution apart from agriculture are included in a general way, and reference is made to the SAGEs, which are the more comprehensive local management plans; where

measures are described in more detail. The recommendation is considered partly fulfilled.

Topic 13 Measures related to hydromorphology

13.1 Assessment of implementation and compliance with WFD requirements in the second cycle

Significant hydromorphological pressures are reported in all 14 RBDs. Significant hydromorphological pressures have not been related to specific sectors and drivers. The drivers are reported as unknown/obsolete or indicated as "other", i.e. not specified as one of the key sectors indicated in the WISE reporting.

Operational KTMs to address the significant hydromorphological pressures are reported for 11 out of the 14 RBDs. No operational KTMs are taken to address hydromorphological pressures in the Réunion, Guyana and Martinique RBDs. There is a large variety of KTMs made operational to tackle hydromorphological pressures, namely KTMs 5, 6, 7, 8, 14, 22, 23 and 24. The majority of these KTMs (7, 8, 14, 22, 23 and 24) are made operational to address hydrological alterations in particular.

Specific measures in the RBMPs include a variety of measures, such as fish ladders, bypass channels, sediment management, removal of structures, restoration of bank and bed structure, setting of ecological flows, floodplain inundation, hydropeaking modifications.

In terms of basic measures, there is an authorisation and/or permitting regime in place to control physical modifications, which covers changes to the riparian area of water bodies, in all RBDs, according to WFD Article 11(3)(i). However, there is no register of physical modifications of water bodies in any of the RBDs.

Overall management objectives and quantitative objectives in terms of river continuity have been set in all RBDs and KTM5 (Improving longitudinal continuity) has been reported for all RBDs.

In the Rhine RBD, an agreement was reached within the Rhine Convention to find a long-term solution to ensure river continuity and to restore the wild salmon populations in the Rhine up to Basel. Possible financing options have been discussed in that framework. Some of the obstacles for the salmon migration still remain in the French sub-basin III Nappe Rhin, where France reported some measures under KTM5 and identified the costs for their implementation

during the second and the third cycle. However, no information was provided on what specific interventions have been planned.

Win-win measures in terms of achieving the objectives of the WFD and Floods Directive, drought management and use of Natural Water Retention Measures are reported to be included in the Programmes of Measures of all RBDs. The specific Key Type of Measure 23 on Natural Water Retention Measures is applied in six RBDs to tackle significant hydromorphological pressures. The RBMPs explain that Natural Water Retention Measures have been applied as a win-win solution in order to alleviate pressures from hydrological alterations, abstractions or flow diversion (hydropower), and various other pressures (urban wastewater, agriculture, physical alteration, dams barriers and locks). Several sections of the RBMPs describe win-win activities with relevance to climate change, green infrastructure, sustainable drainage, water retention measures, re-use of water, the Floods Directive implementation and structural measures.

The design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, is reported to have been adapted to take account of WFD objectives in all RBDs.

In four RBDs (Rhone-Mediterranean, Corsica, Adour-Garonne and Martinique), ecological flows have been derived for all relevant water bodies. In two of these RBDs (Adour-Garonne, Martinique), the derived ecological flows have been implemented in all relevant water bodies, while in the Rhone-Mediterranean and Corsica RBDs, there has been partial implementation and the work is still ongoing. In the remaining 10 RBDs, ecological flows have been derived only for some relevant water bodies and the work is still on-going. No further information was found in the RBMPs on the timeline for initiating or completing the implementation of ecological flows.

Specific measures to achieve ecological flows are planned in some but not all RBDs. National regulations set the framework for the application of ecological flows (minimum biological flow, restricted flow, low-flow target flow).

Concerning the level of ambition in tackling significant hydromorphological pressures, from the information available it can be concluded that there will be different levels of progress in the various RBDs in terms of closing the gap for hydromorphological pressures by 2021 (Indicators on the gap to be filled are reported for 2015 and 2021 but not for 2027.). In some RBDs, there will be a reduction of the number of water bodies for which hydromorphological

pressures are significant of between 40 % and 85 % (Rhone-Mediterranean, Corsica, Adour-Garonne, Loire-Brittany, Guadeloupe, Mayotte RBDs). In the other RBDs, there will be some reduction of hydromorphological pressures, between 10 % and 35 %.

For the KTMs, indicator values (number of water bodies for which measures are planned in the 2016-2021 Programmes of Measures to tackle hydromorphological pressures) are only reported for 2015, but not for 2021 and 2027. Therefore, no conclusions can be reached on the number of measures that will still be needed after 2021 for hydromorphological pressures.

13.2 Main changes in implementation and compliance since the first cycle

The links between hydromorphological measures and pressures have become clearer in the second RBMPs due to the improved reporting in WISE. However, the links between pressures and uses (drivers) remain largely unclear, as the drivers are reported as either unknown/obsolete or "other".

In some RBDs (e.g. Scheldt and Rhone-Mediterranean), it is indicated that hydromorphological measures have made progress but have also been affected by delays due to complex legal and practical issues (e.g. on land to be acquired). Furthermore, there is uncertainty on the effects of hydromorphological measures.

13.3 Progress with Commission recommendations

- *Recommendation: Ensure that ecological flow is considered wherever existing and planned abstractions may jeopardize the achievement of environmental objectives. This is particularly crucial when considering the review of water allocations and permits and the construction of new dams and reservoirs.*

  Assessment: Ecological flows have been derived for all relevant water bodies in four RBDs. In the other RBDs, they have been partially derived and work is still ongoing. National regulations set the framework for the application of ecological flows (minimum biological flow, restricted flow, low-flow target flow).

  No information was found on basic measures under Article 11(3) which impose controls on uses impacting the flow regime and whether and how these measures can support e-flow implementation.

From the above it cannot be concluded whether this recommendation is fully fulfilled in this second RBMPs.

- *Recommendation: Consider restoration measures as well as the use of green infrastructure and/or natural water retention measures that provide a range of environmental (improvements in water quality, flood protection, habitat conservation, etc.), social and economic benefits which can be in many cases more cost-effective than grey infrastructure.*

  Assessment: The specific KTM23 on Natural Water Retention Measures is applied in six RBDs to tackle significant hydromorphological pressures. Restoration measures are also considered, such as measures to restore bank and bed structures, measures related to floodplains and measures to restore river continuity. The RBMPs explain that Natural Water Retention Measures have been applied as a win-win solution in order to alleviate pressures from hydrological alterations, abstractions or flow diversion (hydropower), and various other pressures (urban wastewater, agriculture, physical alteration, dams barriers and locks). Several sections of the RBMPs describe win-win activities with relevance to climate change, green infrastructure, sustainable drainage, water retention measures, re-use of water, the Floods Directive implementation and structural measures.

  The information found in the RBMPs indicates that this recommendation is fulfilled.

Topic 14 Economic analysis and water pricing policies

14.1 Assessment of implementation and compliance with WFD requirements in the second cycle

It seems that a more coordinated approach than for the first RBMPs has taken place among the different RBDs with regard to the definition of water services.

Rates for cost recovery are provided for most water services in most RBDs, but the approaches used seem to differ significantly from RBD to RBD.

The "adequateness" of the contributions of water uses is not explained. Information reported to WISE states that no water uses benefit from the water services.

Environmental and resource costs are mostly regarded as significant, and stated as being internalised for all water services except flood protection.

The Economic Analysis is updated from the first cycle in all relevant RBDs.

There are still some significant differences concerning cost recovery rates and calculation and contribution to cost recovery in the different RBDs, hinting at limits to the co-operation at the national level.

14.2 Progress with Commission recommendations

- Recommendation*: Provide a more complete definition of water services and a proper recovery of cost to contribute to the objectives, especially when fully accounting for environmental and resource costs for services creating a pressure on water bodies.*

  and

- Recommendation*: Water services have been interpreted differently in the French RBD. Some RBDs have a broad approach, which takes into account all possible abstraction, storage, treatment, impoundment etc. In other RBDs, the approach has been narrower, taking into account public and self-water abstraction and wastewater treatment for all sectors, as well as irrigation. Finally, in some RBDs, the approach has been even more limited, taking into account only abstraction and wastewater treatment for households, industry and abstraction for agriculture.*

Assessment: It seems that a national, or at least more coordinated, approach than for the first RBMPs has taken place among the different RBDs with regard to the definition of water services. The definition of water services is mostly the same now in the RBDs, reported on WISE as being navigation and flood protection, as well as agriculture, households, industry, hydropower and the "crafts sector"; households, industry, agriculture and the “crafts sector” defined nationally benefit from the water services and contribute to the cost recovery of these services.Although drinking water supply and waste water treatment are not mentioned here, the respective chapters in the RBMPs have the focus on these two services.

It is not clear what water uses have been identified for Article 9 purposes (in order to establish their contribution to cost recovery).

Rates for cost recovery are provided for most water services in most RBDs, but there is no consistency (in some RBDs, cost recovery rates are provided for all services, in some for none etc.). There is one clear and shared methodology to calculate cost recovery written in a national guidance. The RBDs are however free to present the results as they see fit which may lead to wrongly assuming that the methodology differs from one to another.

The "adequateness" of the contributions of water uses is not explained. Information reported to WISE states that no water uses benefit from the water services.

Environmental and resource costs are mostly regarded as significant (except in the Mayotte RBD), and stated as being internalised for all water services except flood protection (again, not in the Mayotte RBD). How this is done is not described comprehensively in all RBMPs.

There are still some significant differences concerning cost recovery rates and calculation and contribution to cost recovery in the different RBDs, hinting at limits to the co-operation at the national level.

Overall, there is partial progress towards fulfilling these recommendations.

Topic 15 Considerations specific to Protected Areas (identification, monitoring, objectives and measures)

15.1 Assessment of implementation and compliance with WFD requirements in the second cycle

France has reported Protected Areas for all relevant Directives in the second RBMPs (Table 15.1)[44].

Table 15.1 Number of Protected Areas of all types in each RBD of France, for surface and groundwater

Protected Area type	Number of Protected Areas[45]				
	Rivers	Lakes	Transitional	Coastal	Groundwater
Abstraction of water intended for human consumption under Article 7	1088	96	23	18	24 465
Recreational waters, including areas designated as bathing waters under Bathing Waters Directive[46]	955	363	135	1 889	
Protection of species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 79/409/EEC (Birds)[47]	89	32	18	26	156

[44] France subsequently clarified that Protected Areas designated under the Nitrates Directive are only reported under the Nitrates Directive Guidance and are not reported to WISE so are not included in this table.

[45] France subsequently informed the Commission that the reported information in WISE was not accurate. This table reflects the updated/corrected data

[46] Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006L0007

[47] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147

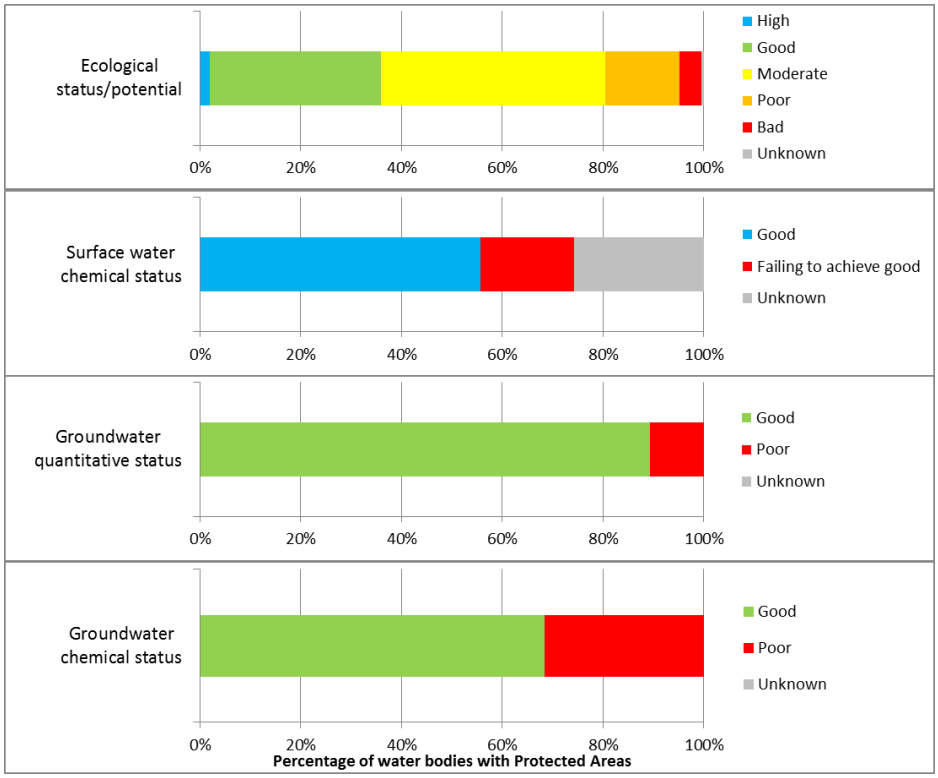
Protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC (Habitats)[48]	625	84	72	109	647
Nutrient-sensitive areas designated as sensitive areas under Urban Wastewater Treatment Directive	88	41	32	21	
Areas designated for the protection of economically significant aquatic species			34	68	

Source: Member States reports to WISE

A good overview of the status of water bodies associated with Protected Areas is reported (Figure 15.1) with the status classification reported with three degrees of confidence.

[48] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043

Figure 15.1 Status of water bodies associated with the Protected Areas report for France. Note: based on status/potential aggregated for all water bodies associated with all Protected Areas



Source: WISE electronic reporting

France reported that, for the majority of Protected Areas designated under the Birds and Habitats Directives, no specific water objectives have been set to protect dependent habitats or species because the additional needs are not known. For a small proportion of these Protected Areas, additional objectives have been set but work is still ongoing to establish the needs of the features of interest. For a small number of Protected Areas in the RBDs of Rhone-Mediterranean and Corsica, additional objectives have not been set because the objectives of the WFD in associated water bodies are considered sufficient to protect the features of interest. Progress with establishing the need for additional objectives is, so far, limited.

For Protected Areas related to shellfish and for Drinking Water Protected Areas additional objectives have been set for both surface and groundwaters.

The WFD requires Member States to establish monitoring programmes for Protected Areas as far as the status of surface and groundwater bodies is concerned. Monitoring sites of surface

water associated with Protected Areas are only reported for those under Article 7 of the WFD (and only in one RBD - Guadeloupe) and the Nitrates Directive. However, no Protected Areas associated with the Nitrates Directive have been reported. France subsequently informed the Commission that Protected Areas have been designated under the Nitrates Directive in France, and these are regularly reported under the Nitrates Directive (last updated in June 2016), and hence France did not report vulnerable zones again under the Water Framework Directive.

No specific monitoring sites are reported as associated with other types of Protected Areas. Monitoring of Protected Areas under Article 7 is reported only for rivers (in one RBD) whilst monitoring of Protected Areas designated under the Nitrates Directive is reported to be undertaken primarily in groundwater and rivers with some sites in lakes and transitional waters. Further information on the purpose of monitoring sites for surface water and groundwater status assessment can be found in Chapters 3 and 4 (ecological and chemical status of surface waters) and Chapters 5 and 6 (quantitative and chemical status of groundwaters) of this report.

The reported monitoring programmes for Protected Areas in France are inadequate: they do not cover all types of Protected Areas; and the number of monitoring sites for Protected Areas designated under Article 7 in rivers is very small (16) compared to the number of Protected Areas reported (1088).

Table 15.2 Number of monitoring sites associated with Protected Areas in France

Protected Area type	**Number of monitoring sites associated with Protected Areas in**			
	Groundwater	**Lakes**	**Rivers**	**Transitional**
Abstraction of water intended for human consumption under Article 7			16	
Nutrient-sensitive areas, including areas designated as vulnerable zones under Directive 91/676/EEC and areas designated as sensitive areas under Directive 91/271/EEC	2158	1	1641	3

Source: WISE electronic reporting

With respect to measures and exemptions,for Drinking Water Protected Areas, there are safeguard zones in all RBDs, there are no plans to change the regulations as a result of these RBMPs and no exemptions for either surface or groundwater bodies have been used.

15.2 Main changes in implementation and compliance since the first cycle

There are only minor changes between the number of different types of Protected Areas in the first and the second cycle - the only exception is Protected Areas related to the Habitats Directive, where the number is significantly higher in the second cycle.

The specific monitoring activity in relation to Protected Areas was significantly higher in the first cycle than in the second.

15.3 Progress with Commission recommendations

There were no recommendations from the first cycle in relation to this topic.

Topic 16 Adaptation to drought and climate change

16.1 Assessment of implementation and compliance with WFD requirements in the second cycle

Climate change adaptation was considered in various ways in all RBDs and it is stated that the guidance on how to adapt to climate change (Common Implementation Strategy Guidance Document No. 24) was used. Following the Commission's recommendation, specific climate change aspects have been considered in all RBDs, related to the following aspects: monitoring change at reference sites, maximisation of cross-sectoral benefits and minimisation of negative effects across sectors, detecting climate change signals and assessing direct and indirect climate pressures. Climate change is also considered in flood risk and drought management as well as when dealing with water scarcity. However, climate change is also reported as a driver for exemptions in the Scheldt, Sambre and Mayotte RBDs. The Rhone-Mediterranean RBD also addressed climate change when setting objectives. Specific climate change adaptation measures, KTM24, have been applied in the Scheldt, Sambre, Rhone-Mediterranean, Corsica, Seine-Normandy, Guyana and Réunion RBDs. In all RBDs, there are national measures mapped against KTM24. No specific sub-plans addressing climate change are reported for France.

According to the 2012 Topic report on: Assessment of Water Scarcity and Drought aspects in a selection of European Union RBMPs[49], droughts are relevant for the country, with Adour-Garonne facing RBD-wide droughts, the Sambre, Rhone-Mediterranean and Réunion RBDs facing local droughts, and the Corsica, Loire-Brittany and Seine-Normandy RBDs not clearly distinguishing droughts from water scarcity. No exemptions have been applied for France following Article 4(6) due to prolonged droughts.

No Drought Management Plans have been reported for France. However, in 2012 (Topic report on: Assessment of Water Scarcity and Drought aspects in a selection of European Union RBMPs), such plans or elements of them were already in place. The European Commission made no recommendation regarding drought management.

[49] http://ec.europa.eu/environment/water/quantity/pdf/Assessment%20WSD.pdf

16.2 Main changes in implementation and compliance since the first cycle

Climate change issues have been more extensively incorporated into the second RBMPs, including pressure analysis, monitoring and a climate check of the Programmes of Measures.

Even though there is no legal obligation to prepare Drought Management Plans, many Member States have prepared them in order to cope with droughts. No Drought Management Plans has been reported for France. However, in 2012 (Topic report on: Assessment of Water Scarcity and Drought aspects in a selection of European Union RBMPs), such plans or elements of them were reported to be already in place. France subsequently clarified that local decrees could be adopted to face droughts.

16.3 Progress with Commission recommendations

- Recommendation: *The consideration of climate change issues should be more extensively incorporated into the second RBMPs including pressure analysis, monitoring and a climate check of the Programme of Measures.*

  Assessment: Climate change was considered in various ways in all RBDs and it is stated that the guidance on how to adapt to climate change (Common Implementation Strategy Guidance Document No. 24) was used. Following the Commission's recommendation, specific climate change aspects have been considered in all RBDs, related to the following aspects: monitoring change at reference sites, maximisation of cross-sectoral benefits and minimisation of negative effects across sectors, detecting climate change signals and assessing direct and indirect climate pressures. Climate change is also considered in flood risk and drought management as well as when dealing with water scarcity. However climate change is also reported as a driver for exemptions in the Scheldt, Sambre and Mayotte RBDs. The Rhone-Mediterranean RBD also addressed climate change when setting objectives. Specific climate change adaptation measures, KTM24, have been applied in the Scheldt, Sambre, Rhone-Mediterranean, Corsica, Seine-Normandy, Guyana and Réunion RBDs. In all RBDs, there are national measures mapped against KTM24. This recommendation is fulfilled.