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**COMMISSION STAFF WORKING DOCUMENT**

**Member State : France**

*Accompanying the document*

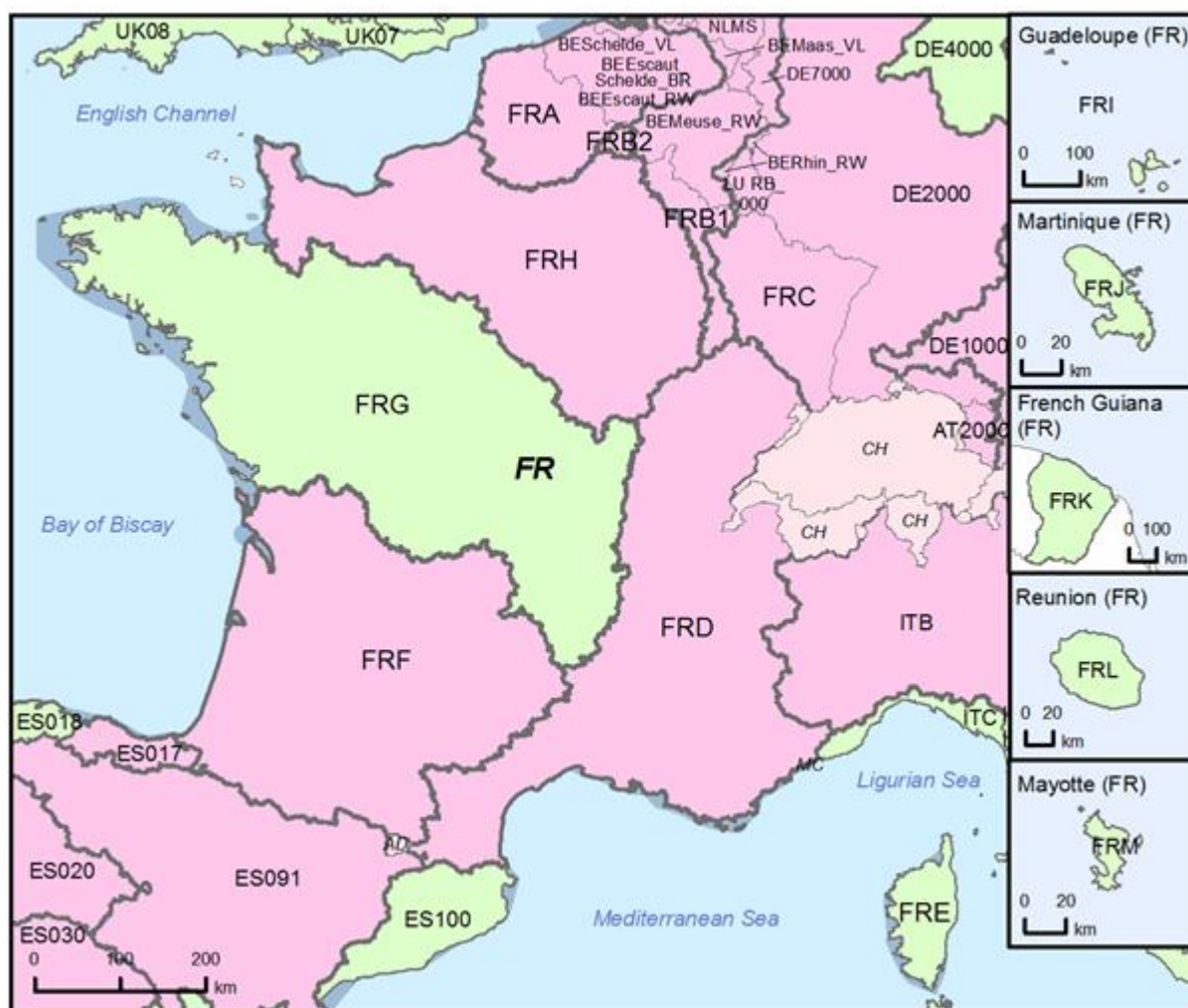
**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND  
THE COUNCIL**

**on the Implementation of the Water Framework Directive (2000/60/EC)**

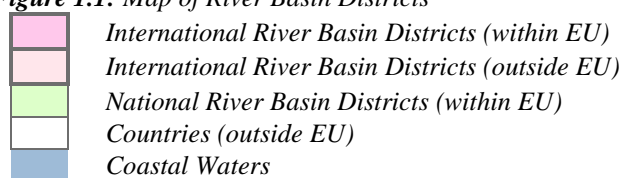
**River Basin Management Plans**

{COM(2012) 670 final}

# 1. GENERAL INFORMATION



**Figure 1.1:** Map of River Basin Districts



**Source:** WISE, Eurostat (country borders)

France has a population of 64.3 million<sup>1</sup> and a total area of 550 000 km<sup>2</sup>.

France has identified **13 River Basin Districts (RBDs)**, out of which 4 are overseas territories. Among them six are shared with another European country: Rhône, Adour Garonne, Rhin-Meuse, Artois Picardie, Seine and Normandie, with Belgium, Luxemburg, Germany, Switzerland, Italy and Spain. Four of the French RBDs are islands (Corsica, La Réunion, Martinique and Guadeloupe).

For the Meuse river basin, two separate but linked RBDs were designated (Sambre and Meuse).

RBD	Name	Size <sup>2</sup> (km <sup>2</sup> )	Countries sharing RBD
FRA	Scheldt, Somme and coastal waters of the Channel and the North Sea	18738	BE, NL
FRB1	Meuse	7787	BE, DE, LU, NL
FRB2	Sambre (part of the Meuse international RBD)	1099	BE
FRC	Rhine	23653	BE, CH, DE, LU, NL
FRD	Rhone and Coastal Mediterranean	120427	CH, ES, IT
FRE	Corsica	8713	-
FRF	Adour, Garonne, Dordogne, Charente and coastal waters of Aquitania	116475	ES
FRG	Loire, Brittany and Vendee coastal waters	156490	-
FRH	Seine and Normandy coastal waters	93991	BE
FRI	Guadeloupe	1780	-
FRJ	Martinique	1102	-
FRK	Guyana (French)	90000	-
FRL	Réunion Island	2512	-

**Table 1.1:** Overview of France's River Basin Districts

Source: River Basin Management Plans reported to WISE<sup>3</sup>: <http://cdr.eionet.europa.eu/fr/eu/wfdart13>

**Mayotte** was not a French territory by the date of the adoption of the RBMPs (2009). The RBMP for FRM Mayotte will be prepared for the next cycle (2015).

France has a number 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 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 some of these cases there is established co-operation on a bilateral level, although no international RBMPs have been adopted. Each of these French RBDs are therefore considered as international.

<sup>1</sup> Source: [http://europa.eu/about-eu/countries/member-countries/france/index\\_en.htm](http://europa.eu/about-eu/countries/member-countries/france/index_en.htm)

<sup>2</sup> Area includes coastal waters.

<sup>3</sup> This MS Annex reflects the information reported by the MS to WISE which may have been updated since the adoption of the RBMPs. For this reason there may be some discrepancies between the information reported in the RBMPs and WISE.

Name international river basin	National RBD	Other RBD names	Countries sharing RBD	Co-ordination category			
				1		2	
				km <sup>2</sup>	%	km <sup>2</sup>	%
Ebro	FRD	Adour Garonne (FR) / Cantabrico Oriental (ES)	CH, ES, IT			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		

**Table 1.2:** Transboundary river basins by category (see CSWD section 8.1) and % share in France<sup>4</sup>

Category 1: Co-operation agreement, co-operation body, RBMP in place.

Category 2: Co-operation agreement, co-operation body in place.

Category 3: Co-operation agreement in place.

Category 4: No co-operation formalised.

**Source:** EC Comparative study of pressures and measures in the major river basin management plans in the EU.

## 2. STATUS OF RIVER BASIN MANAGEMENT PLAN REPORTING AND COMPLIANCE

In France, the River Basin Management Plans, called SDAGE (Schéma Directeur d'Aménagement et de Gestion des Eaux) were adopted in December 2009. They can all be found at <http://gesteau.eaufrance.fr/consulter-les-sdage>.

There are 13 River Basin Districts (RBDs) in France, of which 7 are national parts of International RBDs. Mayotte has only been recently added to the French territory as a Département d'Outre-Mer and has not yet adopted a RBMP.

A summary of the main strengths and weaknesses of the French RBMPs is presented below.

### 2.1 Main strengths

- The French RBMPs have gone through an extensive co-ordination process between the different sectors and stakeholders involved and a wide process of consultation with the public.

<sup>4</sup> Categorisation determined under the EC Comparative study of pressures and measures in the major river basin management plans in the EU (Task 1b: International co-ordination mechanisms).

- There are a number of national guidelines that have been extensively developed for most of the WFD topics (monitoring, ecological and chemical assessment methods, groundwater assessment, exemptions).
- Substantial efforts have been made to integrate the WFD principles into the water management. A good understanding of the work needed for the proper implementation of the WFD has been demonstrated, and there has been continuous progress after the adoption of the first RBMPs (ecological and chemical assessment methods, designation of HMWBs, monitoring, etc.)

## **2.2 Main weaknesses**

- There are significant gaps in the development of assessment methods for the biological quality elements in this first RBMP. The biological assessment methods for rivers are significantly more developed than those for other water type. The assessment methods for supporting quality elements on physico-chemical and hydromorphological characteristics are generally only partially developed.
- For most of the French RBDs, the assessment of chemical status has been based on the Annex I of Environmental Quality Standards (EQS) Directive 2008/105/EC, but not for all. Furthermore, different substances have been used in the different plans (and not all the 41 substances of Annex I) for the assessment of chemical status of water bodies. For these reasons, the methods for the assessment of chemical status are very unclear, including which substances have been used, and the reasons for the selection of certain specific substances.
- There are a relatively high number of exemptions under Article 4(4) and 4(5) based on disproportionate costs, for which no clear justification has been provided in the RBMPs.
- Water services have been interpreted differently in the French RBDs. 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.

### 3. GOVERNANCE

#### 3.1 RBMP timelines

The table here below shows the dates of publication and adoption of the different documents to be produced during the planning cycle, as set in Article 14 of the WFD.

RBD	Timetable	Work programme	Statement on consultation	Significant water management issues	Draft RBMP	Final RBMP
Due dates	22/06/2006	22/06/2006	22/06/2006	22/12/2007	22/12/2008	22/12/2009
FRA	01/09/2004	01/09/2004	01/09/2004	01/09/2004	15/04/2008	20/11/2009
FRB1	02/05/2005	02/05/2005	02/05/2005	04/02/2005	24/11/2006 to 15/04/2008	17/12/2009
FRB2	01/09/2004	01/09/2004	01/09/2004	01/09/2004	15/04/2008	20/11/2009
FRC	02/05/2005	02/05/2005	02/05/2005	04/02/2005	24/11/2006 to 15/04/2008	17/12/2009
FRD	02/05/2005	02/05/2005	02/05/2005	02/05/2005	15/04/2008	21/12/2009
FRE	02/05/2005	02/05/2005	02/05/2005	15/03/2005	09/06/2008	21/12/2009
FRF	02/05/2005	02/05/2005	15/04/2008	05/02/2005	15/04/2008	21/12/2009
FRG	01/09/2004	01/09/2004	01/09/2004	01/09/2004	15/04/2008	21/12/2009
FRH	02/05/2005	02/05/2005	02/05/2005	02/05/2005	15/04/2008	21/12/2009
FRI	01/10/2005	01/10/2005	15/12/2008	01/03/2005	15/12/2008	17/12/2009
FRJ	01/11/2005	01/11/2005	01/11/2005	01/05/2006	15/12/2008	17/12/2009
FRK	02/01/2007	02/01/2007	02/01/2007	02/01/2007	15/12/2008	17/12/2009
FRL	22/03/2006	22/03/2006	22/03/2006	22/03/2006	15/12/2008	17/12/2009
FRM	-	-	-	-	-	-

**Table 3.1:** Timeline of the different steps of the implementation process

Source: WISE

#### 3.2 Administrative arrangements

The main authority responsible for the implementation of the WFD is the French Ministry of Environment and its regional offices (Directions Régionales de l'Environnement, de l'Aménagement et du Logement).

There is a strong national approach in WFD implementation in the different RBDs.

French Ministry representatives have been responsible since 2006 for the ensuring implementation of the new French water law, which introduces WFD requirements into French law. They are responsible for information, and for the control of mandatory measures driven by new decrees (pesticides/nitrates diffuse and point contamination sources, water withdrawal for irrigation, ecological continuity...). Water basin agencies are responsible for implementing the Polluter Pays Principle through a tax/subsidy system, and for providing local engagement, and financial support for implementing the Programme of Measures annexed to the RBMP.

#### 3.3 RBMPs – structure, completeness, legal status

RBMPs are prepared by the Water Agencies and the regional offices of the Ministry of Environment (DREAL), through a large process of cooperation and consultation. The

documents are adopted by River Basin Committees, and approved by the Co-ordinating Prefect (*'préfet coordonnateur de bassin'*).

The RBMP is a planning document. In the hierarchy of legal acts, on the one hand, it falls under laws and regulations (decrees) and cannot contradict them. On the other hand, it stands above water-related administrative decisions including various planning documents. In addition, it applies only at the river basin scale and therefore cannot modify national-level administrative decisions. The Environmental Code stipulates that the administrative programmes and decisions in the field of water must be compatible, or made compatible, with the provisions of the RBMP, in particular the environmental objectives. The binding nature of the RBMP derives from an obligation of compatibility, which stands between an obligation of taking into account and an obligation of compliance. It implies that the administrative decision or programme should not contradict the main objectives and provisions of the RBMP. It is not directly binding on individuals but on the administration. Therefore, it is the administrative decision which, for example, authorises an individual action contrary to the RBMP, which can be brought to court<sup>5</sup>. Such decisions would include permitting for industrial installations and hydropower concessions as well as authorisations for abstraction for agriculture. This obligation also applies to existing permit/concessions. However, there is no time limit specified for making the individual permitting decisions compatible with the RBMPs.

There is also an obligation to ensure other plans are compatible with the RBMPs.

**SDAGE – SAGE:** the coherence between the SDAGE (*'Schémas Directeurs d'aménagement et de gestion des eaux'* at RBD level) and the SAGE (*'Schémas d'Aménagement et de Gestion des Eaux'* for sub-basin or the appropriate hydrographical unit) – the SAGE translates the provisions of the SDAGE to the local context. The SAGE should always be or made compatible with the provisions of the SDAGE, and the SAGE is approved by the State. The River Basin Committee is responsible for the implementation of the SDAGE, and the SAGE is submitted for the opinion of the River Basin Committee. Furthermore, all programmes or administrative regulations related to water management (including town planning and land use) should be made compatible with the SDAGE.

Several **guidance documents** have been prepared by working groups with representatives of national authorities and of RBD level authorities. They set the common methodologies in accordance with the WFD requirements. This guidance documents are applied in each RBD, with some adaptations if needed, but always in line with the obligations stemming from the WFD.

**Influence of public consultation in the adopted plans:** websites have been established to provide information on the replies received and the assessment of those replies, and to make the opinions of different regional and local authorities publicly available.

The main changes that such consultation has brought about relate to changes in the selection of measures, or the modification of a specific measure, and to the provision of additional information. To a lesser extent, the consultation has resulted in methodologies being changed, further research being carried out or commitments being made for actions in the next cycle.

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<sup>5</sup> Information from the 'EC Comparative Study of Pressures and Measures in the major river basin management plans in the EU'

### 3.4 International cooperation and coordination

There are different levels of international co-ordination: ranging from the international RBMPs of the Scheldt, the Rhine and the Meuse, through international co-ordination through bilateral agreements in respect of the Rhone, to administrative arrangements on co-ordination of objectives and PoM (Spain – Adour) or exchange of information and some sort of co-ordination (Seine – with Belgium). Although the national RBMP states that the Rhône RBDs is not an international RBD, there is information about bilateral co-operation with, for instance, Switzerland, in the preparation of the RBMP.

### 3.5 Integration with other sectors

The different stakeholders involved in the implementation of the WFD (farmers' organisations, industries, households, consumers, municipalities, fishing and recreational users, etc.) are involved through their representatives in the River Basin Committees.

There is a continuous involvement of stakeholders and the general public through the River Basin Committees, which are the bodies designated to ensure the proper implementation of the PoM. The Coordinating Prefect (*'préfet coordonnateur de bassin'*) approves the SDAGE after adoption by the River Basin Committee and adopts the PoM after the consultation of the River Basin Committee. The implementation of the measures is divided between the State, the public authorities and the users.

After a wide process of consultation, with all relevant stakeholders, the River Basin Committee gathers the different contributions from the public and the stakeholders and submits the draft RBMP. The RBMP is an '*Arrêté*'<sup>6</sup> to be applied only at river basin scale, which cannot contradict other laws or regulations, and which stands above other water-related administrative decisions.

The permits and the co-ordination with other policies seem to be co-ordinated by the main WFD Competent Authority.

Permits for hydropower authorisations must be compatible or made compatible with the provisions of the SDAGE (including for authorisations and their renewal), but the deadline to make them compatible is not established in the environmental law.

The revision of authorisations for water abstraction was aligned with the WFD 6 years, so the revision of the SDAGE may trigger a revision of the authorisation to make it compatible with the SDAGE. The same applies for IPPC and other industrial installations (they all are administrative decisions) – and the SDAGE can even impose stricter limits to the direct or indirect discharge of hazardous substances to the limits set at national level, if that is necessary for the achievement of good status.

### 3.6 Other information

A **Strategic Environmental Assessment** has generally been carried out for the planned Programme of Measures (PoM), except from for the Rhone, the Loire and the Seine, and has been either integrated in the RBMP or adopted as a different document. However, an environmental report is compulsory for all SDAGEs and it is included in the document of the plans.

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<sup>6</sup> '*Arrêté du préfet coordonnateur de bassin*'



The **financial resources** of water taxes are allocated to the Water Agencies' budget and therefore directly allocated to the French water policy. There are binding financial commitments through the Water Agencies' intervention programs for financing WFD priorities, and are complemented by funding from regulatory activities of public institutions and local and regional authorities. These sources of funding are however not mentioned in the RBMPs.

## 4. CHARACTERISATION OF RIVER BASIN DISTRICTS

### 4.1 Water categories in the RBD

All mainland French RBMPs include all types of water categories, except for transitional and coastal waters for the Meuse, the Sambre and the Rhine. The RBMP of Guadeloupe only includes rivers and coastal waters, and the one of the Réunion Island does not include transitional waters.

### 4.2 Typology of surface waters

The following table presents an overview of the different typologies identified and the total number of water bodies for each water type. Surface water typologies have been developed for all water categories. France has reported just over 100 water surface water body types, of which more than 70% are rivers.

RBD	Rivers	Lakes	Transitional	Coastal
FRA	9	3	2	3
FRB1	9	3	0	0
FRB2	12	4	2	3
FRC	18	8	0	0
FRD	143	31	3	7
FRE	143	31	1	4
FRF	143	31	5	7
FRG	143	31	12	26
FRH	143	31	2	7
FRI	4	0	0	6
FRJ	3	1	1	7
FRK	8	1	3	1
FRL	6	2	0	6

**Table 4.1:** Surface water body types at RBD level

**Source:** WISE

However, the water typologies have in general not been tested against biological data. Only in the RBMPs of the Rhone and the Loire, it is stated that the typology has been tested against biological data for all water categories. For the rest, this has only been done for rivers (Sambre), only for rivers but partially (Seine) and only partially for rivers, coastal and transitional water bodies (Martinique Island).

The reference conditions have not been completely defined in all RBMPs. They have not been established for all types, but mainly for rivers and lakes, and in general they have been established only partially (only for some quality elements). This is expected to be improved

for the next cycle of RBMPs. Furthermore, some biological quality elements still need to be intercalibrated. Further development of the methods to establish the reference conditions will be needed, and especially for transitional and coastal waters.

### 4.3 Delineation of surface water bodies

RBD	Surface Water								Groundwater	
	Rivers		Lakes		Transitional		Coastal			
	Number	Average Length (km)	Number	Average Area (sq km)	Number	Average Area (sq km)	Number	Average Area (sq km)	Number	Average Area (sq km)
FRA	55	44	4	1	4	15	5	101	16	1307
FRB1	141	21	4	1	0	0	0	0	11	1062
FRB2	11	33	1	2	0	0	0	0	2	773
FRC	473	22	25	2	0	0	0	0	15	2282
FRD	2610	15	103	8	27	28	32	79	180	786
FRE	210	14	6	1	4	7	14	151	9	1000
FRF	2680	15	105	3	12	48	11	140	105	3641
FRG	1940	51	141	2	30	17	39	305	143	1489
FRH	1679	15	45	3	7	39	19	102	53	3497
FRI	47	8	0	0	0	0	11	281	6	295
FRJ	20	12	1	0	4	3	19	51	6	180
FRK	934	20	1	350	8	78	1	1943	12	7309
FRL	24	25	3	0	0		13	12	16	177
Total	10824	22	439	4	96	30	164	163	574	1904

**Table 4.2:** Surface water bodies, groundwater bodies and their dimensions

Source: WISE

There is a national approach for the delineation of water types. The methodology is based on the identification of natural types together with the consideration of significant pressures. For rivers, **system B** has been used for the typology of natural water bodies. All river water bodies in a basin larger than 10 km<sup>2</sup> are taken into account (as required by directive system A).

The delineation of surface water bodies was carried out following a national approach, which establishes the general criteria to be used for the different RBMPs. This method is set in accordance with the '*Arrêté du 12 janvier 2010 relatif aux méthodes et aux critères à mettre en œuvre pour délimiter et classer les masses d'eau et dresser l'état des lieux prévu à l'article R. 212-3 du code de l'environnement*'. There is also a national methodology for the delineation of transitional water bodies.

**Small water bodies** – Small water bodies are defined to ensure coherence on the assessment units. For rivers, range 1 to 3 (2 to 5 km), range 4 and 5 (10 to 15 km), for higher ranges, 25 to 30 km. For lakes, water bodies are considered from 50 ha (around 500 lakes), and smaller lakes that include reference sites have been also considered as water bodies.

#### **4.4 Identification of significant pressures and impacts**

Pressures should have a sufficient intensity and geographical scope in order to be identified. The identification of the main pressures on the water bodies is used for the definitive delineation of water bodies.

There is a national guidance document to establish the methodologies for the identification of pressures (*'Arrêté du 12 janvier 2010 relatif aux méthodes et aux critères à mettre en œuvre pour délimiter et classer les masses d'eau et dresser l'état des lieux prévu à l'article R. 212-3 du code de l'environnement'*), which has been incorporated in the pressures definition of the different SDAGEs.

The definition of significant pressures is contained in a guidance document of March 2003 (*'Guide Pressions et Impacts. Mars 2003'*). A single pressure or a combination of several pressures should be considered as significant when it may lead to failure in the achievement of the WFD objectives. The difficulty lies in the establishment of a link between pressures and the potential degradation of the status of the water bodies. Therefore, modelling and spatial extrapolation needs to be carried out, and local expert judgment is required to verify the results of such modelling.

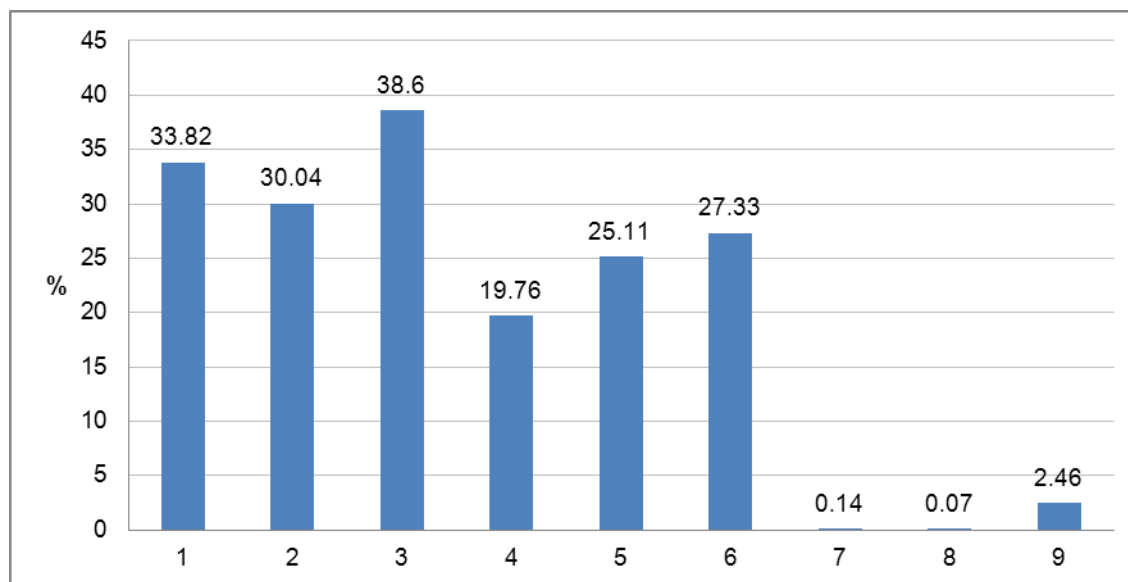
The significant pressures are established from the available monitoring data. However, these data are not complete or homogenous, and modelling together with expert judgment has been used to complete the assessment. The potential impact of the pressures has been deduced by this method and, by taking into account possible future developments, the risk of failing to achieve the objectives has been calculated. The thresholds have been defined ex-ante for the different pressures, and needed to be adapted to the characteristics of the specific water bodies with the help of expert judgment.

The data produced, together with expert judgment, has allowed for the production of the first RBMPs, and these will be consolidated for the next cycle with more quantitative / monitoring data. It is stated that the gaps encountered in the definition of significant pressures will be reduced in future planning cycles with the improvement of status data from monitoring and with the development of new rules and methodologies.

RBD	No pressures		Point source		Diffuse source		Water abstraction		Water flow regulations and morphological alterations		River management		Transitional and coastal water management		Other morphological alterations		Other pressures	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
FRA	0	0	62	91.18	63	92.65	0	0	55	80.88	54	98	0	0	0	0	4	5.88
FRB1	58	40	35	24.14	54	37.24	0	0	6	4.14	44	31	0	0	0	0	0	0
FRB2	0	0	11	91.67	12	100	0	0	12	100	11	100	0	0	0	0	0	0
FRC	119	23.9	185	37.15	289	58.03	0	0	49	9.84	158	33	0	0	0	0	0	0
FRD	1153	41.59	869	31.35	713	25.72	477	17.21	1183	42.68	923	35	0	0	0	0	3	0.11
FRE	178	76.07	24	10.26	16	6.84	26	11.11	36	15.38	20	10	0	0	0	0	0	0
FRF	1180	42.02	630	22.44	1176	41.88	748	26.64	1243	44.27	0	0	0	0	0	0	0	0
FRG	400	18.6	846	39.35	710	33.02	826	38.42	0	0	1318	68	0	0	0	0	4	0.19
FRH	190	10.86	725	41.43	1167	66.69	160	9.14	277	15.83	601	36	0	0	0	0	11	0.63
FRI	21	36.21	6	10.34	26	44.83	11	18.97	19	32.76	0	0	0	0	0	0	0	0
FRJ	4	9.09	25	56.82	35	79.55	9	20.45	0	0	0	0	0	0	0	0	0	0
FRK	586	62.08	38	4.03	181	19.17	0	0	0	0	0	0	0	0	0	0	245	25.95
FRL	8	20	6	15	6	15	20	50	13	32.5	0	0	0	0	0	0	16	40
Total	3897	33.82	3462	30.04	4448	38.6	2277	19.76	2893	25.11	3129	29	0	0	0	0	283	2.46

**Table 4.3:** Number and percentage of surface water bodies affected by significant pressures

**Source:** WISE



**Figure 4.1:** Graph of percentage of surface water bodies affected by significant pressures

1 = No pressures

2 = Point source

3 = Diffuse source

4 = Water abstraction

5 = Water flow regulations and morphological alterations

6 = River management

7 = Transitional and coastal water management

8 = Other morphological alterations

9 = Other pressures

**Source:** WISE

Around 33% of water bodies are not subject to any significant pressure. Pressures from point and diffuse sources have been identified in all RBMPs, and have been identified as significant pressures for 30 and 39% of surface water bodies respectively. Water abstraction has been identified as a significant pressure in 8 RBDs, being particularly relevant (around 38% of water bodies) in the Loire RBD. Morphological modifications and flow regulation affects more than 80% and river management for more than 92% of water bodies of the Scheldt RBD.

RBD	Point Source		Diffuse Source		Water Abstraction		Artificial Recharge		Saltwater Intrusion		Other Pressures	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
FRA	0	0	48	300	26	163	0	0	0	0	4	5.88
FRB1	0	0	4	36	4	36	0	0	0	0	0	0
FRB2	0	0	6	300	3	150	0	0	0	0	0	0
FRC	2	13	8	53	13	87	0	0	0	0	0	0
FRD	18	10	59	33	149	83	2	1,1	5	2,8	3	0.11
FRE	0	0	0	0	2	22		0	2	22	0	0
FRF	0	0	96	91	125	119	0	0	0	0	0	0
FRG	0	0	74	52	66	46	0	0	0	0	4	0.19
FRH	12	23	50	94	12	23	2	3,8	1	1,9	11	0.63
FRI	0	0	1	17	0	0	0	0	0	0	0	0
FRJ	0	0	3	50	0	0	0	0	0	0	0	0
FRK	8	67	18	150	0	0	0	0	0	0	245	25.95
FRL	1	6.3	11	69	12	75	0	0	6	38	16	40
Total	41	7.1	378	66	412	72	4	0.7	14	2.4	8	1.4

**Table 4.4:** Number and percentage of groundwater bodies affected by significant pressures.

*Source:* WISE

The main sectors responsible for the different type of pressures have also been identified in the all RBMPs. Point sources have, in general, not been clearly defined (Urban Waste Water Treatment plants, storms, IPPC or other non-IPPC pollution (only in the Sambre, and Rhone for UWWT and IPPC). Although this information on point source pollution is publicly available on a government website<sup>7</sup>, it has not been clearly explained in the RBMPs. The RBMPs state that all pollutants from which the impact on the environment is proven are considered as 'significant pressures' and are quantified. However, there are no reference values for the consideration of those pollutants.

There is no clear explanation either on diffuse sources (urban, agriculture, transport, etc.) or for other pressures (such as water abstraction, water flow regulation and morphological alterations) (except from the Rhone).

## 4.5 Protected areas

France has designated 33 602 protected areas, of which 86% are designated for abstraction for drinking water under Article 7 of the WFD, 10% under the Bathing Waters Directive, 2% under the Habitats Directive and 1% under the Birds Directive.

<sup>7</sup> <http://www.developpement-durable.gouv.fr/-L-assainissement-.html>

There are 2772 protected areas (around 8% of the total) that may be associated with groundwater bodies.

RBD	Number of PAs										
	Article 7 Abstraction for drinking water	Bathing	Birds	European Other	Fish	Habitats	Local	National	Nitrates	Shellfish	UWWT
FRA	1016	47	12			8			1	9	4
FRB1	670	8	7			11			1		1
FRB2	58	1	2			1			1		1
FRC	2834	58	16			38			1		3
FRD	8915	1.035	74			78			1	8	6
FRE	932	223	9			28				1	
FRF	4.424	510	61			269			1	8	19
FRG	5.327	995	94	42		302			1	38	
FRH	4.461	245	39			36			1	19	28
FRI	50	125									
FRJ	34	61									
FRK	55	14									
FRL	202	20									2
<i>Total</i>	<i>28.978</i>	<i>3.342</i>	<i>314</i>	<i>42</i>		<i>771</i>			<i>8</i>	<i>83</i>	<i>64</i>

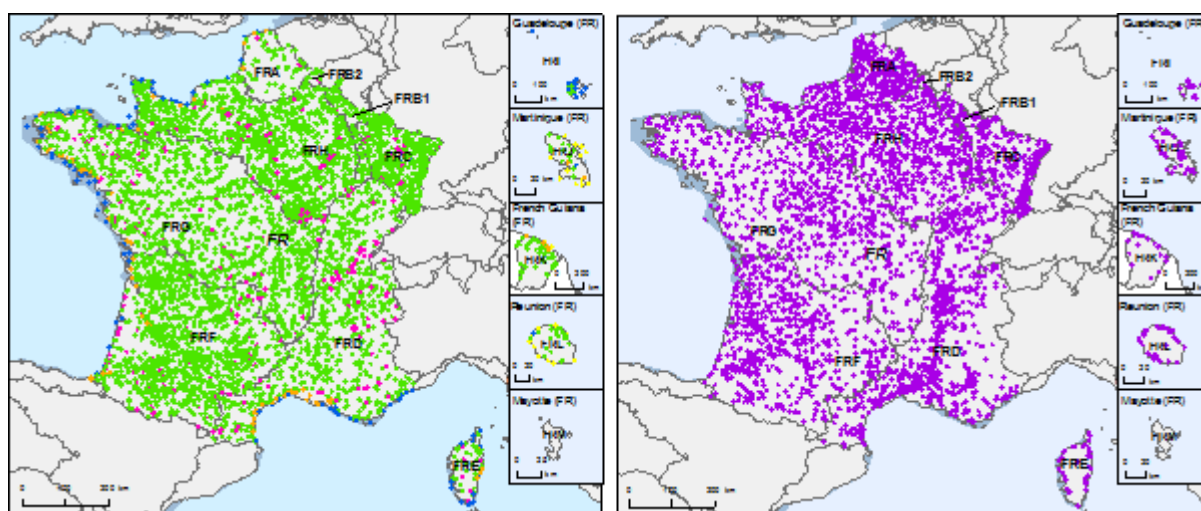
**Table 4.5:** Number of protected areas of all types in each RBD and for the whole country, for surface and groundwater<sup>8</sup>

Source: WISE

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<sup>8</sup> This information corresponds to the reporting of protected areas under the WFD. More/other information may have been reported under the obligations of other Directives.

## 5. MONITORING



**Figure 5.1:** Maps of surface water (left) and groundwater (right) monitoring stations

- River monitoring stations
- Lake monitoring stations
- Transitional water monitoring stations
- Coastal water monitoring stations
- Unclassified surface water monitoring stations
- Groundwater monitoring stations
- River Basin Districts
- Countries outside EU

**Source:** WISE, Eurostat (country borders)

France has applied a national approach in the methodologies for establishing the surveillance and the operational monitoring schemes. There is a guidance document that has been approved after the adoption of the first RBMPs. (*Arrêté du 25 janvier 2010 établissant le programme de surveillance de l'état des eaux en application de l'article R.212-22 du code de l'environnement*).

The **surveillance monitoring programme** is designed to provide information on the general status of water bodies. The monitoring network is composed of a number of permanent sites (both in the mainland France and in the overseas territories), with the objective of having enough data to monitor the aquatic ecosystems in the long term, in particular to assess the impacts on those ecosystems by the changes in the natural conditions of water bodies, both due to human activities and to climate change.

The surveillance network is not designed for monitoring the different pressures, but rather to improve the knowledge of the status of water bodies. It also provides the necessary information to set up the operational monitoring network.

The surveillance network does not include the monitoring of protected areas. However, France is currently improving the coherence of monitoring networks under the WFD and the Nitrates Directive.

The **operational monitoring programmes** should be based on the pressures and impacts analysis. However, for the French RBMPs, these are established for water bodies at risk of not achieving the environmental objectives by 2015, and to assess the improvements of the



status of water bodies after the implementation of the programme of measures. The monitoring sites in the water bodies are fixed as being representative of the water body and of the impacts or pressures causing the risk of failure to achieve good status or potential, and also as being representative of the scale of the water body.

A '**sampling principle**' is used to group the water bodies, but only for water bodies subject to diffuse pollution from agricultural activities and for some hydromorphological pressures, or for short-term pressures affecting small water bodies under similar conditions. This sampling is carried out for homogenous water bodies: water bodies with the same type of water use and natural structure (for hydromorphological pressures), and the same type of pressures. The sampling rate is of 50%, and of 50 water bodies per group, with the selection being made taking into account the proportion of water bodies at risk of not achieving the objectives per water type.

RBD	Rivers										Lakes											
	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.3 Macrophytes	QE1.2.4 Phytobenthos	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 on priority specific pollutants	QE3.4 Other national pollutants	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.3 Macrophytes	QE1.2.4 Phytobenthos	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants
FRA																						
FRB1																						
FRB2																						
FRC																						
FRD																						
FRE																						
FRF																						
FRG																						
FRH																						
FRI																						
FRJ																						
FRK																						
FRL																						

RBD	Transitional											Coastal										
	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.1 Microalgae	QE1.2.2 Angiosperms	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.1 Microalgae	QE1.2.2 Angiosperms	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants
FRA																						
FRB1																						
FRB2																						
FRC																						
FRD																						
FRE																						
FRF																						
FRG																						
FRH																						
FRI																						
FRJ																						
FRK																						
FRL																						

**Table 5.1:** Quality elements monitored

	QE Monitored
	QE Not monitored
-	Not Relevant

Source: WISE

RBD	Rivers		Lakes		Transitional		Coastal		Groundwater		
	Surv	Op	Surv	Op	Surv	Op	Surv	Op	Surv	Op	Quant
FRA	42	43	4	4	2	4	4	4	50	139	68
FRB1	27	87	2	0	0	0	0	0	54	21	17
FRB2	8	6	1	1	0	0	0	0	5	3	6
FRC	80	376	15	0	0	0	0	0	144	96	64
FRD	396	658	45	47	12	18	18	8	337	351	335
FRE	22	23	6	5	4	3	6	7	18	0	26
FRF	355	935	52	38	8	10	7	1	312	185	409
FRG	420	957	49	78	16	30	25	22	357	227	399
FRH	216	1161	23	44	5	7	12	12	439	376	260
FRI	20	17	0	0	0	0	11	7	9	1	22
FRJ	14	0	1	0	3	0	12	0	18	20	29
FRK	53	0	0	0	13	0	4	0	18	0	17
FRL	20	4	1	0	0	0	10	4	14	27	22
Total by type of site	1.673	4.267	199	217	63	72	109	65	1.775	1.446	1.674
Total number of monitoring sites <sup>9</sup>	4967		315		96		129		3883		

**Table 5.2:** Number of monitoring sites by water category.  
Surv = Surveillance, Op = Operational, Quant = Quantitative  
Source: WISE

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<sup>9</sup> The total number of monitoring sites may differ from the sum of monitoring sites by type because some sites are used for more than one purpose.

	River		Lake		Coastal Water		Transitional Water		Groundwater	
	SM	OM	SM	OM	SM	OM	SM	OM	SM	OM
RBD	SM	OM	SM	OM	SM	OM	SM	OM	SM	OM
<b>FRA</b>	40	35	4	4	4	4	2	4	15	15
<b>FRB1</b>	27	87	0	0	0	0	0	0	10	4
<b>FRB2</b>	7	6	01	1	0	0	0	0	2	2
<b>FRC</b>	78	375		0	0	0	0	0	13	9
<b>FRD</b>	357	596	45	47	18	8	12	18	151	45
<b>FRE</b>	22	23	6	5	6	7	4	3	8	0
<b>FRF</b>	308	705	52	38	7	1	8	10	92	45
<b>FRG</b>	375	936	48	77	25	22	16	30	135	88
<b>FRH</b>	208	736	23	44	12	12	5	7	53	53
<b>FRI</b>	20	17	0	0	11	7	0	0	5	1
<b>FRJ</b>	14	0	1	0	12	0	3	0	6	6
<b>FRK</b>	53	0	0	0	4	0	13	0	12	0
<b>FRL</b>	14	3	0	0	10	4	0	0	11	10
<b>Total No of sites</b>	1.523	3.519	180	216	109	65	63	72	513	278

**Table 5.3:** Number of water bodies included in surveillance (SM) and operational monitoring (OM) at RBD level

**Source:** WISE

## 5.1 Monitoring of surface waters

There are some gaps in the surveillance monitoring for surface waters. Not all quality elements (QEs) are monitored in the surveillance monitoring programmes.

For those water bodies included in surveillance monitoring, all the required biological quality elements are monitored at RBD level and have been monitored in 90% of water bodies in rivers, 75% in lakes, 81% in transitional waters and 68% in coastal waters.

In the RBD Scheldt, Somme and coastal waters of the Channel and the North Sea, there is a lack of surveillance monitoring in rivers (of river continuity and morphological conditions), in lakes (of fish and benthic invertebrates), and in transitional and coastal waters (of the morphological conditions and tidal regime). According to the information received from France, the monitoring networks have been improved after the adoption of the first RBMPs, and the river continuity and morphological conditions are currently being monitored in the Scheldt and the Sambre (for 13 WBs in Scheldt and 6 in Sambre). Also, according to this information, there is currently monitoring of fish in lakes (3 WBs out of total of 4) in the Sambre. The monitoring of macroinvertebrates for heavily modified lakes in the Sambre has not yet been developed. For transitional and coastal waters, the results will be consistent with the intercalibration exercise at EU level when it has been finalised.

In the RBD Rhone and Coastal Mediterranean, there is lack of surveillance monitoring in lakes (phytobenthos). According to the latest information from France, there is work currently in progress to complete these monitoring networks in the near future.

**Priority substances** and other pollutants are monitored in surface waters, but there is no information in the RBMPs about the monitoring of specific individual substances. Furthermore, the extent of monitoring of sediments and/or biota is not clear.

Transboundary co-operation on monitoring programmes is in place in the international RBDs for both surface and groundwater. This co-operation is carried out in the framework of the work of the International Commissions for the Scheldt, the Rhine, the Meuse and in the sector Moselle-Sarre.

## 5.2 Monitoring of groundwater

There is monitoring of **quantitative status** of groundwater in all French RBDs. The monitoring network is designed to determine the available groundwater resources, taking into account the long-term tendencies of recharge, and the impact of water abstraction on the level of groundwater bodies at risk of failing to achieve good quantitative status. There is also monitoring of transboundary groundwater bodies. All the requirements of the WFD have been transposed via the '*Arrêté*' of 2010.

There is general information in the RBMPs on the parameters to be monitored for operational monitoring of **chemical status**, in relation to the main pressures on groundwater bodies. The groundwater monitoring is focused on those water bodies that are at risk of failing to reach good chemical status and for evaluating effectiveness of the Programme of Measures. All core parameters and other pollutants are included in operational monitoring. Nitrates and pesticides are recognised as main pressures and are monitored as part of operational monitoring.

The methodology to detect **trends of pollutants in groundwater** is explained in the background documents of the different RBMPs. There is no national method established for this monitoring, and each RBD uses the method that best suits the specific characteristics of its water bodies. There are however national recommendations for which data should be used for this.

There has been no use of Article 6(3) of the Groundwater Directive<sup>10</sup>.

On **international co-operation**, there has been some sort of co-operation with Belgium (no agreement or plan made, but existing communication, no information on transboundary groundwater bodies), in the Rhone (France has not identified this RBD as international - it however shares a small part of its basin with neighbouring countries including Switzerland, Italy and Spain - under the CIPEL discussions have taken place on monitoring programme - no details provided), and in the Meuse and in the Rhine (for both, since exchanges between groundwater layers are limited, it was suggested to limit international co-ordination to a bilateral or trilateral technique at the border zones where exchanges are significant: localisation of the sites, the piezometric evaluation at both sides of the boundary, the frequency of measurements is discussed). The level of international co-operation is not clear for the Sambre.

## 5.3 Monitoring of protected areas

**Drinking water protected areas** are generally clearly designated in accordance with Article 7 WFD and surveillance monitoring is done in these protected zones. There are a number of sites associated with drinking water abstraction included in the groundwater quantitative and qualitative monitoring programme.

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<sup>10</sup> 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. OJ L 372, 27.12.2006, p. 19–31

However, information in the RBMP is unclear on whether a specific monitoring programme for drinking water protected areas is in place. According to information received from France, the new 'Arrêté' of January 2010 established a programme for additional controls on the analysis of water quality for surface water abstractions for drinking water of more than 100m<sup>3</sup>/jour day in average. Additional monitoring is integrated in the 'sanitary monitoring' for drinking water.

The updated number of monitoring sites reported into WISE for drinking water and other Protected Areas may be found in the table below.

RBD	Surface waters									Ground-water drinking water
	Surface drinking water abstraction	Quality of drinking water	Bathing water	Birds sites	Fish	Habitats sites	Nitrates	Shellfish	UWWT	
FRB1	0	0	0	3	0	0	14	0	116	0
FRB2	0	0	0	2	0	0	9	0	9	0
FRC	0	0	0	8	0	7	92	0	471	0
FRD	0	0	0	100	0	38	155	1	237	0
FRE	0	0	0	6	0	3	0	2	0	0
FRF	0	0	0	4	0	9	1	2	1	0
FRG	21	16	0	148	0	280	722	36	1201	0
FRH	0	568	0	70	0	27	1020	18	1247	568
FRI	0	0	0	0	0	0	0	0	0	0
FRJ	0	0	0	0	0	0	0	0	0	0
FRK	0	6 <sup>11</sup>	4	0	0	0	0	0	0	6
FRL	0	0	0	0	0	0	0	0	11	0
<i>Total</i>	<i>21</i>	<i>590</i>	<i>4</i>	<i>344</i>	<i>0</i>	<i>364</i>	<i>2075</i>	<i>65</i>	<i>3367</i>	<i>574</i>

**Table 5.4:** Number of monitoring stations in protected areas<sup>12</sup>

Source: WISE

<sup>11</sup> Number of monitoring sites reported at programme level.

<sup>12</sup> Number of sites calculated from data reported at site level. If no data reported at site level, then table supplemented with data reported at programme level.

## 6. OVERVIEW OF STATUS (ECOLOGICAL, CHEMICAL, GROUNDWATER)

Almost 35% of surface water bodies have been assessed as being in good **ecological status**, and 6.5% at high ecological status. However, 56.4% of surface water bodies are considered to be in less than good status (almost 40% in moderate, 12.5% in poor and just over 4% in bad status). There are just over 2% of French surface water bodies in unknown ecological status.

RBD	Total	High		Good		Moderate		Poor		Bad		Unknown	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
FRA	42	0	0	15	35.7	15	35.7	8	19.0	4	9.5	0	0
FRB1	133	3	2.3	63	47.4	59	44.4	6	4.5	2	1.5	0	0
FRB2	10	0	0	2	20.0	5	50.0	1	10.0	2	20.0	0	0
FRC	422	3	0.7	134	31.8	206	48.8	64	15.2	15	3.6	0	0
FRD	2550	211	8.3	1178	46.2	1035	40.6	93	3.6	28	1.1	5	0.2
FRE	224	121	54.0	68	30.4	32	14.3	2	0.9	1	0.4	0	0
FRF	2634	259	9.8	951	36.1	1056	40.1	251	9.5	99	3.8	17	0.6
FRG	1923	90	4.7	532	27.7	1040	54.1	191	9.9	66	3.4	4	0.2
FRH	1630	53	3.3	430	26.4	764	46.9	279	17.1	91	5.6	13	0.8
FRI	58	6	10.3	11	19.0	28	48.3	4	6.9	9	15.5	0	0
FRJ	42	0	0	9	21.4	26	61.9	6	14.3	1	2.4	0	0
FRK	943	0	0	512	54.3	79	8.4	352	37.3	0	0	0	0
FRL	39	0	0	6	15.4	14	35.9	9	23.1	10	25.6	0	0
<i>Total</i>	<i>10650</i>	<i>746</i>	<i>7.0</i>	<i>3911</i>	<i>36.7</i>	<i>4359</i>	<i>40.9</i>	<i>1266</i>	<i>11.9</i>	<i>328</i>	<i>3.1</i>	<i>39</i>	<i>0.4</i>

**Table 6.1:** Ecological status of natural surface water bodies.

**Source:** WISE



RBD	Total	High		Good		Moderate		Poor		Bad		Unknown	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
FRA	26	0	0	2	7.7	6	23.1	5	19.2	13	50.0	0	0.0
FRB1	12	0	0	6	50.0	1	8.3	0	0	1	8.3	4	33.3
FRB2	2	0	0	0	0	1	50.0	1	50.0	0	0	0	0
FRC	76	0	0	17	22.4	19	25.0	22	28.9	13	17.1	5	6.6
FRD	222	0	0	49	22.1	40	18.0	53	23.9	52	23.4	28	12.6
FRE	10	0	0	2	20.0	2	20.0	2	20.0	1	10.0	3	30.0
FRF	174	0	0	7	4.0	35	20.1	15	8.6	20	11.5	97	55.7
FRG	227	0	0	18	7.9	99	43.6	45	19.8	25	11.0	40	17.6
FRH	120	1	0.8	11	9.2	22	18.3	35	29.2	13	10.8	38	31.7
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0
FRJ	2	0	0	1	50.0	0	0	0	0	1	50.0	0	0
FRK	1	0	0	0	0	0	0	1	100	0	0	0	0
FRL	1	0	0	0	0	0	0	0	0	1	100	0	0
Total	873	1	0.1	113	12.9	225	25.8	179	20.5	140	16.0	215	24.6

**Table 6.2:** Ecological potential of artificial and heavily modified water bodies.

Source: WISE

The **chemical status of surface water** has been assessed as good for just over 43% of water bodies, whilst almost 23% fail to achieve good status. The high percentage of surface water bodies (34.1%) with unknown chemical status should be emphasised. This is a major issue, as it hinders the rest of the planning process, i.e. establishing the objectives and designing the appropriate measures to improve the status.

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
FRA	42	9	21.4	33	78.6	0	0
FRB1	133	72	54.1	61	45.9	0	0
FRB2	10	1	10.0	9	90.0	0	0
FRC	422	143	33.9	277	65.6	2	0.5
FRD	2550	1768	69.3	128	5.0	654	25.6
FRE	224	206	92.0	6	2.7	12	5.4
FRF	2634	1246	47.3	320	12.1	1068	40.5
FRG	1923	1108	57.6	423	22.0	392	20.4
FRH	1630	98	6.0	1120	68.7	412	25.3
FRI	58	44	75.9	14	24.1	0	0
FRJ	42	5	11.9	14	33.3	23	54.8
FRK	943	0	0	0	0	943	100
FRL	39	19	48.7	3	7.7	17	43.6
Total	10650	4719	44.3	2408	22.6	3523	33.1

**Table 6.3:** Chemical status of natural surface water bodies.

Source: WISE

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
FRA	26	4	15.4	22	84.6	0	0
FRB1	12	2	16.7	1	8.3	9	75.0
FRB2	2	1	50.0	1	50.0	0	0
FRC	76	12	15.8	37	48.7	27	35.5
FRD	222	88	39.6	46	20.7	88	39.6
FRE	10	7	70.0	1	10.0	2	20.0
FRF	174	39	22.4	16	9.2	119	68.4
FRG	227	87	38.3	49	21.6	91	40.1
FRH	120	5	4.2	44	36.7	71	59.2
FRI	0	0	0	0	0	0	0
FRJ	2	1	50.0	1	50.0	0	0
FRK	1	0	0	0	0	1	100
FRL	1	0	0	1	100	0	0
Total	873	246	28.2	219	25.1	408	46.7

**Table 6.4:** Chemical status of artificial and heavily modified water bodies

Source: WISE

The **chemical status of groundwater bodies** has been assessed as good for almost 59% of groundwater bodies, and less than good for almost 41% of groundwater bodies. There is only one water body with unknown chemical status (in Rhone RBD).

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
FRA	16	5	31.2	11	68.8	0	0
FRB1	11	7	63.6	4	36.4	0	0
FRB2	2	0	0	2	100	0	0
FRC	15	6	40	9	60	0	0
FRD	180	144	80	35	19.4	1	0.6
FRE	9	9	100	0	0	0	0
FRF	105	61	58.1	44	41.9	0	0
FRG	143	72	50.3	71	49.7	0	0
FRH	53	9	17	44	83	0	0
FRI	6	5	83.3	1	16.7	0	0
FRJ	6	3	50	3	50	0	0
FRK	12	11	91.7	1	8.3	0	0
FRL	16	6	37.5	10	62.5	0	0
Total	574	338	58.9	235	40.9	1	0.2

**Table 6.5:** Chemical status of groundwater bodies.

Source: WISE

The **quantitative status of groundwater bodies** (Table 13) has been assessed as good for almost 90% of groundwater bodies. There are 48 groundwater bodies of poor quantitative status (mainly in RBDs of Scheldt, Rhone, Adour, Loire and Réunion Island) and there are 13 groundwater bodies of unknown status (in RBDs of Adour and Guadeloupe Island).

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
FRA	16	15	93.8	1	6.2	0	0
FRB1	11	11	100	0	0	0	0
FRB2	2	2	100	0	0	0	0
FRC	15	15	100	0	0	0	0
FRD	180	164	91.1	16	8.9	0	0
FRE	9	9	100	0	0	0	0
FRF	105	77	73.3	18	17.1	10	9.5
FRG	143	133	93	10	7	0	0
FRH	53	53	100	0	0	0	0
FRI	6	3	50	0	0	3	50
FRJ	6	6	100	0	0	0	0
FRK	12	12	100	0	0	0	0
FRL	16	13	81.2	3	18.8	0	0
Total	574	513	89.4	48	8.4	13	2.3

**Table 6.6:** Quantitative status of groundwater bodies.

Source: WISE

The status of surface water bodies is expected to improve 13% from 2009 to 2015 for all French RBDs. For the Seine and Réunion RBDs, the improvement is expected to be 37 and 35% until 2015. For the Sambre RBD, there is improvement foreseen for surface water bodies.

The status of groundwater bodies is expected to improve by 7% from 2009 to 2015 for all French RBDs. The difference in predicted improvement of groundwater status between the French RBDs is greater than for surface water bodies.

**Note:** in France, the 2015 target is set taking into account waterbodies with unknown status and therefore, if no exemption is mentioned explicitly for a give water body, even if this water body has unknown status, the objective for this water body will be good status in 2015. Improvements in the water status are expected for most waterbodies, but would rather be visible on either chemical or ecological status.

RBD	Total	Global status (ecological and chemical)					Good ecological status 2021		Good chemical status 2021		Good ecological status 2027		Good chemical status 2027		Global exemptions 2009 (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015									Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	No.	%	No.	%	%	%	%	%
FRA	68	5	7.4	11	16.2	8.8									84	0	0	0
FRB1	145	49	33.8	63	43.4	9.7									50	0	0	0
FRB2	12	0	0	0	0	0	9		2		12		10		100	0	0	0
FRC	498	94	18.9	133	26.7	7.8									69	0	0	0
FRD	2772	1378	49.7	1539	55.5	5.8	2457				2952				37	0	0	0
FRE	234	185	79.1	205	87.6	8.5									7	2	0	2
FRF	2808	699	24.9	934	33.3	8.4									41	0	0	0
FRG	2150	440	20.5	825	38.4	17.9									48	0	0	0
FRH	1750	31	1.8	677	38.7	36.9									39	0	0	0
FRI	58	17	29.3	27	46.6	17.2		36 (CW)		94(RW) 100(CW)				94(RW) 100(CW)	52	2	0	0
FRJ	44	4	9.1	7	15.9	6.8	12		14		10		7		73	23	0	0
FRK	944	0	0	0	0	0									34	0	0	0
FRL	40	4	10	18	45	35									25	5	0	5
Total	11523	2906	25.2	4439	38.5	13.3									42	0	0	0

**Table 6.7:** Surface water bodies: overview of status in 2009 and expected status in 2015, 2021 and 2027\*

RW = River water bodies CW = Coastal water bodies

Waterbodies with good status in 2009 fall into the following category:

1. Ecological status is high or good and the chemical status is good, exemptions are not considered

Waterbodies expected to achieve good status in 2015 fall into the following categories:

1. Ecological status is high or good and the chemical status is good, exemptions are not considered

2. Chemical status is good, and the ecological status is moderate or below but no ecological exemptions

3. Ecological status is high or good, and the chemical status is failing to achieve good but there are no chemical exemptions

4. Ecological status is moderate or below, and chemical status is failing to achieve good but there are no ecological nor chemical exemptions

**Note:** Waterbodies with unknown/unclassified/Not applicable in either ecological or chemical status are not considered

\* Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

**Source:** WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)

RBD	Total	Ecological status					Good ecological status 2021		Good ecological status 2027		Ecological exemptions (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 -2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
FRA	42	15	35.7	28	66.7	31.0					33.3	0	0	0
FRB1	133	66	49.6	104	78.2	28.6					21.8	0	0	0
FRB2	10	2	20.0	6	60.0	40.0					40.0	0	0	0
FRC	422	137	32.5	279	66.1	33.6	2259		2730		33.9	0	0	0
FRD	2550	1389	54.5	1702	66.7	12.3					32.9	0.2	0	0
FRE	224	189	84.4	204	91.1	6.7					6.7	2.2	0	1.8
FRF	2634	1210	45.9	1566	59.5	13.5					40.0	0	0	0
FRG	1923	622	32.3	1179	61.3	29.0					38.9	0.1	0	0.1
FRH	1630	483	29.6	1155	70.9	41.2					28.4	0	0	0
FRI	58	17	29.3	27	46.6	17.2		36 (CW)			51.7	1.7	0	0
FRJ	42	9	21.4	10	23.8	2.4					71.4	21.4	0	0
FRK	943	512	54.3	619	65.6	11.3					34.4	0	0	0
FRL	39	6	15.4	27	69.2	53.8					25.6	5.1	0	5.1
Total	10650	4657	43.7	6906	64.8	21.1					34.8	0.2	0	0.1

**Table 6.8:** Natural surface water bodies: ecological status in 2009 and expected status in 2015, 2021 and 2027<sup>13</sup>

**Source:** WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)

<sup>13</sup> Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

RBD	Total	Chemical status					Good chemical status 2021		Good chemical status 2027		Chemical exemptions (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 -2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
FRA	42	9	21.4	12	28.6	7.1					71.4	0	0	0
FRB1	133	72	54.1	73	54.9	0.8					45.1	0	0	0
FRB2	10	1	10.0	1	10.0	0					90.0	0	0	0
FRC	422	143	33.9	143	33.9	0					65.6	0	0	0
FRD	2550	1768	69.3	1770	69.4	0.1					5.0	0	0	0
FRE	224	206	92.0	212	94.6	2.7					0	0	0	0
FRF	2634	1246	47.3	1358	51.6	4.3					13.4	0	0	0
FRG	1923	1108	57.6	1198	62.3	4.7					17.4	0	0	0
FRH	1630	98	6.0	686	42.1	36.1					32.6	0	0	0
FRI	58	44	75.9	55	94.8	19.0					5.2	0	0	0
FRJ	42	5	11.9	9	21.4	9.5					23.8	0	0	0
FRK	943	0	0	0	0	0					33.9	0	0	0
FRL	39	19	48.7	22	56.4	7.7					5.1	0	0	0
Total	10650	4719	44.3	5539	52.0	7.7					19.3	0	0	0

**Table 6.9:** Natural surface water bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027<sup>14</sup>

**Source:** WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)

<sup>14</sup> Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

RBD	Total	GW chemical status					Good chemical status 2021		Good chemical status 2027		GW chemical exemptions (% of all GWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 -2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
FRA	16	5	31.2	5	31.2	0					69	0	0	0
FRB1	11	7	63.6	7	63.6	0					36	0	0	0
FRB2	2	0	0	0	0	0	1		2		100	0	0	0
FRC	15	6	40	7	46.7	6.7					47	7	0	0
FRD	180	144	80	150	83.3	3.3	176		180		16	1	0	0
FRE	9	9	100	9	100	0					0	0	0	0
FRF	105	61	58.1	61	58.1	0					42	0	0	0
FRG	143	72	50.3	78	54.5	4.2					45	0	0	0
FRH	53	9	17	19	35.8	18.9					64	6	0	0
FRI	6	5	83.3	5	83.3	0		83		83	17	0	0	0
FRJ	6	3	50	3	50	0					33	50	0	0
FRK	12	11	91.7	12	100	8.3					0	0	0	0
FRL	16	6	37.5	13	81.2	43.8	16				13	0	6	0
Total	574	338	58.9	369	64.3	5.4					35	1	0	0

**Table 6.10:** Groundwater bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027<sup>15</sup>

**Source:** WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)

<sup>15</sup> Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

RBD	Total	Groundwater quantitative status					Good quantitative status 2021		Good quantitative status 2027		GW quantitative exemptions (% of all GWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 -2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
FRA	16	15	93.8	15	93.8	0					6	0	0	0
FRB1	11	11	100	11	100	0					0	0	0	0
FRB2	2	2	100	2	100	0	2		2		0	0	0	0
FRC	15	15	100	15	100	0					0	0	0	0
FRD	180	164	91.1	180	100	8.9	181		181		0	0	0	0
FRE	9	9	100	9	100	0					0	0	0	0
FRF	105	77	73.3	90	85.7	12.4					5	0	0	0
FRG	143	133	93	140	97.9	4.9					2	0	0	0
FRH	53	53	100	53	100	0					0	0	0	0
FRI	6	3	50	3	50	0		100			0	0	0	0
FRJ	6	6	100	6	100	0					0	0	0	0
FRK	12	12	100	12	100	0					0	0	0	0
FRL	16	13	81.2	14	87.5	6.2	16				13	0	0	0
Total	574	513	89.4	550	95.8	6.4					2	0	0	0

**Table 6.11:** Groundwater bodies: quantitative status in 2009 and expected status in 2015, 2021 and 2027<sup>16</sup>

**Source:** WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)

<sup>16</sup> Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.



RBD	Total HMWB and AWB	Ecological potential					Good ecological potential 2021		Good ecological potential 2027		Ecological exemptions (% of all HMWB/AWB)			
		Good or better 2009		Good or better 2015		Increase 2009 -2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
FRA	26	2	7.7	6	23.1	15.4					76.9	0	0	0
FRB1	12	6	50.0	8	66.7	16.7					0	0	0	0
FRB2	2	0	0	0	0	0					100	0	0	0
FRC	76	17	22.4	46	60.5	38.2					32.9	0	0	0
FRD	222	49	22.1	100	45.0	23.0	198		222		41.4	0.9	0	0
FRE	10	2	20.0	7	70.0	50.0					0.0	0	0	0
FRF	174	7	4.0	26	14.9	10.9					29.3	0	0	0
FRG	227	18	7.9	115	50.7	42.7					31.7	0	0	0
FRH	120	12	10.0	36	30.0	20.0					38.3	0	0	0
FRI	0	0	0	0	0	0					0	0	0	0
FRJ	2	1	50.0	1	50.0	0					50.0	50	0	0
FRK	1	0	0	0	0	0					0	100	0	0
FRL	1	0	0	1	100	100					0	0	0	0
Total	873	114	13.1	346	39.6	26.5					35.4	0.5	0	0

**Table 6.12:** Heavily modified and artificial water bodies: ecological potential in 2009 and expected ecological potential in 2015, 2021 and 2027<sup>17</sup>

**Source:** WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)

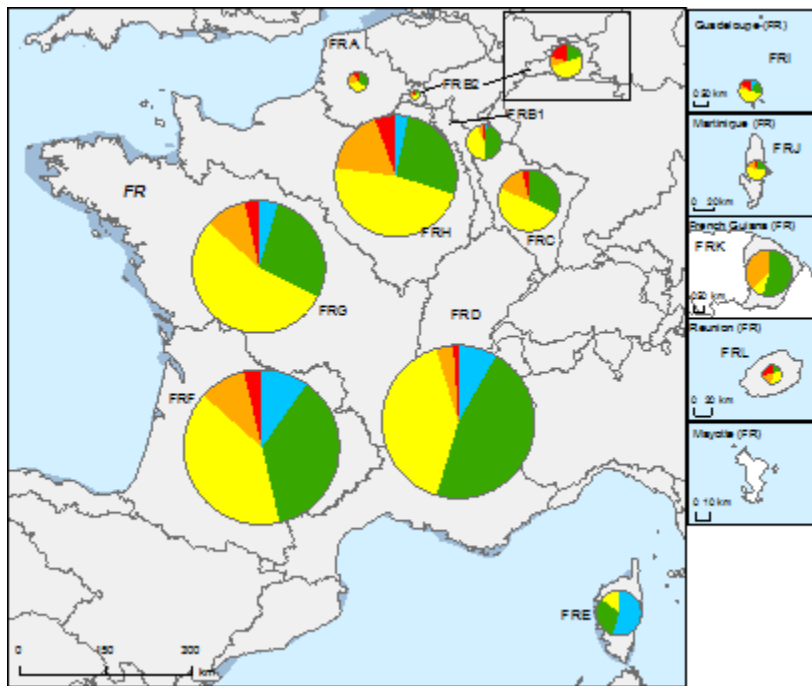
<sup>17</sup> Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

RBD	Total HMWB and AWB	Chemical status					Good chemical status 2021		Good chemical status 2027		Chemical exemptions (% of all HMWB/AWB)			
		Good or better 2009		Good or better 2015		Increase 2009 -2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
FRA	26	4	15.4	6	23.1	7.7					76.9	0	0	0
FRB1	12	2	16.7	2	16.7	0					8.3	0	0	0
FRB2	2	1	50.0	1	50.0	0					50.0	0	0	0
FRC	76	12	15.8	12	15.8	0					48.7	0	0	0
FRD	222	88	39.6	92	41.4	1.8					18.9	0	0	0
FRE	10	7	70.0	7	70.0	0					10.0	0	0	0
FRF	174	39	22.4	43	24.7	2.3					6.9	0	0	0
FRG	227	87	38.3	103	45.4	7.0					14.5	0	0	0
FRH	120	5	4.2	8	6.7	2.5					34.2	0	0	0
FRI	0	0	0	0	0	0					0	0	0	0
FRJ	2	1	50.0	1	50.0	0					50	0	0	0
FRK	1	0	0	0	0	0					0	0	0	0
FRL	1	0	0	1	100	100					0	0	0	0
Total	873	246	28.2	276	31.6	3.4					21.6	0	0	0

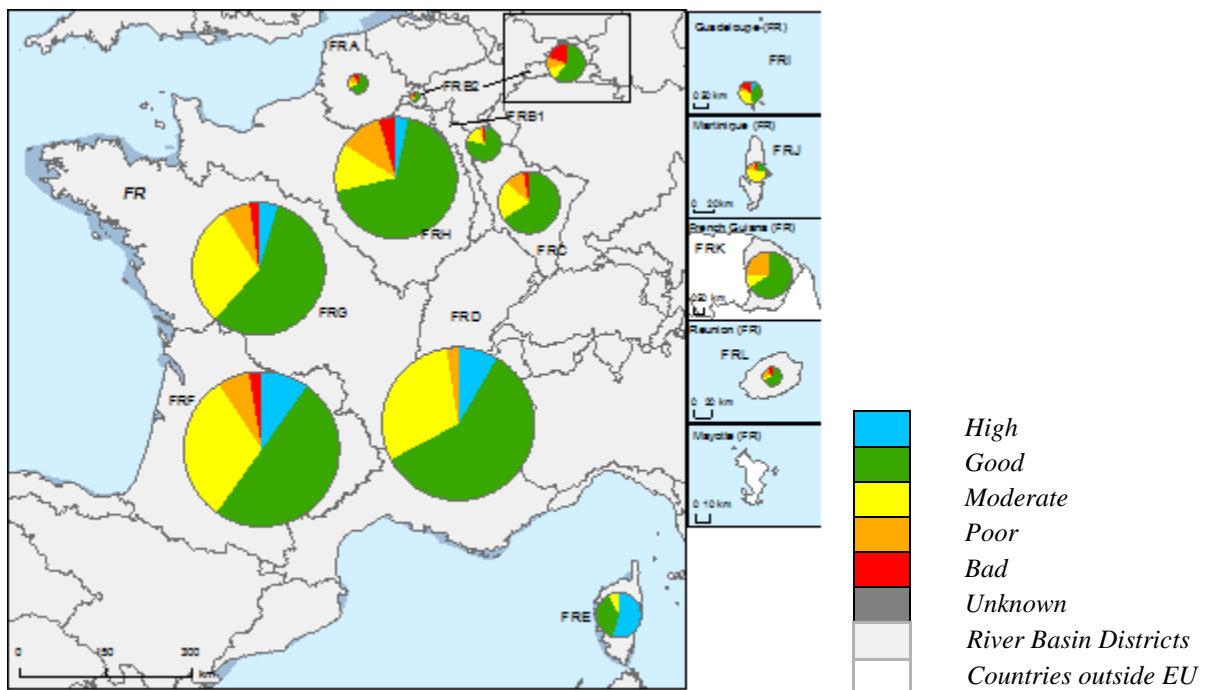
**Table 6.13:** Heavily modified and artificial water bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027<sup>18</sup>

**Source:** WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)

<sup>18</sup> Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.



**Figure 6.1:** Map of ecological status of natural surface water bodies 2009

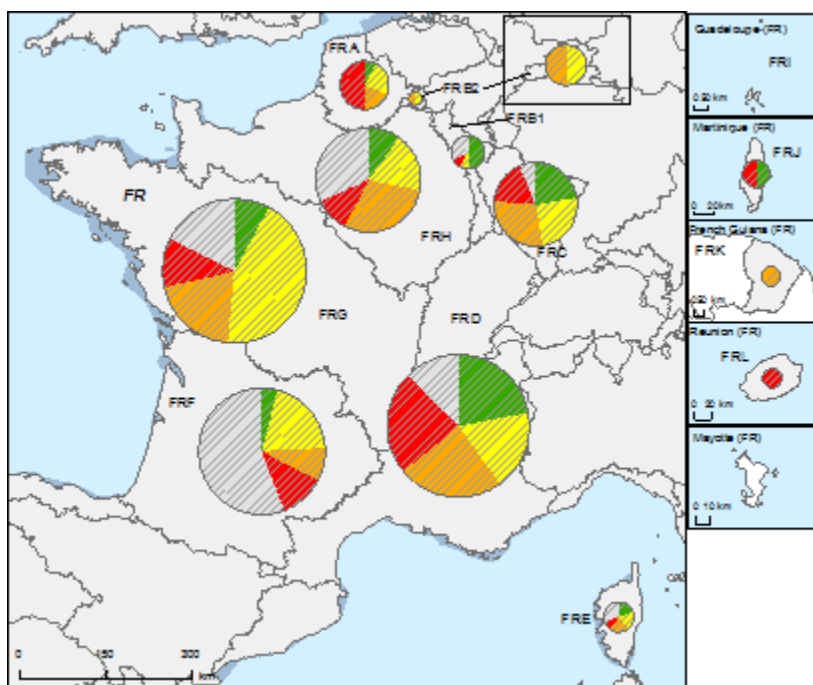


**Figure 6.2:** Map of ecological status of natural surface water bodies 2015

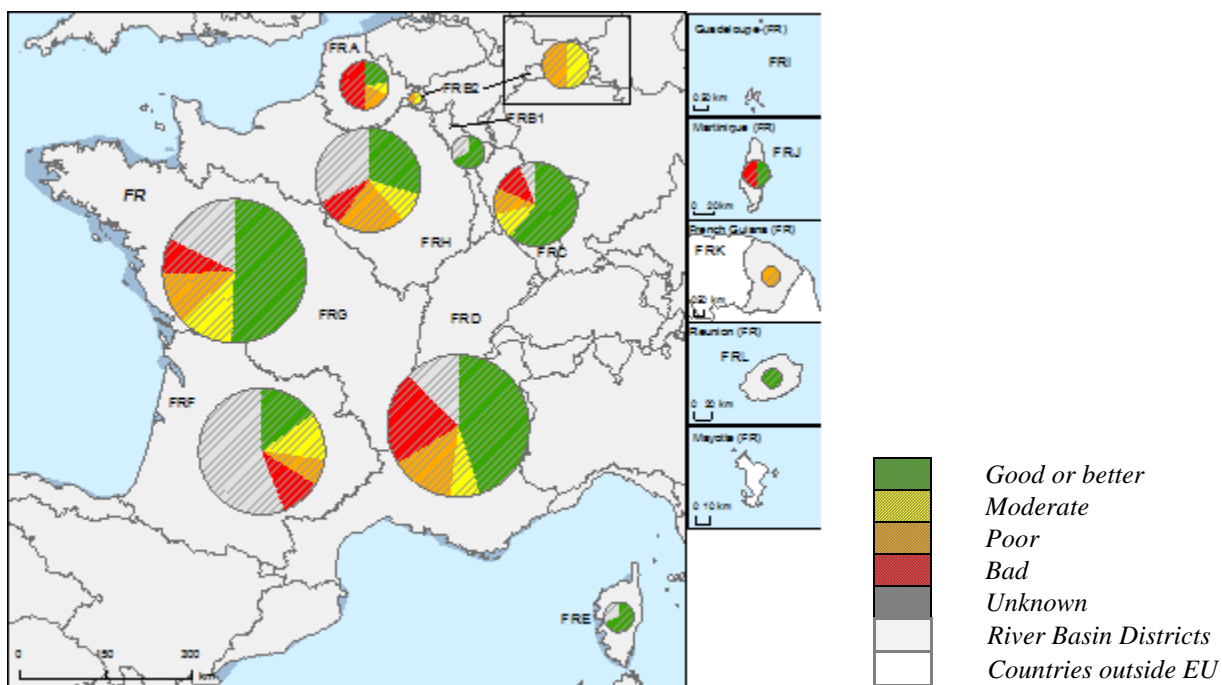
**Note:** Standard colours based on WFD Annex V, Article 1.4.2(i).

Note: Standard colours based on WFD Annex V, Article 1.4.2(i). A 1cm diameter pie chart represents 640 natural surface water bodies (2600 in French Guiana).

**Source:** WISE, Eurostat (country borders)



**Figure 6.3:** Map of ecological potential of artificial and heavily modified water bodies 2009

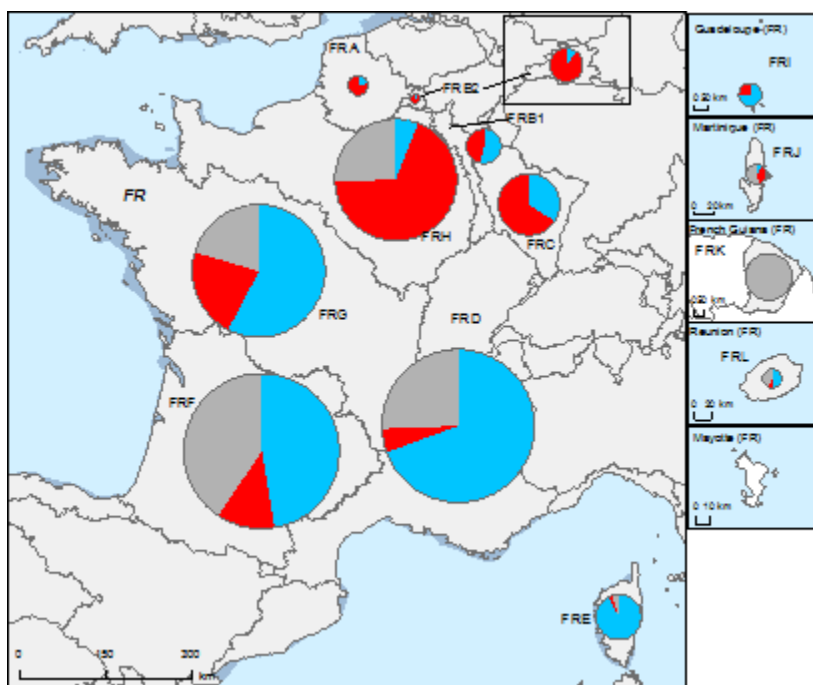


**Figure 6.4:** Map of ecological potential of artificial and heavily modified water bodies 2015

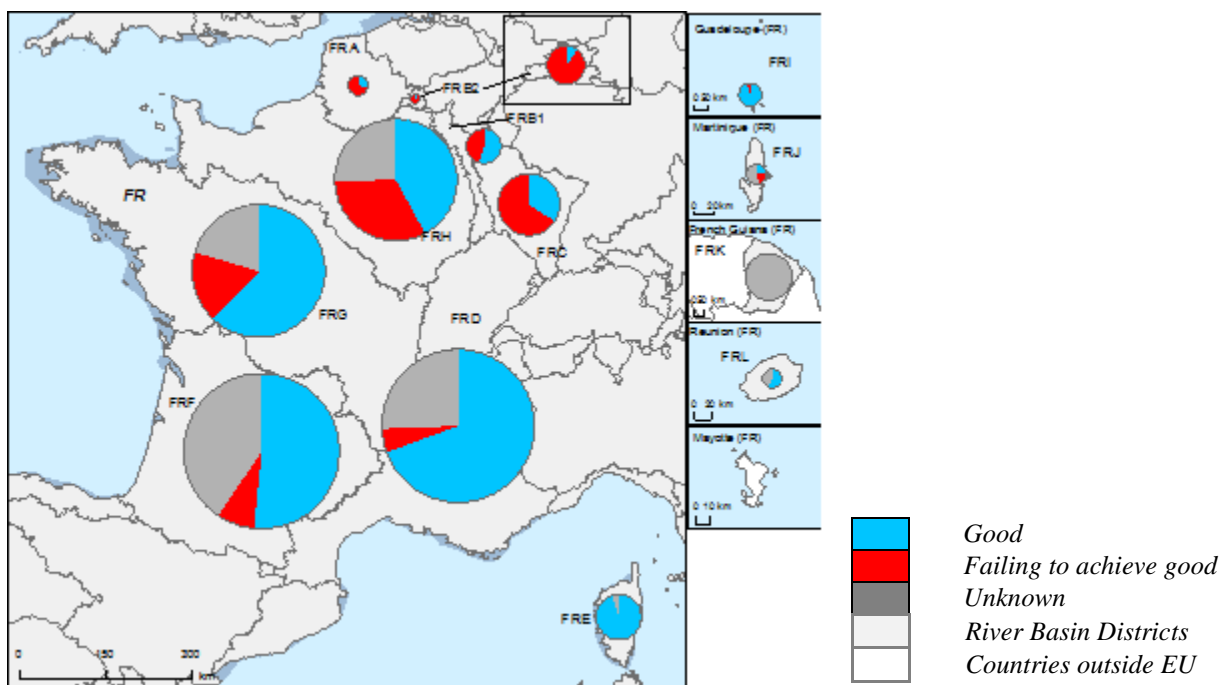
**Note:** Standard colours based on WFD Annex V, Article 1.4.2(ii).

**Note:** Standard colours based on WFD Annex V, Article 1.4.2(i). A 1cm diameter pie chart represents 640 natural surface water bodies (2600 in French Guiana).

**Source:** WISE, Eurostat (country borders)



**Figure 6.5:** Map of chemical status of natural surface water bodies 2009

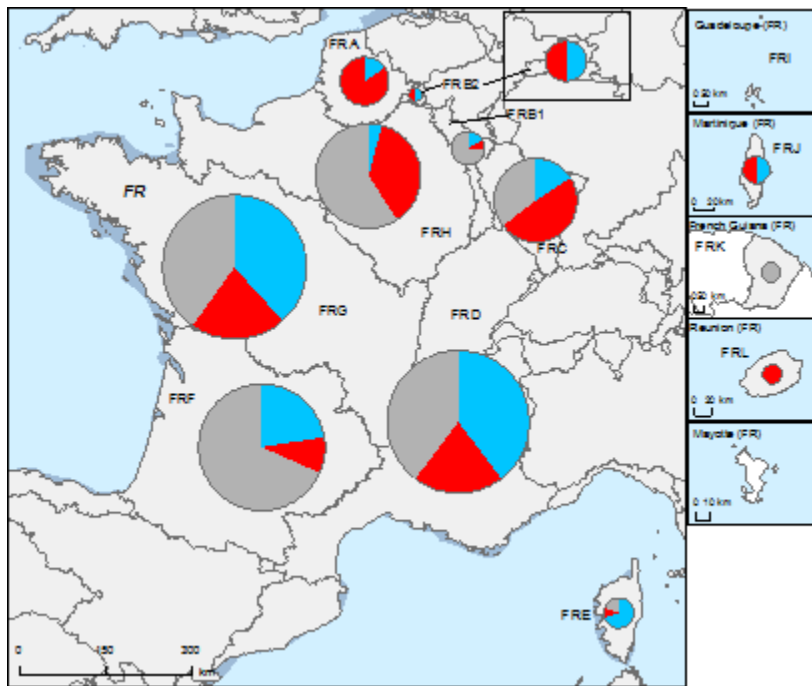


**Figure 6.6:** Map of chemical status of natural surface water bodies 2015

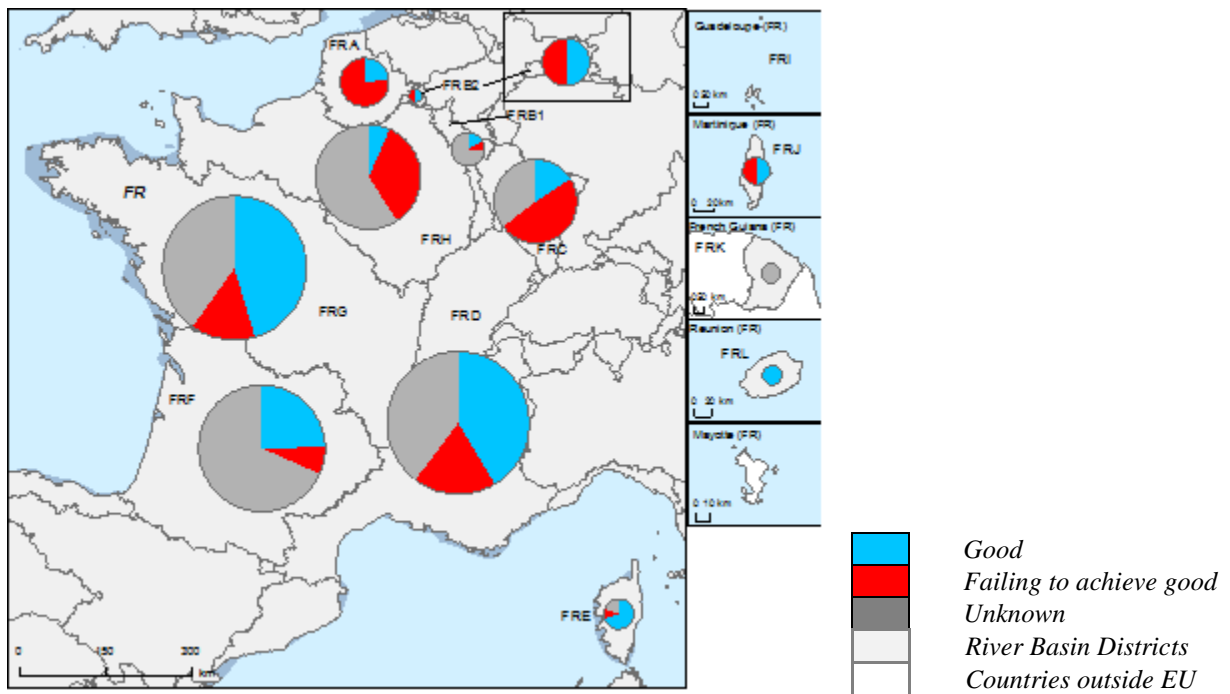
**Note:** Standard colours based on WFD Annex V, Article 1.4.3.

Note: Standard colours based on WFD Annex V, Article 1.4.2(i). A 1cm diameter pie chart represents 640 natural surface water bodies (2600 in French Guiana).

**Source:** WISE, Eurostat (country borders)



**Figure 6.7:** Map of chemical status of artificial and heavily modified water bodies 2009

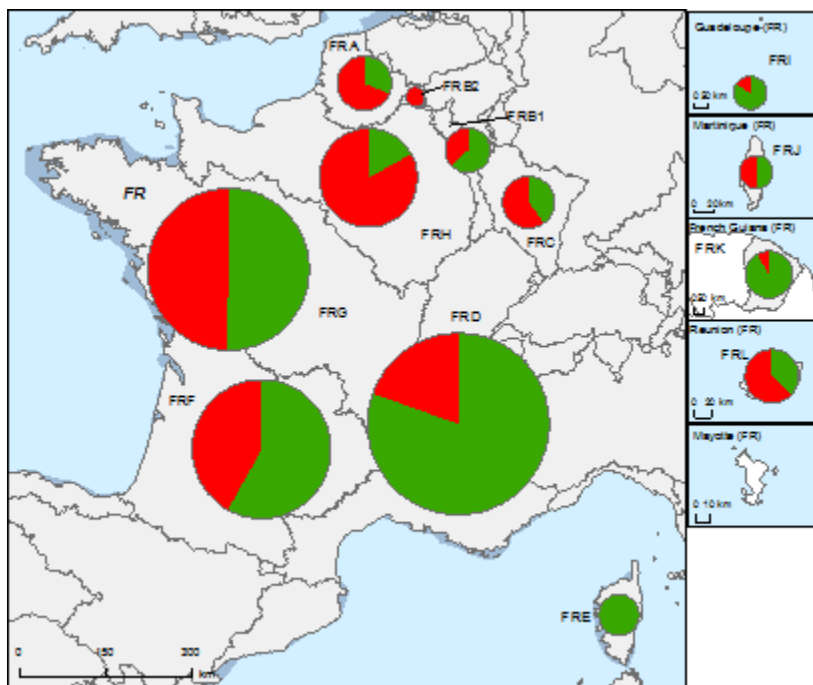


**Figure 6.8:** Map of chemical status of artificial and heavily modified water bodies 2015

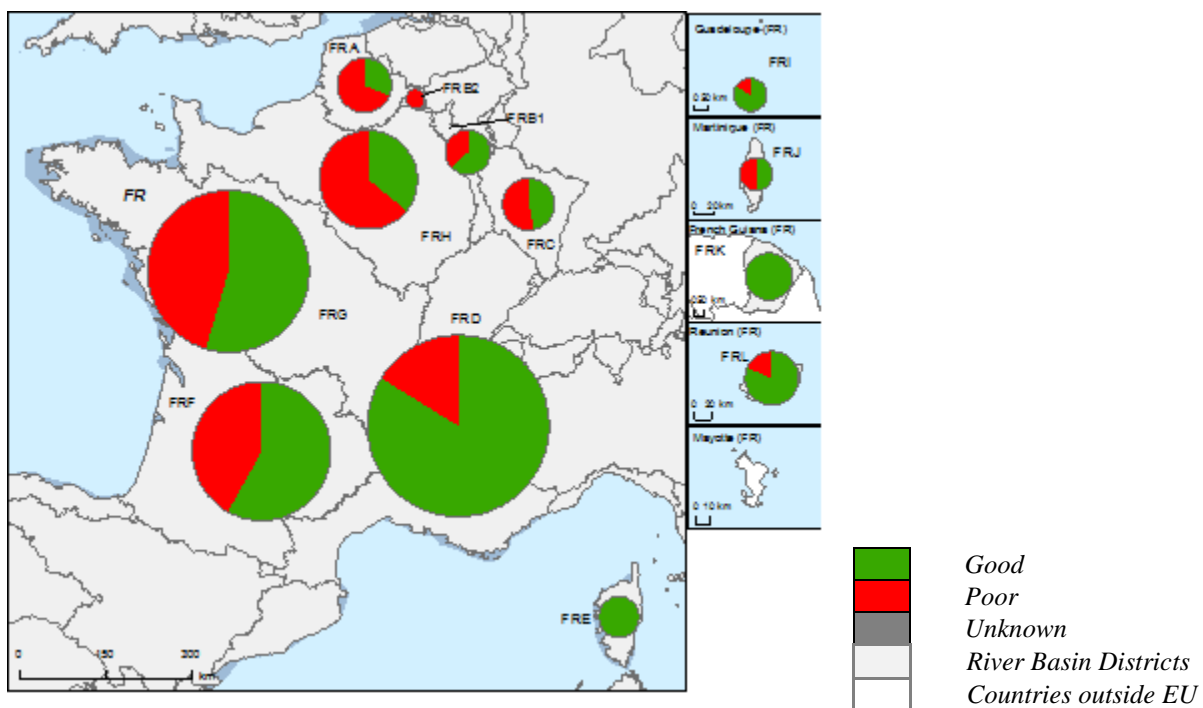
**Note:** Standard colours based on WFD Annex V, Article 1.4.3.

Note: Standard colours based on WFD Annex V, Article 1.4.2(i). A 1cm diameter pie chart represents 640 natural surface water bodies (2600 in French Guiana).

**Source:** WISE, Eurostat (country borders)



**Figure 6.9:** Map of chemical status of groundwater bodies 2009

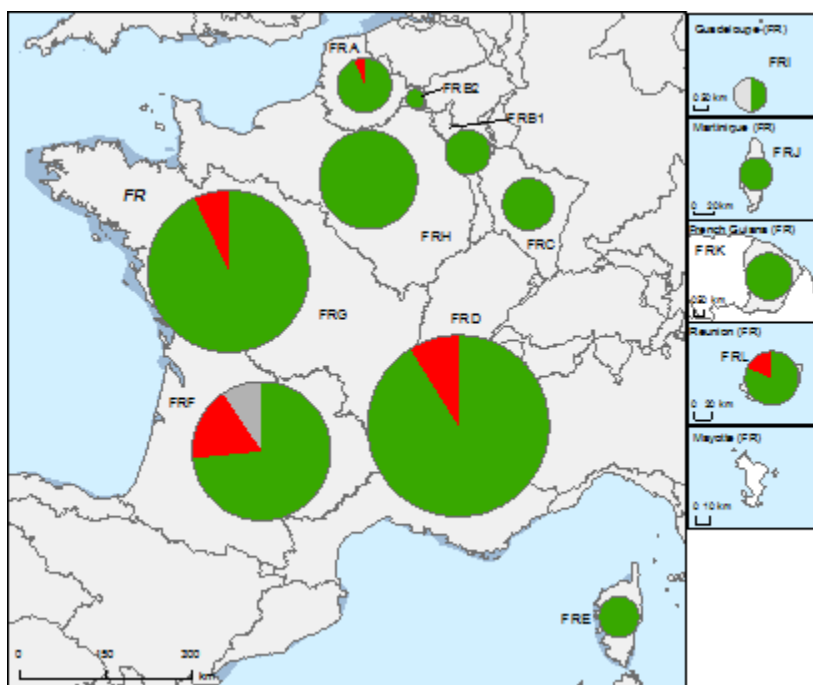


**Figure 6.10:** Map of chemical status of groundwater bodies 2015

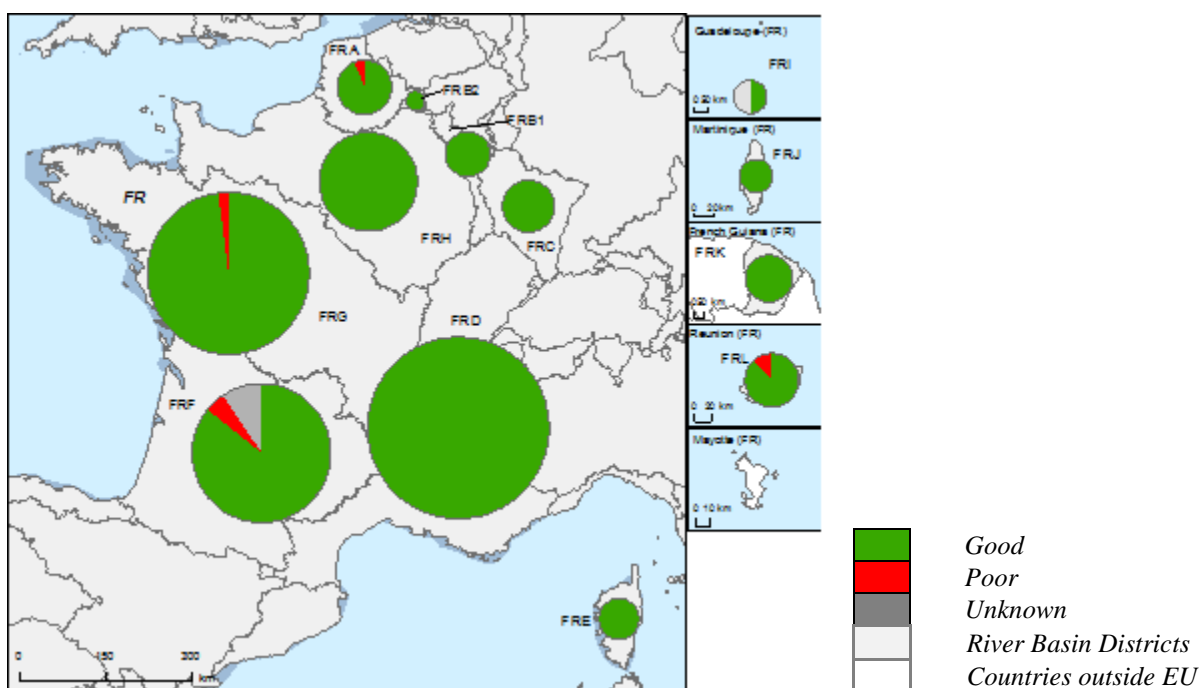
*Note:* Standard colours based on WFD Annex V, Article 2.4.5.

*Note:* Standard colours based on WFD Annex V, Article 1.4.2(i). A 1cm diameter pie chart represents 640 natural surface water bodies (2600 in French Guiana).

*Source:* WISE, Eurostat (country borders)



**Figure 6.11:** Map of quantitative status of groundwater bodies 2009



**Figure 6.12:** Map of quantitative status of groundwater bodies 2015

**Note:** Standard colours based on WFD Annex V, Article 2.2.4.

**Note:** Standard colours based on WFD Annex V, Article 1.4.2(i). A 1cm diameter pie chart represents 640 natural surface water bodies (2600 in French Guiana).

**Source:** WISE, Eurostat (country borders)



## **7. ASSESSMENT OF ECOLOGICAL STATUS OF SURFACE WATERS**

France has followed a national approach in the methods developed for the assessment of ecological status of surface waters. Since 2003, several guidance documents have been developed and transmitted to local authorities in order to support in their implementation of the first phases of the WFD. The status assessment of water bodies in 2009 was done on the basis of two guidance documents<sup>19</sup>, of which the main elements have been incorporated into the current applicable regulation in 2010<sup>20</sup>.

### **7.1 Ecological status assessment methods**

Assessment methods for ecological status have not yet been developed for all biological quality elements (BQEs), and there are methods missing for one or several water types.

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<sup>19</sup> 'Guide DCE 2009/27 du 30 mars 2009' and 'Guide relatif aux eaux littorales'

<sup>20</sup> 'Arrêté du 25 janvier 2010 relatif à l'évaluation de l'état des eaux de surface'

RBD	Rivers							Lakes							Transitional							Coastal						
	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macroalgae	Angiosperms	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macroalgae	Angiosperms	Benthic invertebrates	Physico-Chemical	Hydromorphological	
FRA															*	*	*	*	*			*	*	*	*	*	*	
FRB1															-	-	-	-	-	-	-	-	-	-	-	-	-	
FRB2															-	-	-	-	-	-	-	-	-	-	-	-	-	
FRC															-	-	-	-	-	-	-	-	-	-	-	-	-	
FRD																*	*	*	*	*			*	*	*	*	*	
FRE																*	*	*	*	*			*	*	*	*	*	
FRF															*	*	*	*	*	*			*	*	*	*	*	
FRG															*	*	*	*	*	*			*	*	*	*	*	
FRH															*	*	*	*	*	*			*	*	*	*	*	
FRI								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*	*	*	*	
FRJ																												
FRK																												
FRL															-	-	-	-	-	-	-	-						

**Table 7.1:** Availability of biological assessment methods

\* not normalised protocol has been developed

-

Assessment methods fully developed for all BQEs

Assessment methods partially developed or under development for all or some BQEs

Assessment methods not developed for BQEs, no information provided on the assessment methods, unclear information provided

Water category not relevant

Source: RBMPs and WISE

However, there are **significant gaps in the development of assessment methods** for the biological quality elements in this first RBMP. This has in turn, important consequences in the rest of the steps in the planning process, i.e. establishing the objectives for the water bodies, and designing the most appropriate measures. Not all **water categories** are equally covered by the biological assessment methods. There is significantly more knowledge on rivers than other water categories for the moment, and therefore more biological assessment methods have been developed for rivers than for the others. Therefore the aim is to develop new methods for the missing biological elements in particular for lakes, transitional and coastal waters.

The methods developed so far are considered by France to be as representative as possible of all **relevant pressures**. France has confirmed that the biological assessment methods are being further developed and improved. This will allow the results of the intercalibration exercise to be taken into account and will result in better assessment methods being available for the next cycle.

The assessment of supporting quality elements on **physico-chemical** and **hydromorphological** characteristics have generally been only partially developed so far.

Some physico-chemical elements have been assessed in most French RBDs, such as water temperature, pH and oxygen concentration, and transparency (only in lakes). Others have not been taken into account for the assessment, such as conductivity and salinity. Nutrient concentration has been assessed in most of French RBDs.

The physico-chemical quality elements are assessed on the basis of the historical evaluation method of the assessment of water quality<sup>21</sup>. All thresholds have been established for the different elements that have an influence on the biology.

For the hydromorphological elements, river continuity, hydrological regime and morphological conditions have generally not been assessed. In these first RBMPs, no standards have yet been established for hydromorphological quality elements, and the assessment has been based on the available information on hydromorphological pressures.

The **one-out-all-out principle** has been applied to derive the overall ecological status in the French RBMPs.

In all French RBMPs, there is an indication of the **level of confidence** to express the **uncertainty** on the classification of ecological status. A confidence assessment is done for each water category for ecological status assessment based on availability of data and their coherence with the significant pressure identified. There is quite a lot of information on how confidence and precision have been evaluated, and the information is generally given for each BQE. The RBMPs also state that the necessary improvements to reduce the level of uncertainty are on-going.

After the adoption of the RBMPs, a national methodology for assessing confidence in the classification of ecological and chemical status was included in the applicable law<sup>22</sup>. It describes three levels of confidence: 3 (high), 2 (medium), 1 (low). Details are provided on how data derived from monitoring or modelling in freshwater may be assigned to a particular confidence level. In addition, two decision methods are explained, for freshwater and for transitional and coastal waters.

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<sup>21</sup> Le Système d'Évaluation de la Qualité de l'eau (SEQ-Eau)

<sup>22</sup> Annex 11 of the 'Arrêté du 25 janvier 2010 relatif aux règles d'évaluation de l'état des eaux de surface

It is not clear whether the **national class boundaries** are consistent with the **intercalibrated class boundaries** of the phase 1 of the intercalibration exercise<sup>23</sup>. According to information received from France, the thresholds established in the '*Arrêté*' of 2010 would be consistent with those of the Commission Intercalibration Decision.

There is no information in the RBMPs on how spatial variability has been taken into account in the classification of ecological status. However, this is mentioned in the '*Arrêté*' of 2010 (article 13 and annex 10).

## **7.2 River basin specific pollutants**

For this first RBMP, nine substances have been identified as **river basin specific pollutants of national relevance**, and one substance of local importance (chlordecone in Guadeloupe and Martinique). The identification of these substances has been derived establishing a hierarchy of substances to be monitored as established in Directive 76/464/CEE and other pesticides. According to information received from France, the methodology applied for the definition of environmental quality regulations for these specific pollutants is in compliance with Annex V 1.2.6 of the WFD. However, this methodology is not contained in the RBMPs, as it seems to have been developed after the adoption of the plans. It has been verified by an expert group, and has been subject to public consultation from 4 to 17 January 2010.

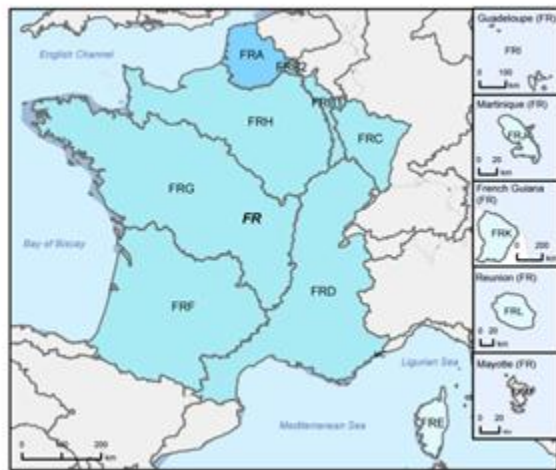
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<sup>23</sup> 2008/915/EC: Commission Decision of 30 October 2008 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise. *OJ L 332, 10.12.2008*

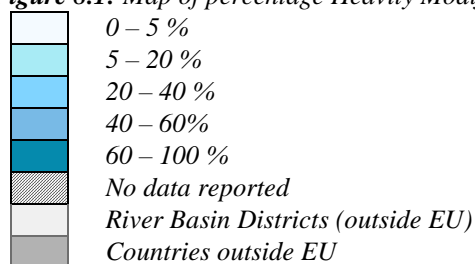
RBD	CAS Number	Substance	Percentage Water Bodies Failing Status (%)
FRA			
FRB1			
FRB2		HAP	
FRB2		nonylphenol	
FRC			
FRD			
FRE			
FRF		atrazine	
FRF		cadmium	
FRF		nitrates	
FRF		phosphorous	
FRG			
FRH			
FRI		chlordecone	15
FRI		nutrients	
FRI		organic matter	
FRJ		2,4 MCPA	Nil
FRJ		2-4 D	Nil
FRJ		chlordecone	Nil
FRJ	117817	DEHP	Nil
FRJ	330541	diuron	Nil
FRJ		HAP	Nil
FRK			
FRL			

**Table 7.2:** River basin specific pollutants  
**Source:** WISE

## 8. DESIGNATION OF HEAVILY MODIFIED WATER BODIES (HMWB) AND ASSESSMENT OF GOOD ECOLOGICAL POTENTIAL



**Figure 8.1:** Map of percentage Heavily Modified and Artificial water bodies by River Basin District



Source: WISE

### 8.1 Designation of HMWBs

France has designated 692 heavily modified water bodies (HMWBs) and 181 artificial water bodies (AWBs) in all its RBD. This represents 6% of all water bodies for HMWBs, and 1.5% for AWBs. There is a significant decrease of the number of water bodies designated as HMWBs and AWBs compared to the provisional designation carried out for the purposes of the Article 5 analysis (HMWBs around 22%, AWBs around 7%<sup>24</sup>).

The distribution in number and percentage by RBD for the different water types can be found in Table 8.1.1 (HMWBs) and Table 8.1.2 (AWBs).

<sup>24</sup> [http://ec.europa.eu/environment/water/water-framework/implrep2007/pdf/sec\\_2007\\_0362\\_en.pdf](http://ec.europa.eu/environment/water/water-framework/implrep2007/pdf/sec_2007_0362_en.pdf)

RBD	Rivers		Lakes		Transitional		Coastal	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
FRA	15	27.27	1	25	3	75		0
FRB1	2	1.42	4	100		0		0
FRB2	1	9.09		0		0		0
FRC	25	5.29	21	84		0		0
FRD	136	5.21	45	43.7	4	14.81	6	18.75
FRE	4	1.9	6	100		0		0
FRF	53	1.98	88	83.8	4	33.33	2	18.18
FRG	69	3.56	121	85.8	7	23.33		0
FRH	48	2.86	16	35.6	6	85.71	2	10.53
FRI	0	0		0		0		0
FRJ	1	5		0		0		0
FRK	0	0	1	100		0		0
FRL	1	4.17		0		0		0
<b>Total</b>	<b>355</b>	<b>3.28</b>	<b>303</b>	<b>69</b>	<b>24</b>	<b>25</b>	<b>10</b>	<b>6.1</b>

**Table 8.1:** Number and percentage of HMWBs in France.

Source: WISE

RBD	Rivers		Lakes		Transitional		Coastal	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
FRA	4	7.27	3	75		0		0
FRB1	6	4.26		0		0		0
FRB2	0	0	1	100		0		0
FRC	28	5.92	2	8		0		0
FRD	9	0.34	22	21.4		0		0
FRE	0	0		0		0		0
FRF	22	0.82	5	4.76		0		0
FRG	27	1.39	3	2.13		0		0
FRH	20	1.19	28	62.2		0		0
FRI	0	0		0		0		0
FRJ	0	0	1	100		0		0
FRK	0	0		0		0		0
FRL	0	0		0		0		0
<b>Total</b>	<b>116</b>	<b>1.07</b>	<b>65</b>	<b>14.8</b>		<b>0</b>		<b>0</b>

**Table 8.2:** Number and percentage of AWBs in France.

Source: WISE

In the RBMPs and accompanying documents, the information provided on the designation process is quite general, and more detailed information may be found in a national guidance document<sup>25</sup>. The objective of this guidance was to harmonise the designation process across the different RBDs.

<sup>25</sup> Guide technique du 15 février 2006: La désignation des masses d'eau fortement modifiées (MEFM) et des masses d'eau artificielles (MEA)

The water uses for which the HMWB have been designated are generally specified in the RBMPs, and in some cases given per water body. The main uses that are behind the designation of HMWBs are navigation, power generation, recreational purposes, drinking water supply, flood protection, irrigation and water regulation. Navigation and power generation are the uses for which HMWBs have been designated in almost all RBDs (except from Guadeloupe and Réunion RBDs for navigation and in Meuse, Guadeloupe and Martinique for power generation). Flood protection has also frequently been used for the designation (except from Meuse and Rhine in the mainland, and in all overseas territories).

The national guidance document also provides the list of physical modifications potentially leading to the pre-identification due to hydromorphological alterations. This includes urbanisation of river/lake banks; roads and embankments/dykes; navigation; straightening and recalibration; water storage (dams), weirs and sills, obstacles to migration, etc.

It seems that some steps are missing in the methodology used for the designation of HMWBs. The stepwise approach of the CIS Guidance n° 4<sup>26</sup> seems to have not been completely followed. In particular, the significant adverse effects of restoration measures on the use or wider environment, and the lack of better environmental options, are not clearly assessed in the RBMPs. The national guidance of 2006 gives some indications on the impact on the use of the modifications needed to achieve good ecological status. It also provides guidance on the assessment of better environmental options for the achievement of the objectives that the HMWB modification serves to deliver. However, the plans generally contain only very general information on the designation process and the results of the assessments mentioned above are not described in the plans.

The **uncertainty** of the designation process is discussed in most RBMPs (except from those of Guadeloupe and Réunion), and those that consider the uncertainties also include possible future actions to improve the designation process.

## 8.2 Methodology for setting good ecological potential (GEP)

The methodology to define good ecological potential (GEP) has been developed at national level in 2010, i.e. after the adoption of the first RBMPs.

In the first RBMPs, there seems to have been a combined approach of the Prague approach and reference-based approach based on elements already intercalibrated (diatoms, chlorophyll A). The GEP is defined as being close to reference conditions.

A preliminary national method for determining the GEP (until the intercalibration is ready for GEP in HMWBs) has been established nationally by the 'Arrêté' of 25 January 2010<sup>27</sup>. It is a combined approach between the specific uses of a water body and the national type of the water body. Whenever the BQEs are not sensitive to the hydromorphological pressures (e.g. phytoplankton, diatoms, physico-chemical), these have been incorporated in the GEP method.

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<sup>26</sup>[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/guidance\\_documents/gds04shmwbspolicysummary/ EN 1.0 &a=d](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents/gds04shmwbspolicysummary/ EN 1.0 &a=d)

<sup>27</sup> The methodology for the definition of GEP may be found in Annex V of the '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'.



## 9. ASSESSMENT OF CHEMICAL STATUS OF SURFACE WATERS

### 9.1 Methodological approach to the assessment

In French mainland RBDs, the assessment of the chemical status has been done on the basis of the substances in **Annex I of Environmental Quality Standards (EQS) Directive 2008/105/EC**, except in Meuse, Rhine and Rhone RBDs, where no clear reference to these substances is made in the plans. However, different substances have been used in the different plans (and not all the 41 substances of Annex I) for the assessment of chemical status of water bodies. Therefore it is unclear for each of the French RBMPs which substances have been used, and the reasons for the selection of certain specific substances.

According to information received from France, the assessment of chemical status in Adour-Garonne has been delayed, as the monitoring has only started in 2009.

In the case of France, **no national standards** more stringent than the EQS of Directive 2008/105/EC have been set for the assessment of chemical status of surface water. The assessment of chemical status is carried out on the basis of national guidelines<sup>28</sup>.

In the RBMPs of the overseas territories, there is no information as to whether the EQS Directive has been applied. It may be assumed that the national guidelines have been followed, but this is not clearly stated in the plans, nor has it been reported in WISE.

There is no information in French plans on whether the EQSs have been derived for **sediment** and/or for **biota** for some of the 41 substances, or whether France has applied EQSs for biota for mercury and its compounds, and/or for hexachlorobenzene, and/or for hexachlorobutadiene according to Article 3(2a) of the EQS Directive.

The only exemption is Réunion RBD, where Maximum Allowable Concentrations have been applied to biota for mercury and its compounds (20 µg/kg); hexachlorobenzene (10 µg/kg); and, hexachlorobutadiene (55 µg/kg), and the concentration is based on wet weight. It is not clear whether EQSs have been derived specifically for sediment and/or biota in Réunion, but it is stated that in biota and sediments, the EQSs are established based on AA wet weight concentration for biota and AA dry weight concentration for sediments.

There is very little information in the RBMPs on whether the **background concentrations** have been taken into account in the assessment. In general, the plans acknowledge that it is possible to consider background concentrations, but there is no explanation on the methodology to do so. Furthermore, the 'Arrêté' of 25 January 2010 states that, for metals and their compounds, it is possible to account for natural background levels in the assessment of results, but it does not provide a methodology either.

The same lack of detailed information applies for the analysis of how **bioavailability factors of metals** are considered in the assessment of compliance with the EQS Directive. It is reported in the national guidelines that bioavailability factors could be taken into account in the assessment, but there is no further explanation on the methodology. The 'Arrêté' of 25 January 2010 states that for metals and their compounds, it is possible to take into account the water hardness, the pH, or other parameters linked to water quality that affect the bioavailability of metals, but no more details on the methods are provided.

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<sup>28</sup> Guide national pour l'évaluation de l'état des eaux douces de surface métropolitaines - *projet d'arrêté en cours* (information reported in WISE)

## 9.2 Substances causing exceedances

All French RBMPs, except from the Guyana, include information on the specific substances causing failure to achieve good chemical status.

Substance	FRA	FRB1	FRB2	FRC	FRD	FRE	FRF	FRG	FRH	FRI	FRJ	FRK	FRL
608-73-1 Hexachlorocyclohexane	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
87-68-3 Hexachlorobutadiene	✓	✓			✓					✓			
18-74-1 Hexachlorobenzene		✓			✓					✓			
75-09-2 Dichloromethane		✓							✓	✓			
120-12-7 Anthracene			✓		✓						✓		
115-29-7 Endosulfan			✓		✓		✓		✓		✓		
608-93-5 Pentachlorobenzene	✓	✓			✓				✓	✓			
191-24-2 Benzo(g,h,i)perylene	✓	✓	✓	✓	✓		✓	✓	✓				
193-39-5 Indeno(1,2,3-cd)pyrene	✓	✓	✓	✓	✓		✓	✓	✓				
50-32-8 Benzo(a)pyrene	✓	✓		✓	✓			✓	✓	✓			✓
205-99-2 Benzo(b)fluoranthene		✓	✓	✓	✓				✓	✓	✓	✓	
206-44-0 Fluoranthene	✓	✓		✓	✓			✓	✓	✓			
207-08-9 Benzo(k)fluoranthene		✓		✓	✓			✓	✓	✓			
15972-60-8 Alachlor		✓			✓		✓	✓	✓	✓			
1912-24-9 Atrazine		✓	✓				✓			✓	✓		
330-54-1 Diuron		✓	✓	✓	✓		✓		✓	✓	✓		
34123-59-6 Isoproturon	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
1582-09-8 Trifluralin			✓		✓						✓		
2921-88-2 Chlorpyrifos			✓		✓		✓				✓		
470-90-6 Chlorfenvinphos			✓		✓						✓		
32534-81-9 Pentabromodiphenylether	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
117-81-7 Di(2-ethylhexyl)phthalate (DEHP)	✓	✓		✓	✓	✓		✓	✓	✓	✓		
50-29-3 para-para-DDT and DDT total	✓				✓				✓				
60-57-1 Dieldrin	✓	✓			✓				✓	✓			✓
104-40-5 Nonylphenol	✓	✓	✓	✓						✓			
140-66-9 Octylphenol		✓			✓			✓		✓			

Substance	FRA	FRB1	FRB2	FRC	FRD	FRE	FRF	FRG	FRH	FRI	FRJ	FRK	FRL
87-86-5 Pentachlorophenol		✓							✓	✓			
7440-43-9 Cadmium and its compounds	✓	✓	✓	✓	✓				✓	✓	✓		
7439-92-1 Lead and its compounds		✓	✓						✓	✓	✓		
7439-97-6 Mercury and its compounds		✓	✓	✓					✓	✓	✓		
7440-02-0 Nickel and its compounds	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓
36643-28-4 Tributyltin compounds			✓	✓	✓	✓	✓	✓			✓		
2 Pesticides - aggregated			✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Industrial Pollutants - aggregated			✓	✓	✓	✓	✓	✓		✓	✓		
4 Other pollutants - aggregated			✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 Heavy Metals - aggregated			✓	✓	✓	✓	✓	✓	✓	✓	✓		
4.11 Polyaromatic hydrocarbons			✓	✓	✓	✓	✓	✓	✓		✓		
2 Pesticides - aggregated			✓	✓	✓	✓	✓	✓			✓		✓

**Table 9.1:** Substances responsible for exceedances

*Note:* No information reported to WISE for FRK (French Guyana).

*Source:* WISE

### 9.3 Other issues

In general, there is no information on whether mixing zones have been used in this first set of RBMPs. In the national guidance document, it is mentioned that good chemical status is achieved when compliance with EQS is achieved in all points of a water body outside a mixing zone.

A national approach for mixing zones has been described in the 'Arrêté' of 25 January 2010, by which it is established that monitoring sites should be outside of a mixing zone. If a monitoring site is within a mixing zone, there must be other monitoring of the same water body outside of the mixing zone, in order to ensure that the monitoring is representative. It is stated that good chemical status is achieved for a pollutant if all the EQSs for the pollutant are met at all monitoring points for the water body that are outside of the mixing zone (i.e. EQSs may be exceeded within the mixing zone and good chemical status can still be achieved).

## 10. ASSESSMENT OF GROUNDWATER STATUS

The approach to the assessment of the status of groundwater has varied significantly in the different RBDs. There are national guidance documents on this issue, but this guidance seems to have been interpreted differently in different RBDs.

### 10.1 Groundwater quantitative status

The impacts of groundwater abstractions have been considered but there is no information on how the balance between recharge and abstraction of groundwater is assessed.

All the criteria of groundwater quantitative status assessment seem to be considered. The **associated surface waters** and **groundwater dependent terrestrial ecosystems** are considered in every RBD. The knowledge on the dynamics between groundwater and dependent terrestrial ecosystems was, however, not sufficient at the time of developing these first RBMPs. Furthermore, there was a lack of appropriate methods to assess the status of those terrestrial groundwater dependent ecosystems. The different RBD authorities have therefore used the best available knowledge in the different districts. A number of studies have been launched over the past few years all across France in order to develop a sound methodology, and the first results of these studies will be available during 2012.

### 10.2 Groundwater chemical status

For surface waters associated to groundwater and GW dependent terrestrial ecosystems, see the explanation on quantitative status.

There is no methodology in every RBD for defining acceptable threshold value (TV) exceedances.

TVs were established at the national and local level, but the link between them is not clear. It seems common that TVs were established in connection to risks. Consideration of background levels is different in the RBDs.

The methodologies for **trend assessments** and **starting points for trend reversals** are often missing. According to the information received from France, this is due to the fact that these assessments were not compulsory in the first RBMPs. Regarding existing methods there are significant differences for the different RBDs. However, this may result from an incomplete reporting by the different districts, which have only reported the data available at that time. France is currently developing a national methodology on this issue.

### 10.3 Protected areas

RBD	Good	Failing to achieve good	Unknown
FRA	16		
FRB1	1		
FRB2			
FRC	2		
FRD	76	39	
FRE			
FRF		6	
FRG	9	11	
FRH	14	9	
FRI	1		
FRJ			
FRK			
FRL	3		0
<i>Total</i>	<i>122</i>	<i>65</i>	

**Table 10.1:** Number and status of groundwater drinking water protected areas.  
*Source: WISE*

## 11. ENVIRONMENTAL OBJECTIVES AND EXEMPTIONS

### 11.1 Environmental objectives

An overview of the reported objectives for surface water bodies may be found in the status section. The information on the expected status for subsequent cycles (2021 and 2027) has been provided only in some RBDs.

The main **impacts** necessitating an extension of the deadline (Article 4(4) WFD) or lowering the objective (Article 4(5) WFD) have been identified for all the RBDs. In some cases, the drivers causing the need for exemptions are clearly defined per water body, or for other RBDs these are generally described for the whole RBD. The main drivers include diffuse and agricultural pollution, wastewater treatment plant discharges, etc.

### 11.2 Additional objectives in protected areas

Protected areas have been clearly designated in all French RBDs. Additional more stringent objectives should be contained in the RBMP, including for areas for drinking water, shellfish, bathing water and Natura 2000, where the protected area objectives are more stringent than those that constitute good status.

Additional objectives for drinking water have been identified in all RBMPs. However, in some RBDs, the definition of additional objectives is not very clear, as the protected areas are only referred to as part of a register under the relevant national legislation, with a general reference to the objectives to be achieved.

Shellfish production areas are also Shellfish Protection Areas and are subject to national and departmental or local legislation covering water and shellfish quality. Additional objectives

have been set in those RBDs with shellfish areas although the level of detail provided between different RBMPs differs. For bathing water and Natura 200 sites, the objectives are generally not clearly mentioned in the RBMPs. France has established the additional objectives through the implementation of the Bathing and the Habitats Directives, by which the water bodies protected are part of a national register. However, the RBMPs do not mention those additional objectives.

### 11.3 Exemptions according to Article 4(4) and Article 4(5)

There are a relatively high number of exemptions under Article 4(4) and 4(5) based on disproportionate costs, for which there is no clear justification.

The **basic measures** (as referred to in 11(3)(a) WFD) have been excluded<sup>29</sup> from the calculation of disproportionate cost.

The national guidelines on exemptions<sup>30</sup> mention that alternative financing has to be sought. This is an important issue, given that affordability has been used as a reason to extend the deadline (exemption under Article 4(5) WFD).

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<sup>29</sup> 'Guide méthodologique de justification des exemptions prévues par a directive cadre sur l'eau'

<sup>30</sup> Page 9, chapter 2.3: '*Etape 3 : la capacité à payer et les modes de financement alternatifs*' - <http://www.rapportage.eaufrance.fr/annexes/dce/2010/FR/5%20Exemptions%20prevues%20par%20la%20directive%20cadre%20sur%20l%20eau/Guide%20methodologique%20de%20justification%20des%20exemptions.pdf>

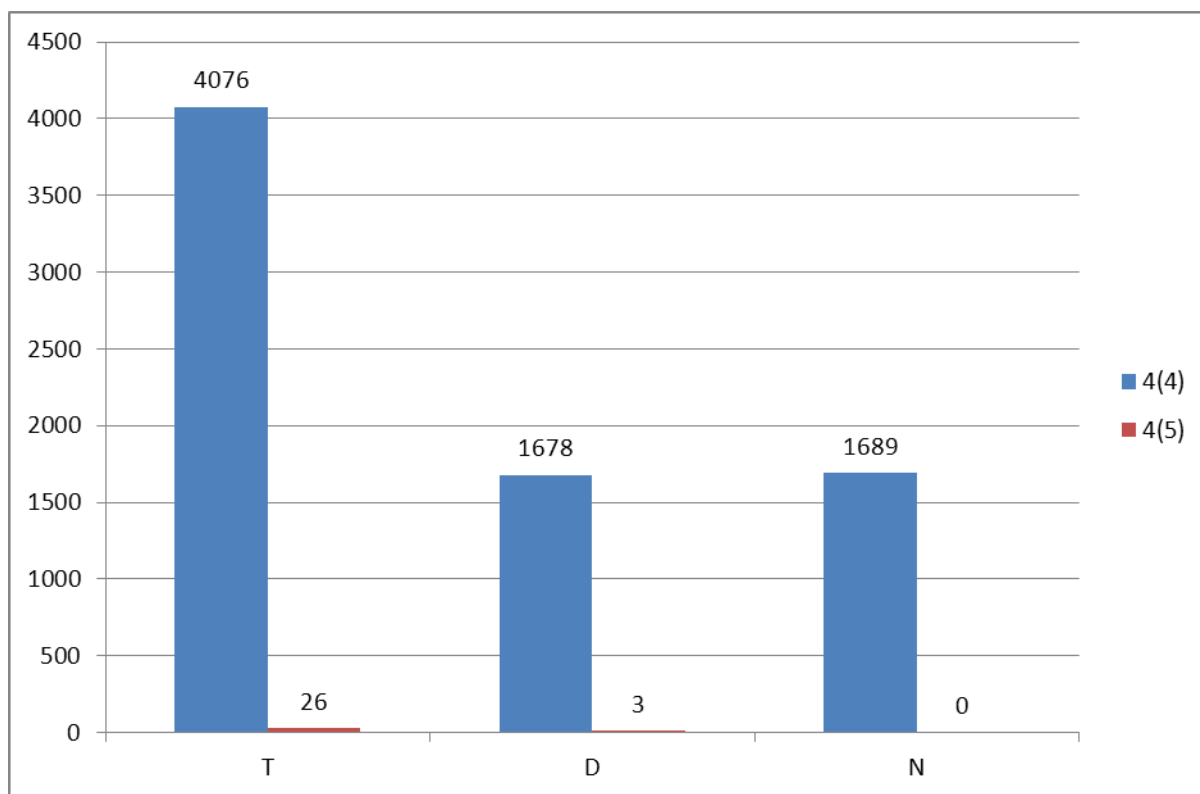
RBD	Global <sup>31</sup>					
	Technical feasibility		Disproportionate costs		Natural conditions	
	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)
FRA	44	0	24	0	22	-
FRB1	68	0	18	0	9	-
FRB2	12	0	5	0	1	-
FRC	339	0	65	0	42	-
FRD	952	7	226	0	73	-
FRE	7	5	0	0	9	-
FRF	1097	0	7	0	1085	-
FRG	929	0	493	2	169	-
FRH	294	0	518	0	203	-
FRI	30	1	0	0	0	-
FRJ	5	10	28	0	20	-
FRK	296	1	294	1	49	-
FRL	3	2	0	0	7	-
<i>Total</i>	<i>4076</i>	<i>26</i>	<i>1678</i>	<i>3</i>	<i>1689</i>	<i>-</i>

**Table 11.1:** Numbers of Article 4(4) and 4(5) exemptions

Source: WISE

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<sup>31</sup> Exemptions are combined for ecological and chemical status.



**Figure 11.1: Numbers of Article 4(4) and 4(5) exemptions**

*T = Technical feasibility*

*D = Disproportionate costs*

*N = Natural conditions*

*Blue = Article 4(4) exemptions*

*Red = Article 4(5) exemptions*

*Source: WISE*

#### 11.4 Exemptions according to Article 4(6)

The exemption under Article 4(6) has not been used in any RBD of France.

#### 11.5 Exemptions according to Article 4(7)

There are a number of projects for which the Article 4(7) WFD is applicable in this first round of RBMPs. In general, the plans mention the projects, but only provide some general information on the projects, so it is not clear whether a proper assessment has been carried out as required by Article 4(7) WFD.

More details can be found in the websites of the different RBDs, and in the projects' websites<sup>32</sup>, which also generally contain a number of studies that have been developed on these projects.

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<sup>32</sup> <http://www.seine-normandie.eaufrance.fr/index.php?id=274>  
<http://www.seine-nord-europe.com/>  
<http://www.debatpublic-prolongementdugrandcanalduhavre.org/>  
<http://www.rouen.port.fr/documents-amenagement-acces-port-de-rouen.html>



- Several projects in the RBD Seine-Normandie.
- Adour-Garonne: one project on the transfer of energy through pumped water in Rédant.
- Artois-Picardie: one project on the Canal Seine Nord Europe.
- Réunion: two projects on a coastal road and a hydroelectric dam (information on these projects is not available in the internet).
- Corsica: two projects.
- Loire-Bretagne: one project on the dam of the Auzance River (this project has been stopped, as better alternatives were found).

## 12. PROGRAMMES OF MEASURES

According to Annex VII of the WFD, the RBMPs should contain a summary of the programmes of measures (PoM), including the ways in which Member States expect to achieve the objectives of Article 4 WFD. The programmes should have been established by 2009, but are required to become operational only by December 2012. The assessment in this section is based on the PoM as summarised by the Member State in its RBMP, and the compliance of this with the requirements of Article 11 and Annex VII of the WFD.

It therefore does not include a comprehensive assessment of compliance with the requirements of Article 11(3)<sup>33</sup> on basic measures. It focuses in particular on key sets of measures. Member States will report to the Commission by December 2012 on the full implementation of their PoMs, including on the progress on the implementation of basic measures as required by Article 11(3). The Commission will assess what Member States report and will publish its assessment in accordance with Article 18 WFD.

### 12.1 Programme of measures – general

For the **international RBDs** that France is a part of, there has been some co-ordination in the framework of the works of the International Commission for the Protection of the Scheldt, the Meuse and the Rhine. Furthermore, the co-ordination on some of the more relevant issues (river continuity, nutrient reduction and exceedances of EQS due to transboundary chemical pollution) has also been tackled in these international conventions.

**Basic measures** are applied everywhere and whenever these are necessary to achieve the WFD objectives.

Although the PoM has been drafted to take into account the results of the **status assessment**, the link between the status and the measures is generally unclear. Some measures are reported to be specifically implementing the WFD and other specific to the different RBDs.

The status of all water bodies has been defined, as well as the pressures having a significant impact on those water bodies and the objectives per water body. Based on this information, a first list of supplementary measures has been prepared. The provisional list of measures underwent an assessment of economic feasibility and a consultation was conducted with

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<sup>33</sup> These are the minimum requirements to be complied with and include the measures required under other Community legislation as well as measures to achieve the requirements of other WFD Articles and to ensure appropriate controls on different activities affecting water management

stakeholders and the general public at a later stage. Subsequently, the list was modified as necessary and adopted in the PoM.

The PoMs have been designed with the best available knowledge, and are considered to be appropriate to tackle significant pressures and those impacts which may cause failure in achieving the environmental objectives.

For all water bodies for which good status is not envisaged by 2015, it can be concluded that the basic and supplementary measures in this first RBMP are insufficient.

Concerning the **scope of the measures**, basic measures are defined on the national scale. Some supplementary measures (e.g. legal, financial, organizational, but also hydromorphological measures) are defined at RBD or sub-basin level. The remaining supplementary measures are generally defined per water body. In the cases where measures are designed at RBD or sub-basin level, not much detail is provided as to the specific measures to be applied by water body. Some supplementary measures are targeted to urban areas.

There are some measures that, although they are not included in the PoM, contribute to the overall objective of good status. For example, the upgrade of individual wastewater plants, which is mainly implemented for public health reasons; the recycling of sewage sludge, the upgrade of sewerage networks, etc.

There are different **authorities or actors responsible** for the implementation of the different measures. For the agricultural measures, the national, regional and local authorities, together with the farmers and farmers' organisations, are responsible for the implementation. For those measures related to households, the public authorities are generally the main actors, while the enterprises are also responsible for the implementation of the measures related to the industry (together with the authorities).

The **cost of the different measures** is clearly identified in the RBMPs. All plans include the source of financing for the planned measures for the major investment needs. However, it is not clear whether there is a concrete **financial commitment** for the implementation of the measures in RBMPs. However, France has confirmed that there is a legal commitment through the allocation of the water taxes to financing water policy (charges related to water abstraction and pollution of discharged water).

The PoMs have been adopted by the river basin authorities and endorsed by the '*Préfet Coordonnateur*', and therefore it is the responsibility of the State to ensure their implementation. The detailed costs of actual measures will only be known with the specific characteristics of the individual projects.

The PoMs are mainly financed by the investment programmes of the water agencies, which have been adapted with the adoption of the PoM. For agriculture, the main source of funding is the Rural Development Programmes.

In the Loire RBD, there is a chapter presenting in general terms how the implementation of the PoM will be monitored. In Adour RBD, there will be a mid-term evaluation of the PoM (in 2013) of the progress achieved and additional measures may be added to the PoM if needed, but this is not specific to agriculture measures.

France has confirmed that all necessary requirements (administrative, financial and regulatory conditions) will be in place on time to make all measures operational by the end of 2012 in all French RBDs.

## 12.2 Measures related to agriculture

Agriculture has been identified as one of the **main pressures** in all mainland RBDs, mainly for diffuse pollution, including nitrogen, phosphorus, pesticides, metals and micro-pollutants. Water abstraction and transfers for agriculture purposes are considered as significant pressures in the Adour-Garonne, Loire, Martinique, Réunion and Guadeloupe RBDs. Morphological pressures due to the farming activity are highlighted in the Scheldt, Sambre and Loire RBs. Eutrophication is significant in the Scheldt, Meuse, Sambre, Rhine, Rhone, Seine, Loire, Martinique and Guyana RBDs.

Agriculture was not identified as a main pressure in the Corsican RBD.

**Farmers and other relevant stakeholders** were consulted during the preparation of the measures for agriculture. The River Basin Committee has been responsible for drafting the PoM. It has involved different groups of stakeholders through local commissions, which have been involved in the drafting of plan. It is likely, although not clearly stated in the plans, that farmers were involved in the working groups that drafted the plans and the PoM. The final drafts of the plans were formally consulted with the '*Chambres d'agriculture*' at the local level. However, there is no detailed information in the RBMPs on the different stakeholders involved in the process and the extent of their contributions.

The main measures related to agriculture in the French RBDs (Table 12.2.1) are mainly technical and non-technical measures. Measures related to economic instruments are generally limited to water pricing for irrigation, and in some cases compensation for land cover and co-operative agreements.

Measures	FRA	FRB1	FRB2	FRC	FRD	FRE	FRF	FRG	FRH	FRI	FRJ	FRK	FRL
<b>Technical measures</b>													
Reduction/modification of fertiliser application	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	
Reduction/modification of pesticide application	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Change to low-input farming (e.g. organic farming practices)	✓	✓	✓		✓		✓	✓	✓	✓			
Hydromorphological measures leading to changes in farming practices	✓		✓		✓		✓		✓				
Measures against soil erosion	✓		✓		✓	✓	✓	✓	✓	✓			
Multi-objective measures (e.g. crop rotation, creation of enhanced buffer zones/wetlands or floodplain management)	✓	✓			✓	✓		✓	✓	✓			✓
Technical measures for water saving	✓	✓		✓	✓	✓	✓		✓		✓		
<b>Economic instruments</b>													
Compensation for land cover			✓					✓					✓
Co-operative agreements													
Water pricing specifications for irrigators	✓	✓	✓	✓		✓			✓			✓	
Nutrient trading													
Fertiliser taxation													
<b>Non-technical measures</b>													
Additions regarding the implementation and enforcement of existing EU legislation			✓		✓		✓						
Institutional changes							✓						
Codes of agricultural practice	✓	✓		✓		✓			✓				✓
Farm advice and training	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Raising awareness of farmers		✓			✓		✓			✓			
Measures to increase knowledge for improved decision-making		✓		✓		✓		✓		✓	✓		
Certification schemes													
Zoning (e.g. designating land use based on GIS maps)													
Specific action plans/programmes					✓								✓
Land use planning	✓	✓		✓		✓			✓				
Technical standards	✓	✓		✓		✓	✓		✓		✓		✓
Specific projects related to agriculture										✓			✓
Environmental permitting and licensing													

**Table 12.1:** Types of WFD measures addressing agricultural pressures, as described in the PoM  
**Source:** RBMPs

The **geographical scope** of the application of the measures depends on the pressures that the measures are designed to tackle. Some basic measures (e.g. regulation of use of fertilisers) are generally applied at the RBD level. Other more specific measures are presented at sub-basin or water body level.

Many measures are specific to a sector of agriculture, e.g. crop farming or livestock farming, and this is clearly stated in the PoM.

In Guyana, there is no clear scope provided for the implementation of the measures. In the Réunion island, no agricultural measures are described for sub-river basins.

There is no precise information in the RBMPs on the planned **financing of the agricultural measures**. In particular, the Rural Development Regulation is not really considered in the programmes of measures. Although specific to the WFD, Article 38 of the Rural Development Regulation is not referred to in the plans. According to information received from France, the financing of agricultural measures will indeed be supported with Rural Development Programmes, among other available funds. Furthermore Article 38 of the RDR will be considered for financing prevention actions related to Article 7 WFD on protected areas for drinking water.

There are no clear references in the plans to the expected **timing** for the implementation of the measures. However, the measures are defined for the period 2009-2015.

As regards the **controls on the implementation** of the agricultural measures, in most RBMPs it is mentioned that a control mechanism is in place or will be further developed, but no further details are provided.

### 12.3 Measures related to hydromorphology

Table 12.3.1 presents a summary of the hydromorphological measures that have been included in the PoM of the different RBDs.

The most common measures are fish ladders and the restoration of bank structures, followed by removal of structures, habitats restoration and reconnection of meander beds or side arms.

Measures	FRA	FRB1	FRB2	FRC	FRD	FRE	FRF	FRG	FRH	FRI	FRJ	FRK	FRL
Fish ladders	✓	✓		✓	✓		✓	✓	✓	✓	✓		✓
Bypass channels	✓	✓		✓	✓		✓	✓	✓				
Habitat restoration, building spawning and breeding areas	✓		✓		✓	✓	✓	✓	✓		✓		
Sediment/debris management					✓		✓	✓			✓		
Removal of structures: weirs, barriers, bank reinforcement	✓	✓		✓	✓	✓	✓	✓	✓	✓			
Reconnection of meander bends or side arms		✓	✓	✓	✓	✓	✓	✓			✓		
Lowering of river banks					✓		✓						
Restoration of bank structure	✓	✓	✓	✓	✓	✓	✓	✓			✓		
Setting minimum ecological flow requirements					✓		✓				✓		
Operational modifications for hydropeaking					✓		✓						
Inundation of flood plains	✓				✓		✓	✓	✓		✓		
Construction of retention basins					✓		✓	✓					
Reduction or modification of dredging					✓		✓	✓			✓		
Restoration of degraded bed structure	✓	✓	✓	✓	✓	✓	✓	✓					✓
Remeandering of formerly straightened water courses		✓		✓	✓	✓	✓						

**Table 12.2:** Types of WFD measures addressing hydromorphological pressures, as described in the PoM  
**Source:** RBMPs

However, the **basis for the selection** of hydromorphological measures is not clear. This is because the hydromorphological measures are not clearly linked to water uses and pressures. Furthermore, there is no clear link between the measures and the current status or explanations about the potential improvement of the status.

According to information received from France, there have been delays in the planning process in its RBDs, due to the delays in the intercalibration exercise for rivers. For the other water types, the delays in the intercalibration are even bigger.

The **description** of the specific measures to be implemented is generally quite vague and general in the plans.

An important issue that has also not been clearly defined is the **ecologically based flow regime**. Quantitative objectives are defined during summer periods for main river confluences and other strategic points. This is the case in particular for the areas where chronic water deficit has been identified. The minimum flow should also be defined for each and every project.

The hydromorphological measures are presumably envisaged for **HMWBs**. However, clear reference to this can only be found in RBMPs of Scheldt, Sambre, Seine and Réunion RBDs. Specific measures of setting minimum ecological flow requirements and to tackle hydropeaking have been adopted for the Rhone, Adour and Martinique (only minimum flow) RBDs.

## 12.4 Measures related to groundwater

The **basic measures** to tackle the overexploitation of groundwater include: a management plan of water resources for drinking water, a regime of authorisation and declaration, rules for abstraction and classification of facilities and activities involving water abstraction, and definition of areas for the allocation of water to different uses.

**Supplementary measures** include: measures to reduce of water abstraction; studies and governmental actions concerning the scarcity of the resource (Seine); efficient water use (Loire); definition of strategic points to monitor groundwater to ensure a balanced management of the resource (Corsica); measures for water saving by industry, farmers, households and communities; improved controls of water abstractions and improvement of efficiency of drinking water system; actions for rain water recovery (Rhine); definition of the piezometric level of reference (Rhône); ensuring coherence between authorisation for water abstractions and the needs of the aquatic environment and available volumes in groundwater bodies (Guyana); assessment of demand against availability of resources, including future trends and scenarios; promotion of programmes to reduce water use; development of a regional drought management plan; a campaign to encourage farmers to abstract water sustainably; development of a regional plan of water use; identifying the qualitative and quantitative needs for abstractions and assessment of the options for transfers (Réunion); and addressing salt water intrusion (Guadeloupe).

There are a number of **basic measures** foreseen regarding chemical status. These measures aim at **preventing** and **limiting inputs of pollution** and are mostly based on EU legislation, including the prohibition of the release of some products and restrictions in the use of others, the use of alternative techniques to replace synthetic herbicides, measures to prevent pollution at abstraction points, a catalogue of operations subject to authorisation or declaration, a licence system for underground storage, measures to prevent accidents from high risk plants, measures to prevent spills of urban waste water, and measures to reduce pollution from agriculture and pesticides such as improving agricultural practices.

When basic measures are deemed to be insufficient, **supplementary measures** are applied, such as bank restoration, measures to improve waste water collection, remediation measures, measures to tackle other diffuse pollutants, etc. There is no information on the measures established to address TV exceedances.

Some **international co-ordination** of measures related to groundwater has taken place with different intensity in the Scheldt, the Meuse, and the Rhine international RBDs.

## 12.5 Measures related to chemical pollution

An **inventory** of the sources of chemical pollution is included in most French RBMPs, with the exception of Corsica, Guyana and Réunion RBDs. All of the inventories include nutrients and deoxygenating substances (except Loire for the latest). Priority substances are included in Meuse, Sambre, Rhine, Rhône, Adour, Martinique and Guadeloupe. Rhône, Adour, Martinique and Guadeloupe also include other non-priority specific pollutants.

A number of different measures have been included in all the French PoMs to address chemical pollution:

- measures to reduce emissions of chemicals and the prevention of accidental spills;
- measures to characterise and diminish waste and dangerous substances;

- establishment of norms, license system for certain machinery and other legal prerequisites;
- measures on the risk of major accidents in plants (SEVESO);
- measures for improving and ensuring waste water collection and treatment;
- measures for sustainable water use and measures to develop clean technologies;
- norms for sample taking for specific pollutants and establishment of modalities for laboratories analysing water samples;
- improvement of research related to the reduction of dangerous substances;
- modalities for taxes on polluting substances and penalties for polluting;
- sanitation of polluted sites;
- supplementary measures to reduce industrial emissions of organic matter and nutrients (Sambre).

Some **specific measures** have also been taken as necessary in specific RBDs, such as measures to reduce pollution in the harbour of Dunkerque, Boulogne and Calais; supplementary measures to reduce industrial emissions of organic matter and nutrients and self-monitoring (Sambre), local planning for sewage sludge recycling (Rhône), defining a management system for pollution from the harbour (Corsica), and to reduce the use of pesticides (Loire), etc.

France has developed a National Strategy<sup>34</sup>, which forms the basis for competent authorities in relation to monitoring, assessment and reduction of chemical pollutants.

## 12.6 Measures related to Article 9 (water pricing policies)

The assessment of RBMPs gave the impression that water services are defined differently in different RBMPs. However, the French authorities confirmed that the broad definition in line with the WFD was applied in all French RBMPs.

The incentive function of water pricing is not clearly described in the RBMPs. However, provisions of the Law on water and aquatic ecosystems recognise that water-pricing policy provides adequate incentives for users to use water resources efficiently through volumetric charging, and tariffs for all users designed to provide incentives of resource efficient water use.

The '**polluter pays**' principle has not been clearly defined in the RBMPs. However, the provisions of Article 9 of the WFD have been transposed into French national law through the Law n° 2006-1772 of 30 December 2006 on water and aquatic ecosystems, which establishes the obligation of, inter alia, collecting from all water users, and of environmental charges related to water abstraction and pollution of discharged water.

Cost recovery rates have been calculated for agriculture, industry, households, and also in some RBDs for small production activities similar to households.

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<sup>34</sup> 'Plan Micropollutants 2010-2013'

<http://www.developpement-durable.gouv.fr/Les-micropolluants-dans-les.html>  
<http://www.developpement-durable.gouv.fr/Les-micropolluants-dans-les.html>



Financial costs generally include capital (capital costs for new investments and depreciation costs), operating and maintenance costs. Administrative costs are also included in Adour, but maintenance costs do not seem to be included in Guyana and Réunion RBDs.

**Flexibility under provisions of Article 9(4)** has been applied in the following RBDs: Scheldt, Meuse, Sambre, Rhine, Corsica, Seine, Guyana and Réunion.

French legislation establishes that the costs related to water use, including environmental and resource costs, should be borne by the users, taking into account the social, environmental and economic consequences, but also the geographical and climatological conditions. These RBMPs have reported that the tariffs will be recalculated in areas where resources are not quantitatively in balance.

The River Basin Committees adapt the tariffs charged by the water agencies depending on the area, as classified by the environmental pressures and objectives. So each river basin committee is authorised to adjust the rates of environmental charges in accordance with the status of water bodies and the objectives formulated in the RBMP.

There are significant differences concerning water services, cost recovery calculation, contribution to cost recovery, and incentive pricing in different RBMPs, which prove that there has been insufficient co-operation at the national level. Co-operation on the international level has also not been reported.

## **12.7 Additional measures in protected areas**

The objectives of the protected areas go beyond the good status required by the WFD, and are established under the relevant EU Directives (Drinking Water, Bathing Water, Shellfish). Therefore, these additional objectives of protected areas and the measures necessary to achieve them should be included in the main planning instrument applicable to all different activities within a RBD, i.e. the RBMPs.

Protected areas in France have been clearly identified. However, the plans do not provide the specific measures to be implemented in order to reach the more stringent objectives for which the protected area has been designated. It is considered that the measures included in the PoM will improve the status of all water bodies and will therefore contribute to the preservation of the protected areas.

There are very few measures included as such in the plans, such as restoration of extraction sites of drinking water in the Rhone-Mediterranean RBD, and the restoration of wetlands and diversification of habitats in the Rhone and Seine-Normandy RBDs respectively.

Specific additional measures needed to ensure water and shellfish quality under the Shellfish Directive are not clearly described. In general terms, there are no specific targeted measures for designated protected areas under this Directive, but other measures such as the ones mentioned above may have a positive effect on them.

## **13. WATER SCARCITY AND DROUGHTS, FLOOD RISK MANAGEMENT AND CLIMATE CHANGE ADAPTATION**

### **13.1 Water Scarcity and Droughts**

Water scarcity and droughts are considered to be relevant in several French RBDs, and its importance is acknowledged in their RBMPs.

In Corsica, for example, water scarcity has been taken into account for the development of the whole RBMP. In particular, the importance of ensuring a quantitative balance and to anticipate the consequences of climate change has been acknowledged in the main objectives of the RBMP.

The Loire-Bretagne RBD foresees measures to minimise the effects of droughts and to ensure good quantitative status, by reducing or limiting water abstraction in specific areas of the RBD, including controls over the available quantities for irrigation.

In the Seine-Normandie RBD, the management of water scarcity and droughts is underpinned by a framework RBD regulation, together with local legislation ('arrêtés départementaux').

All French RBMPs identify some measures to address water scarcity and droughts, including:

- Improvement of the efficiency of water agricultural uses;
- Reduction of losses in urban distribution networks;
- Reduction / management of groundwater abstraction (e.g. by controls, registers);
- Modification of the water pricing system to foster a more efficient use of water;
- Establishment of water rights markets or schemes to facilitate water reallocation;
- Development of fiscal or economic incentives for the promotion of water-efficient devices and practices;
- Development of Drought Risk Management Plans;
- Measures to foster aquifer recharge;
- Training, education and capacity-building in water saving;
- Measures to enhance water governance;
- Promotion of rainwater harvesting;
- Development of Drought Risk Management Plans.

## **13.2 Flood Risk Management**

There is in general little information in the French RBMPs on specific plans for floods risk management. Article 4.6 has not been applied.

There are however hydromorphological measures foreseen to address floods and which mainly include inundation flood plains, removal of structures, bank reinforcement, water regulation and construction of retention embankments. Although these measures have not been included in some of the plans, a combination of them has been planned in the Rhone, Seine, Adour-Garonne, Loire, Guadeloupe and Martinique RBDs.

## **13.3 Adaptation to Climate Change**

The impact of climate change is mentioned in some RBMPs as a possible additional pressure on water resources that needs to be taken into account in the future. However, climate change is only included in a limited way, and it is mainly referred to in the context of flood

management, water availability and water scarcity situations. There has been no attempt to check whether the PoM is adapted to climate change.

Some RBDs have included some more information related to climate change. For example, in the Seine-Normandie RBMP, climate change is included as part of one specific chapter, i.e. the chapter describing the main directions and challenges of the RBMP. It is mentioned that one challenge to take into account is climate change, it is said that models have been developed taking into account future weather conditions and that there is a high uncertainty on the outcome. However, neither effects on the water system are described nor is this linked with the measures.

## 14. RECOMMENDATIONS

Following the steps of river basin planning as set out in the WFD should ensure that water management is based on a better understanding of the main risks and pressures in a river basin and as a result, interventions are cost effective and ensure the long term sustainable supply of water for people, business and nature.

To deliver successful water management requires linking these different steps. Information on **pressures** and risks should feed into the development of **monitoring programmes**, information from the monitoring programmes and the **economic analysis** should lead to the identification of **cost effective programmes of measures** and justifications for exemptions. **Transparency** on this whole process within a clear governance structure will encourage **public participation** in both the development and delivery of necessary measures to deliver sustainable water management.

To complete the 1<sup>st</sup> river basin management cycle, and in preparing for the second cycle of the WFD, it is recommended that:

- 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 physico-chemical and hydromorphological quality elements should also be further developed.
- 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.
- 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.
- 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. A sound economic analysis should be carried out in order to identify cost-effective programmes of measures and to properly justify the use of exemptions.
- 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.

- 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.
- The biota standards for mercury, hexachlorobenzene and hexachlorobutadiene in the EQSD, 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.
- Meaningful information regarding the scope, the timing and the funding of the measures should be included in the PoM so the approach to achieve the objectives is clear and the ambition in the PoM is transparent. All the relevant information on basic and supplementary measures should be included in the summary of the PoM to ensure transparency on the planned actions for the achievement of the environmental objectives set out in the WFD.
- 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 CAP funds can adequately set up Rural Development programmes and cross compliance water requirements.
- Agriculture is indicated as exerting a significant pressure on the water resource in most of French RBDs. This should be translated into a clear strategy that defines the basic and mandatory measures that all farmers should adhere to and the additional supplementary measures that can be financed. This should be developed with the farmers' community to ensure technical feasibility and acceptance.
- 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 2nd RBMP cycle.
- 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.
- 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 Programmes of Measures.