the Brief
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The status of surface water and groundwater

In order to understand the functioning of aquatic environments and determine their status, France has since the 1970s significantly developed monitoring and assessment systems, not only for the chemical parameters of water, but also the biological and hydromorphological ones. These efforts were further boosted by the adoption of the Water framework directive (WFD)[1] that set the objective of achieving good water status and, to that end, has reinforced monitoring requirements and attempted to harmonise European assessment methods for water status. The increase in the available knowledge has made it possible to improve assessments, but above all contributed to better identifying and implementing the measures required to restore and preserve aquatic resources.

First assess, then take action

Water is not only a vital resource for ecosystems, it is also an essential component for the planet's functioning and in climate regulation. In addition, water and aquatic environments are indispensable for humans and their activities, and must therefore be protected and managed sustainably. But protection and effective action require in-depth knowledge on the status of aquatic environments. To that end, experts create assessment methods based on monitoring systems, also called measurement networks, and on techniques involving quality standards and thresholds to interpret the results.

The information on the quality of aquatic environments provides the elements required to set up action plans to avoid or reduce pollution, to sustainably manage water abstractions and to support the functioning of ecosystems. It contributes to identifying the causes of malfunctions, the sources of pollution, etc., and to setting priorities for action. It also serves to measure the progress made and to check the effectiveness of the selected strategies, for example by assessing changes in water status following a given project. Finally, it can be used to compare situations on the local, national and European levels. To that end, each Member State must report to the EU commission on the progress made in implementing its environmental policy and on the results achieved.

In the year 2000, the WFD unified EU regulations for water management and made it obligatory to protect and restore the quality of water and aquatic environments throughout the EU. Environmental objectives (good water status, non deterioration of resources, reduction or elimination of hazardous substances released to the environment) targeting the year 2015 had to be set in each country for all aquatic environments (rivers, lakes, littoral waters comprising coastal and transitional waters, groundwater). The innovative aspect of "good status" was that it was now based on the proper functioning of aquatic environments, taking into account all the compartments (water, fauna, flora, habitats) making up the environment.

The directive set up a common work method for the Member States, based on four main documents:

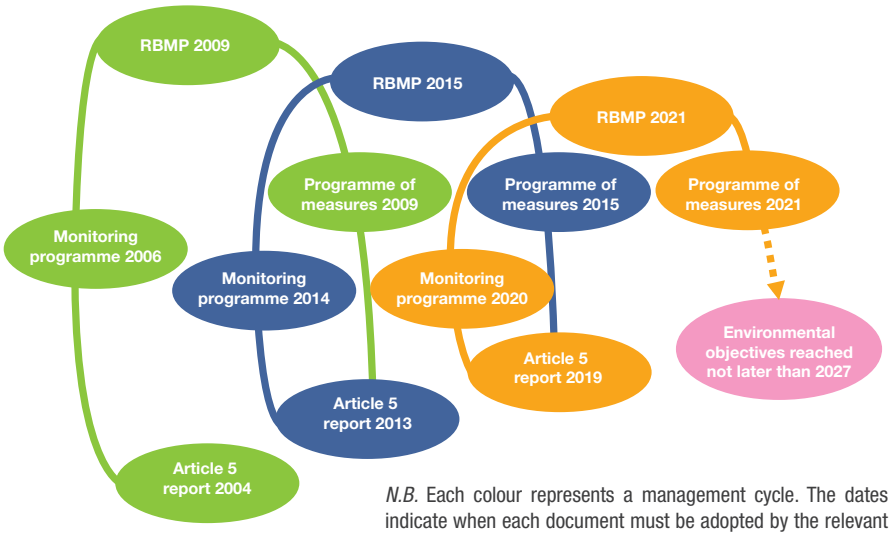
> the Article-5 report presents a snapshot of the various activities and water uses in a country, with data on the resulting impacts on aquatic environments;

[1] Directive 2000/60/EC of the European parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, transposed into French law by Law 2004-338 (21 April 2004) and by Law 2006-1772 (30 December 2006).

eaufrance
Public water information system

> the monitoring programme describes the system set up to monitor the status of environments;
> the management plan for each basin sets the environmental objectives;
> the programme of measures lists the measures designed to reach the set objectives.

The directive instituted mandatory results and deadlines, as well as regular assessments in the framework of a continuous-improvement programme organised in six-year cycles with the first management-plan cycle running from 2010 to 2015. However, it also foresaw exemptions for the 2015 target of good water status. Member States may request an extended deadline or a reduction in the overall objective, on the condition that they justify the exemption, citing for example a lack of technical feasibility, natural conditions or disproportionate costs.



N.B. Each colour represents a management cycle. The dates indicate when each document must be adopted by the relevant authorities.

Water bodies are the assessment unit

The WFD confirmed that the major river basins are the appropriate unit for water management, which had already been the case in France since the first Water law[2] in 1964. Within each river basin, the assessment unit for water status is the water body, i.e. a coherent hydrographic unit (for surface water) or hydrogeological unit (for groundwater) having sufficiently homogeneous characteristics (geology, morphology, hydrological regime, etc.) and for which an environmental objective can be set.

The categories of water bodies are rivers, lakes, coastal waters, transitional waters (estuaries and lagoons) and groundwater. The 11 523 surface water bodies in France comprise 229 790 kilometres of river, 1 964 square km of lakes, 26 562 km² of coastal waters and 2 840 km² of transitional waters. There are also groundwater bodies.

In view of comparing assessment results on water status from the various countries, the WFD requires that efforts to harmonise definitions and methods be carried out on the European level. That includes not only the assessment methods, but also the monitoring methods (collection and sampling techniques) and analysis methods. This project produced protocols, standards, technical and regulatory recommendations that have updated, filled out or replaced the older assessment systems.

For example, from 2003 to 2007, European scientists ran an "intercalibration exercise" to define and check the validity of the various ecological-status thresholds set by the methods used in the different countries. This was necessary because each Member State is free to organise its assessment methods as it sees fit. Not all the methods have been fully set up and further research is still required, however the accepted general principle is that a single reference dataset for water-status assessments is required for each management cycle. As a result, the overall procedure improves progressively, from one cycle to the next, by taking into account the new knowledge acquired.

More and more parameters included in assessment methods

In France, the first national assessment method for water status, called "Grid 71", was devised in the 1970s for rivers and comprised a set of quality thresholds. The aim at the time was to determine if water quality was sufficient for a given use and to compare results nationwide, on the basis of essentially physical-chemical parameters.

Then in the 1990s, the quality assessment system (SEQ) was set up for both rivers and groundwater. It included a number of new parameters and substrates. The chemical and biological approaches started to produce synergies for surface water in that certain physical-chemical parameters detected the origin of disturbances and the biological tests identified the effects produced in animal and plant communities.

In France, the water-status assessment system (SEEE) will be able to be used to apply the status-assessment methods, using the monitoring data, to all water categories. The system, freely accessible will facilitate the use of the official (WFD) assessment methods and it also proposes tools to assist diagnostic procedures. Thanks to the harmonisation of both methods and data, the system will improve the comparability of assessment results over time and space.

Water-status assessment system (SEEE)

The SEEE is the product of a vast project involving numerous partners, including the basin authorities (notably the Water agencies and offices, the regional and departmental environmental directorates) who are in charge of assessing water status, Onema (the French national agency for water and aquatic environments) in charge of managing the project under the responsibility of the Ecology ministry and a number of scientific organisations (Ifremer[3], CNRS[4], Ineris[5], BRGM[6], Irstea[7], universities) responsible for creating the methods and supplying data. The system rests on a number of concepts formulated by the National service for water-data and reference data-set management (Sandre) and makes it possible to assess water status consistently throughout the country.

Whatever the assessment method used, monitoring data are required. In France, data-collection systems[8] have existed for decades. They were restructured in 2007 into monitoring programmes[9] to comply with the WFD. The system comprises four main parts having different purposes.

[2] Law 61-1245 (16 December 1964).
[3] French research institute for research and exploitation of the sea.
[4] French national center for scientific research.
[5] French national competence center for industrial safety and environmental protection.
[6] French geological survey.
[7] French national research institute of science and technology for environment and agriculture.
[8] Onema, *Monitoring aquatic environments and groundwater*, 2013.
[9] Ordinance (25 January 2010) setting up the water-status monitoring programme.

> Surveillance monitoring is a permanent system to statistically assess changes in the status (quality and quantity) of surface waters and groundwater, by sampling over time a set of water bodies that are representative of the diverse natural characteristics of ecosystems and of the anthropogenic pressures weighing on those ecosystems. The objective is to acquire general knowledge over the long term (taking into account human activities and climate change) that can be used to inform decisions on water policy.

> Operational monitoring is a temporary network to assess the status of water bodies at risk of not achieving the environmental objectives and to monitor their evolution in response to the programmes of measures.

> Investigative monitoring is carried out on surface waters to detect the reasons why a water body has not achieved good status or to determine the impacts of accidental pollution.

> Additional monitoring is implemented to assess the impact of any pressures weighing on surface waters in two types of protected zones, namely Natura 2000 zones and drinking-water abstractions location.

Additional networks also exist to cover local or specific needs (nitrates, pesticides, restoration projects, etc.) or to run inspections on water use (drinking water, bathing waters).

Monitoring points

Source: March/October 2010 report to the EU - Data supplied by the river-basin level (STB).

Number of monitoring points	Surveillance monitoring	Operational monitoring
Surface waters	2 043	4 618
Groundwater	1 775 (quality) 1 674 (quantity)	1 446

Data reporting and access

The WFD requires that the Member States regularly draft and send reports to the European commission on WFD implementation. This makes it possible to assess implementation compliance with EU legislation and make recommendations, propose new measures or revise the legislation in order to improve policy effectiveness. Failure to comply may result in litigation if the Member States do not correct the situation within a reasonable time delay.

The Member States must transmit the Article-5 reports, management plans and programmes of measures, progress reports or reports on WFD implementation, as well as data, e.g. lists and status of water bodies, lists and characteristics of monitoring points participating in the monitoring programme, etc. This information is used by the EU commission to check WFD implementation in the Member States and by the European environment agency to improve knowledge on the environment on the European level.

On the national level, the reporting process is an integral part of policy management serving to secure implementation compliance, to check policy consistency and to assess its effectiveness. In France, the water agencies send their reports in the form of validated data sets to Onema (French national agency for water and aquatic environments), which checks for data consistency, then consolidates the data prior to transmission, via the Ecology ministry, to the European commission.

The reports also serve to inform the public by providing details on the work accomplished and on the progress made in improving aquatic environments. Dissemination of the reports is mandatory to ensure compliance with the stipulations of the Aarhus[10] convention concerning access to information, participation of the public in decision-making processes and access to the legal system for environmental issues. The report data are fed into WIS-FR[11] (Water information system for France) and subsequently into WISE[12] (Water information system for Europe).

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The national data presented in this document was taken from two different sources: "the 2010 water-status data" drawn from the 2010-2015 RBMPs and "the 2013 water-status data" drawn from the assessment data included in the Article-5 reports updated in 2013. The manner in which assessment data are redacted, which can vary from one basin to another, can reduce the relevance of certain analyses on the national level. In addition, the comparison between 2010 and 2013 was based only on the water bodies monitored for both periods. The terms "improvement" and "degradation" in the status of a water body are here understood to mean a change in the class, either up or down. The term "stagnation" is taken to mean that the water body was in the same class in 2013 as in 2010.

It should also be noted that the water-status assessment methods are continuously modified to include new parameters (pesticides, endocrine disruptors, etc.) and new knowledge for enhanced monitoring. These changes can influence the results and their interpretation.

Finally, the parameters targeted in Europe were set by the European environment agency after processing the data supplied by the Member States in 2010. They are the result of their monitoring strategies, e.g. number of monitoring points and substances monitored may be variable.

The overall methodology is detailed in page 12.

[10] Law 2002-285 (28 February 2002).
[11] The data delivered to the EU commission are available at www.rapportage.eaufrance.fr.
[12] www.water.europa.eu/

For surface waters, chemical and ecological status are assessed

Generally speaking, the good status of a surface water body is reached when its chemical and ecological status are at least "good".

> **Chemical status** is an assessment of water quality on the basis of the concentrations of each group of "priority" and "hazardous priority" substances. Good status of a monitoring point is achieved when the maximum and annual average concentrations do not exceed the environmental quality standards (EQS) set by the 2008 directive[13].

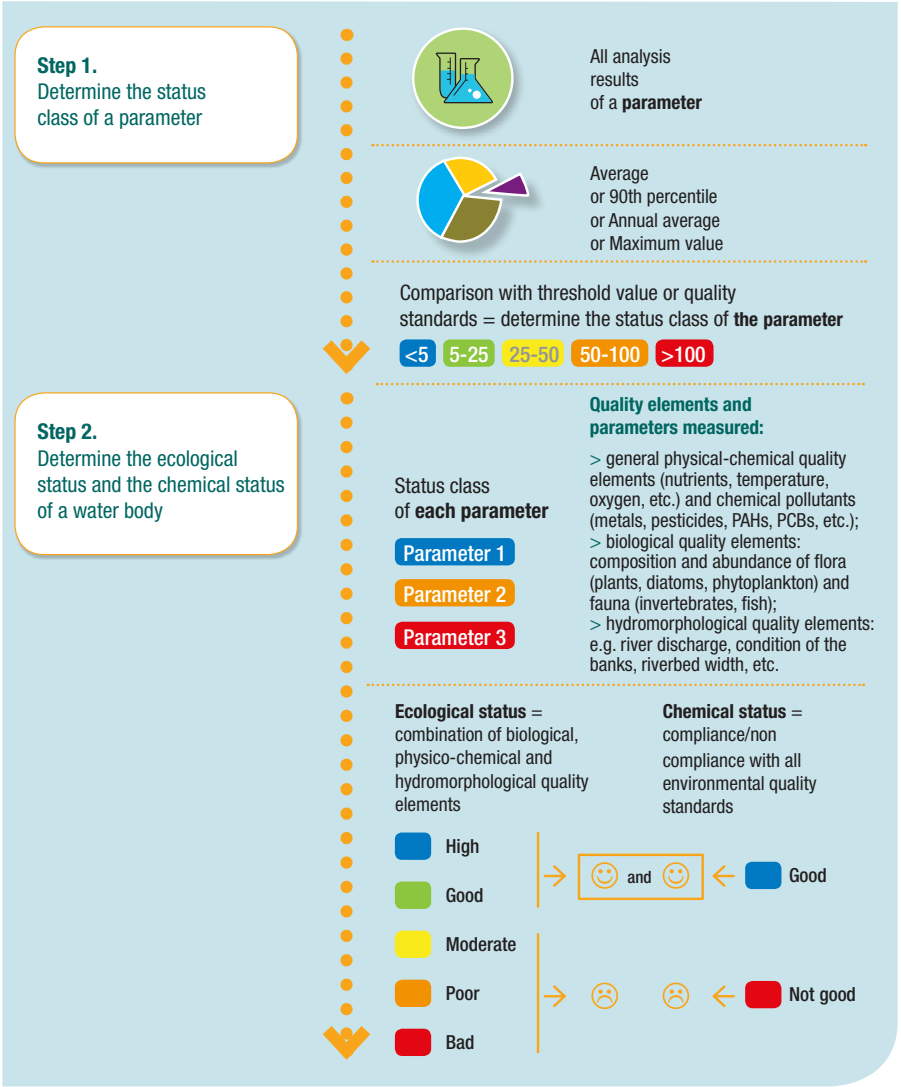
> **Ecological status** takes into account the structure and functioning of the associated aquatic ecosystems. It is determined on the basis of biological (plant and animal species), hydromorphological and physical-chemical quality elements involved in biological cycles. Given that biological communities vary naturally from one region to another, ecological status is the result of a comparison with reference conditions (established by the monitoring points in a "reference network") corresponding to an environment unaffected or virtually unaffected by human activities. A reference environment is selected for each type of water body (small mountain streams, shallow lakes in plains, mud flats, etc.). The greater the divergence from the reference state, the lower the ecological status. For artificial and heavily modified water bodies, the objective is "good ecological potential", defined on the basis of quality elements for the most comparable surface water body.

Confidence levels

A confidence level (high, medium, low) is assigned to each assessment on the ecological status of a water body. The level of confidence is set as a function of data availability for the status assessment (length and regularity of data series, relevant biological quality elements, etc.) and of the consistency of the status with the biological and physical-chemical indicators on the one hand, and with the pressures on the other.

For the upcoming report to the EU commission, the use of confidence levels will probably be expanded to include chemical status (surface and groundwater) and the quantitative status of groundwater.

For financial reasons, all of the 11 523 surface water bodies can't be monitored directly. The status of those not directly monitored is assessed by establishing comparisons with similar water bodies that are monitored (type, pressures exerted), using models or on the basis of expert opinion.



N.B. The applicable assessment methods for good status are stipulated by the implementation ordinance (25 January 2010) for article R.212-18 in the *Environmental code* and in several technical guides[14].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[13] Directive 2008/105/EC of the European parliament and of the Council of 16 December 2008, revised in 2013 in particular as concerns the EQSs and the new substances to be monitored.

[14] Ecology ministry, *Status assessment of fresh surface waters in continental France*, 2009 (and revised in 2012). Ecology ministry, *Rules for the status assessment of littoral waters*, 2013.

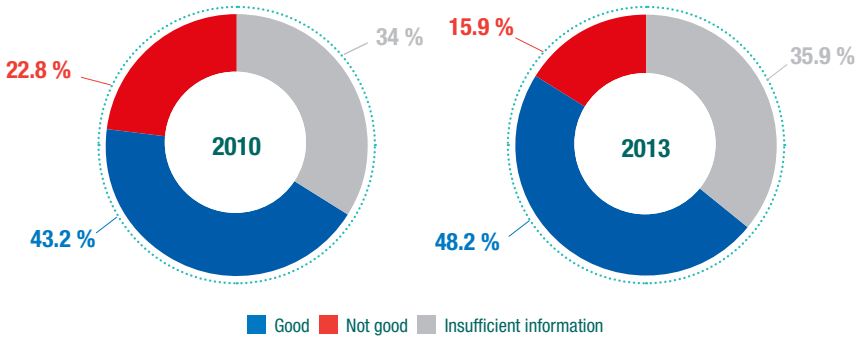
Improved knowledge on the status of surface water

In 2013, 48.2% of surface water bodies (all categories taken together) had good **chemical status**, compared to 43.2% in 2010. If only rivers are considered, the results are very similar because rivers represent 94% of all surface water bodies. On the other hand, the situation differs for lakes and littoral waters because the improvement in knowledge has resulted in a clear drop in the proportion of water bodies with unknown status and a transfer primarily to good status. However, efforts to acquire data must be pursued because the status of 46.3% of lakes remained unknown in 2013. This percentage was 35.9% for rivers, for which longer data series exist.

The percentage of water bodies with an unknown chemical status (insufficient information) thus remains fairly high. This may be due notably to the difficulty in acquiring data on micropollutant concentrations. The analysis techniques are more complex and the concentration values are lower than for macropollutants. Consequently, assessments using models or extrapolation techniques produce more approximate results that cannot be validated by the experts in some cases. What is more, the number of status classes is limited to two (good or not good status, compared to five classes for ecological status), which can lead to greater uncertainty. If in doubt, experts will often prefer to opt for "unknown". That is notably the case of the Loire-Bretagne basin, that decided in 2013 that the status of 100% of its water bodies was unknown. In Guyana on the other hand, the enhanced reliability of the data made it possible to determine that the chemical status of 83.4% of river water bodies is good (compared to 0% in 2010). The change observed on the national level, which would appear to be relatively stable or positive, in fact masks significant disparities between basins and even within basins. Chemical status is thus of limited use in managing projects to reduce pollution caused by chemical substances. Similar to the situation for ecological status, it would be useful to have less consolidated indicators.

Breakdown of surface water bodies (all categories) according to chemical status

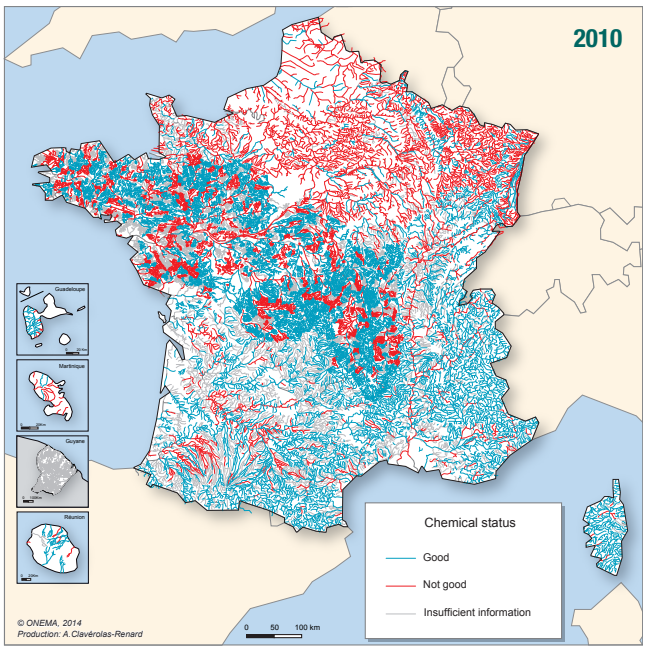
Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).

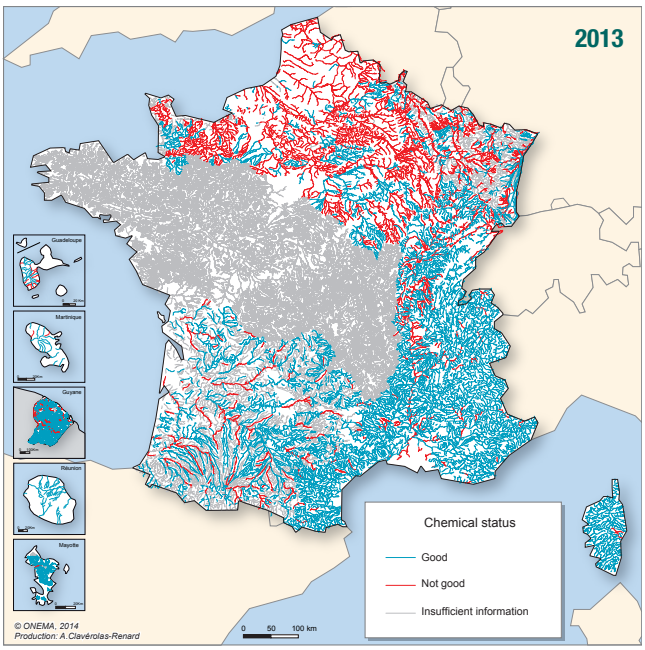


N.B. In 2013, the confidence level was high for 15.4% of water bodies, medium for 21.6% and low for 26.1%.

Chemical status of river water bodies

Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).



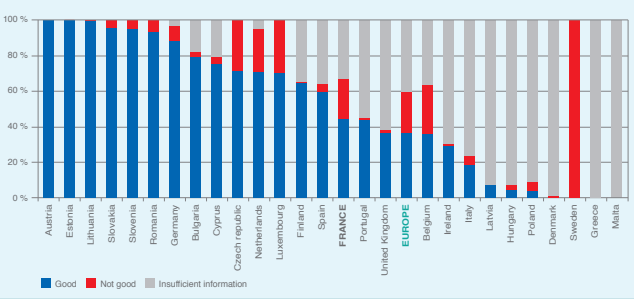


Chemical status of surface water in Europe in 2010

Source: European environmental agency - Data reported by the Member States.

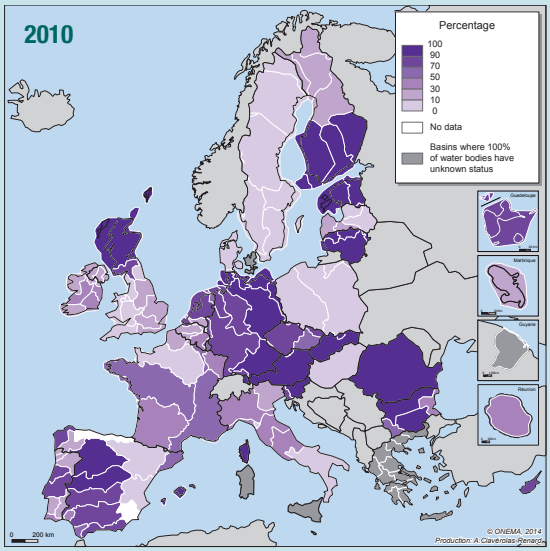
In 2010, France ranks 15th with a proportion of water bodies having good chemical status, slightly higher than the European average of 35.4%. However, this average was significantly impacted by Sweden, which classed virtually all its water bodies as not good due to the presence of mercury. Sweden is also the country having the greatest number of water bodies (water bodies in France represent 9% of the European total). Heavy metals would seem to be the most common of the disqualifying parameters, followed by pesticides and PAHs. However, comparisons between countries can be difficult, given different approaches to monitoring and assessments (e.g. not all priority substances are systematically monitored) and the fact that the status of 41.7% of water bodies is unknown (e.g. due to insufficient monitoring at certain points or for certain substances).

Breakdown of surface water bodies (all categories) according to the chemical status



N.B. The EU did not impose a specific period for the monitoring data used to assess water status. Member States presented data ranging from 2004 to 2009.

Percentage of surface water bodies (all categories) with good chemical status



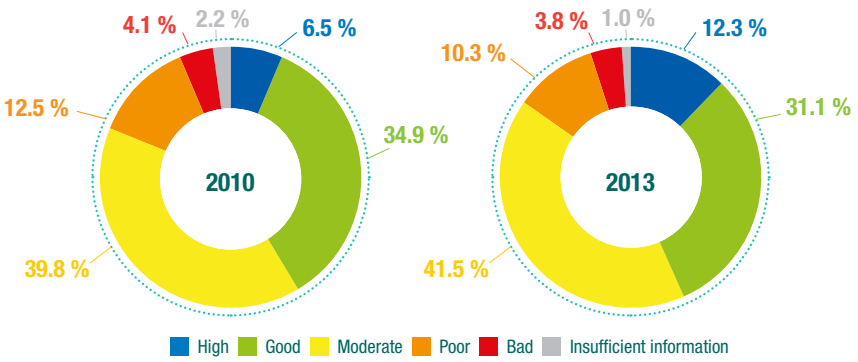
Moreover, in 2013, 43.4% of surface water bodies (all categories taken together) had at least good **ecological status**, compared to 41.4% in 2010. The situation seems to be stable on the whole: 24.6% of the water bodies assessed over the two periods are improving, 52.6% are stagnating and only 20.1% are falling in quality, even if there is significant disparity between local conditions. Similar to chemical status, the proportions vary little if only rivers are taken into account (i.e. not all surface water bodies). For lakes, the percentage of water bodies with unknown status dropped sharply (43.7% to 13.4%), while the percentage of those with good or moderate status rose. The breakdown of transitional water bodies is more balanced and stable over the two periods with almost 25% in each of the good, moderate and poor conditions. Concerning coastal waters, the breakdown is also stable with a majority having good or moderate status.

The physical-chemical quality element is the most common disqualifying factor in 2013, the case for 17.8% of rivers and 34.5% of lakes, but it should be noted that it is also the most frequent among the parameters listed. The next factors are phytoplankton in lakes (23.6%) and transitional waters (16.1%), and macroalgae for coastal waters (14%)[15].

In continental France, water bodies with high status are logically located primarily in mountainous regions, less affected by human activities. In the overseas territories, the situation is the same as that for chemical status. The improvement in knowledge over the two periods resulted in better characterisation and higher percentages of good status.

Breakdown of surface water bodies (all categories) according to ecological status

Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).

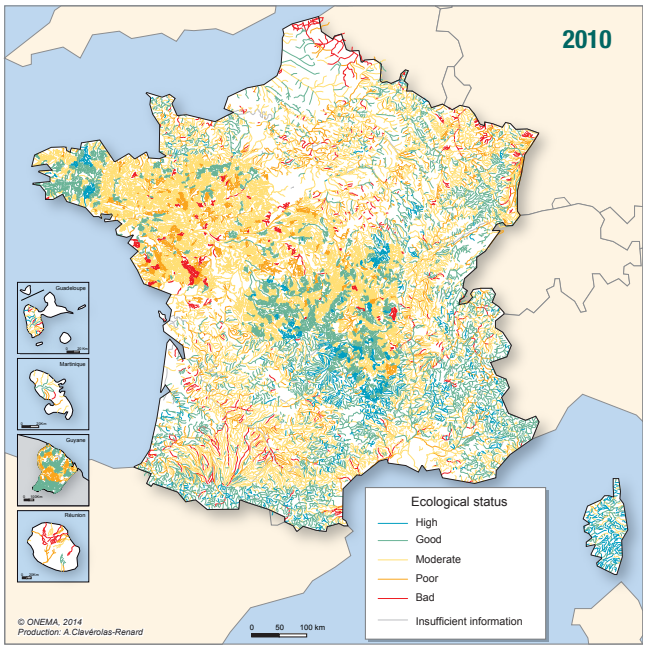


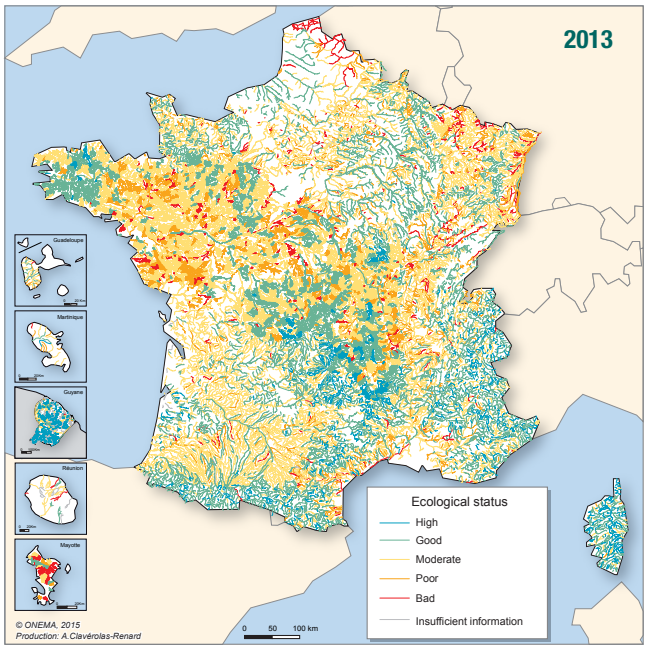
N.B. The high and medium levels of confidence improved markedly from 33.2% in 2010 to 46.1% in 2013. This improvement is due to a major effort to acquire data by increasing monitoring and enhancing methods, and by developing new bio-assessment tools.

[15] The physical-chemical quality element was filled in for 53.7% of river water bodies and 71.3% of lake water bodies. The phytoplankton quality element was filled in for 55.6% of lake water bodies and 33.3% of transitional water bodies. The macroalgae quality element was filled in for 49.7% of coastal water bodies.

Ecological status of river water bodies

Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).





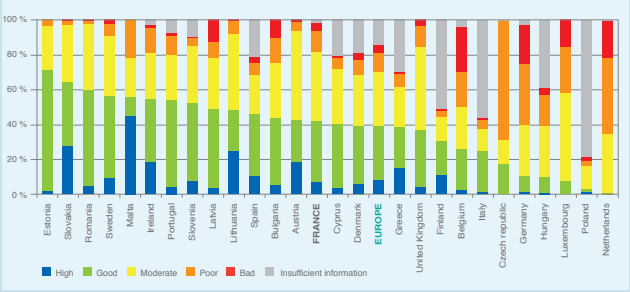
Ecological status of surface water in Europe in 2010

Source: European environmental agency - Data reported by the Member States.

The proportion of surface water bodies with good ecological status in France is fairly comparable to the European average of 38.8%, with France in position 14. This result is subject to caution given the variations in the percentages of surface water bodies assessed and the fact that the European average of those having an unknown status is 14.8%, compared to only 2.2% in France. In Poland, 79% of water bodies have an unknown status, in Italy 56.5%, in Finland 51.5% and in Hungary 39%. These percentages must be analysed taking into account the confidence levels assigned to the assessments. Some countries, e.g. Poland, decided to assign a status only to monitored water bodies (and the confidence level is correspondingly high), whereas other countries decided to rank a majority of their water bodies with variable levels of confidence.

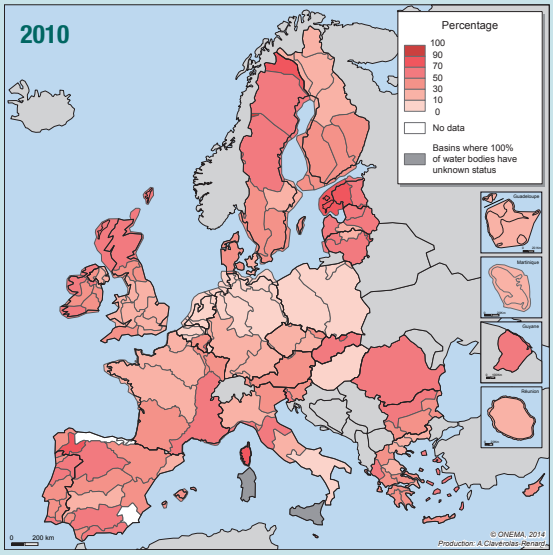
It is also necessary to note the differences in the numbers of water bodies in question, ranging from 9 in Malta, 154 in Slovenia, 470 in Latvia, but 17 984 in Denmark and 23 418 in Sweden. In addition, the EU commission noted in its WFD implementation reports that the formulation and application of assessment methods was severely lacking in some countries, notably concerning coastal and transitional waters.

Breakdown of surface water bodies (all categories) according to the ecological status



N.B. The EU did not impose a specific period for the monitoring data used to assess water status. Member States presented data ranging from 2004 to 2009.

Percentage of surface water bodies (all categories) with good or high ecological status

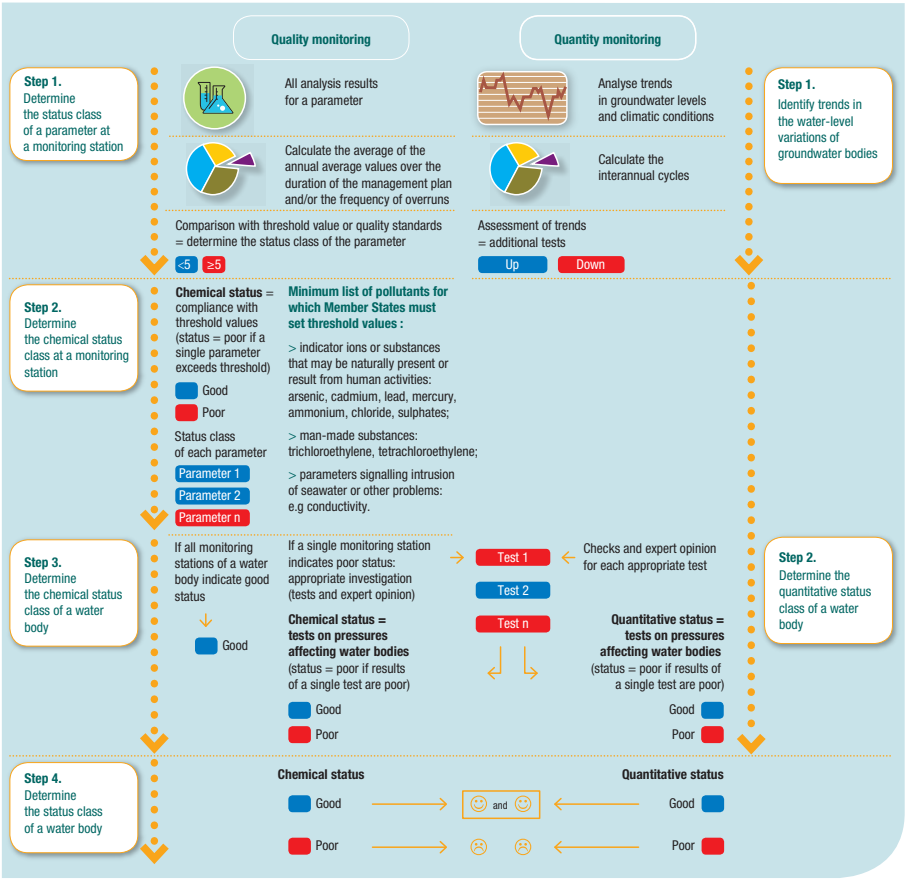


For groundwater, chemical and quantitative status are assessed

Generally speaking, the good status of a groundwater body is awarded when its chemical and quantitative status are good.

> The good qualitative status of groundwater depends exclusively on the **chemical status**. The latter is considered good when pollutant concentrations caused by human activities do not exceed the set standards and threshold values (which may differ from those for surface waters). If a standard or threshold value is exceeded at any point in a water body, an inquiry involving additional tests must be carried out, e.g. calculation of the degraded surface area with respect to the total surface area of the water body, the impact of surface waters and terrestrial ecosystems on the status, seawater intrusion, etc. The objective of the inquiry is to verify the status of the water body as a whole and to contribute to identifying the necessary measures.

> Groundwater has good **quantitative status** when abstractions do not exceed the renewal capacity of the available resource, taking into account the quantities required for aquatic ecosystems. The objective is to ensure the long-term balance between the volumes flowing to other environments or other groundwater bodies, the abstracted volumes and recharge of each body. Assessment of the quantitative status involves a number of tests, e.g. the balance between abstractions and the available resource (i.e. the ratio for the water body as a whole between the quantities of water pumped and recharging), the impact of groundwater abstractions on surface water bodies or on the linked terrestrial ecosystems. Good quantitative status is achieved when no adverse trends are noted in the piezometric measurements (long-term decline in water levels above and beyond climatic effects), when water levels during the low-flow period are sufficient to meet human needs without risking undesirable effects on the linked aquatic and terrestrial environments, and when no seawater intrusion is noted along coasts.



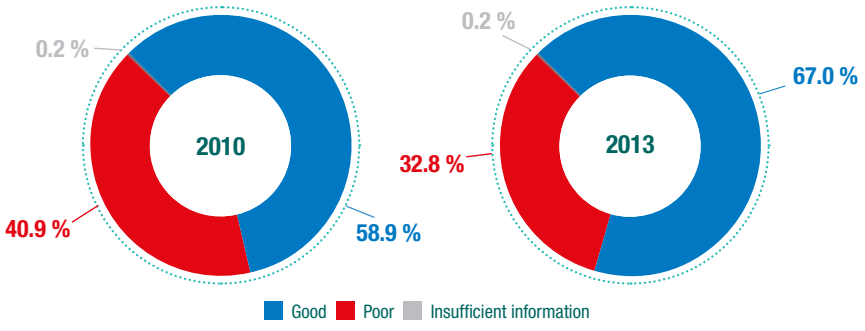
N.B. The directive 2006/118/EC of 12 December 2006 on the protection of groundwater against pollution and deterioration fills out the WFD. It sets quality standards for two parameters (nitrates and pesticides). It also requires that the Member States set threshold values for a minimum list of parameters, which may be expanded depending on the pressures impacting the groundwater. Assessment methods are stipulated by the ordinance (17 December 2008) setting assessment criteria and the means to determine groundwater status and by the assessment guides proposed in the instructions dated 23 October 2012.

Fairly stable conditions for groundwater

In 2013, 67% of groundwater bodies had good **chemical status**, compared to 58.9% in 2010. The comparison of the data on water bodies assessed over the two periods showed that 7.6% improved, 89.3% stagnated and 2.6% fell in quality. In those water bodies with poor status, the groups of pollutants most often causing disqualification in 2013 were nitrates (17% of water bodies)[16] and pesticides (15.8% of water bodies)[17].

Breakdown of groundwater bodies according to chemical status

Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).



N.B. The confidence level is not indicated because it is not systematically requested.

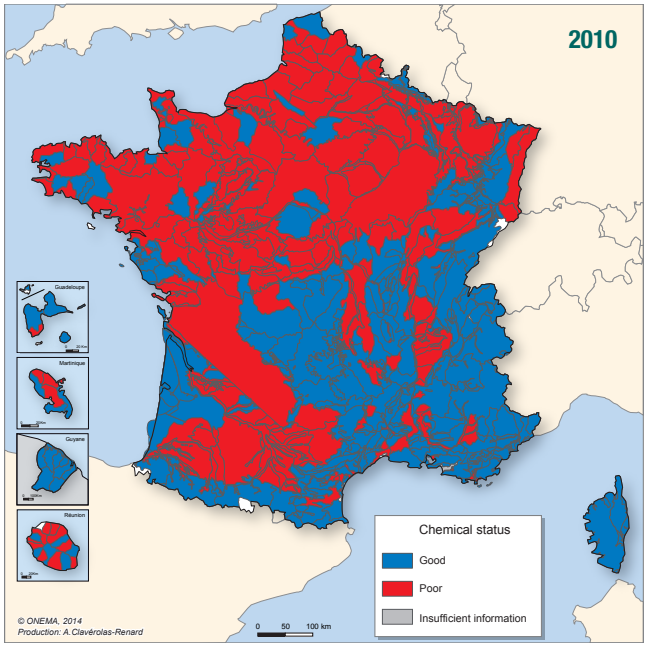
[16] Out of the 80.6% of water bodies for which the data was provided.
[17] Out of the 79.7% of water bodies for which the data was provided.

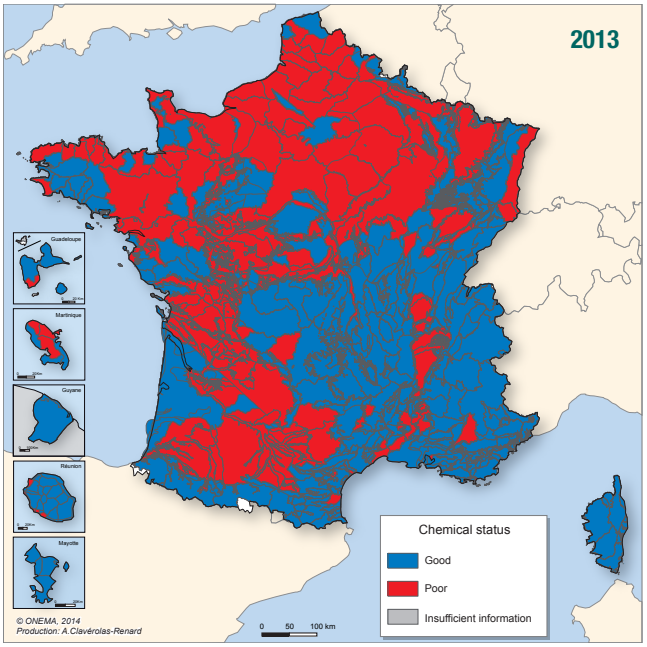
Generally speaking, the chemical status of a very high percentage - 99.8% - of water bodies was assessed over the two periods and only one water body during each period had an unknown status.

Degraded areas are spread throughout the country, except in the mountainous regions (Alps, Pyrenees and Massif Central). However, the large size of groundwater bodies makes it difficult to interpret the data given that a water body may be considered to have poor status if a single sector is degraded. In addition, the results should be analysed taking into account the type of groundwater body in order to differentiate between vulnerabilities to human activities. Finally, comparisons are not possible for Reunion Island and Guyana due to changes in the reference dataset for water bodies or to the absence of data for one of the periods.

Chemical status of groundwater bodies

Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).



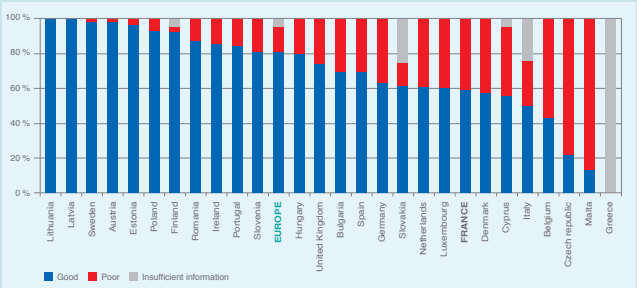


Chemical status of groundwater in Europe in 2010

Source: European environmental agency - Data reported by the Member States.

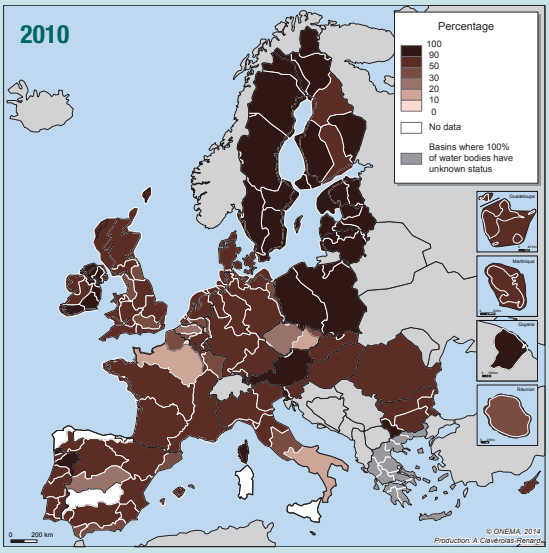
The condition of groundwater in France would appear to be less favourable than in the EU as a whole where 80.1% of water bodies have good chemical status. However, similar to the situation for surface water, comparison between countries is difficult because the list of monitored substances and their threshold values vary widely among the Member States. France represents 4% of all groundwater bodies in Europe and, similar to most other Member States, the level of confidence concerning the monitored quality is high. Only 5% of European water bodies have an unknown status, compared to 41.7% for the chemical status of surface waters. Nitrate concentrations are the parameter most often resulting in poor status. More precisely, in France, Belgium, Luxembourg and the Netherlands, the parameters responsible for poor status are nitrates and pesticides.

Breakdown of groundwater bodies according to the chemical status



N.B. The EU did not impose a specific period for the monitoring data used to assess water status. Member States presented data ranging from 2004 to 2009.

Percentage of groundwater bodies with good chemical status

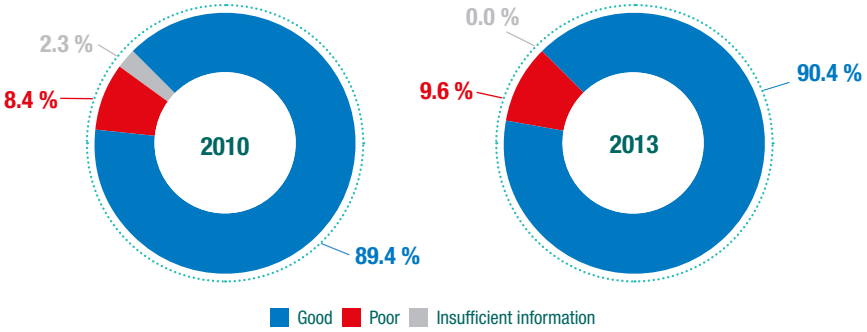


Moreover in 2013, 90.6% of groundwater bodies had good **quantitative status**, compared to 89.4% in 2010. The situation is stable with a percentage of improving water bodies (2%) equal to the number of water bodies falling in quality.

The water bodies with poor quantitative status are located primarily in the south-western, central and Mediterranean sections of continental France, as well as in Reunion Island and Mayotte. The causes are essentially excessive use of water resources compared to groundwater recharging, but also seawater intrusion in Reunion Island and along the Mediterranean coast. It should also be noted that in 2013, the Adour-Garonne basin modified its assessment method. Water bodies for which no proof of degradation exists are now considered to have good status. This new system has modified the results of the basin.

Breakdown of groundwater bodies according to quantitative status

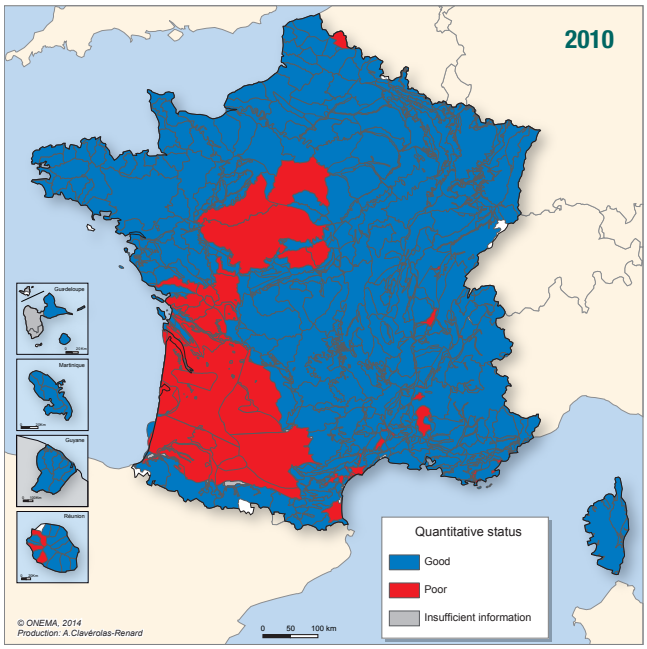
Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).

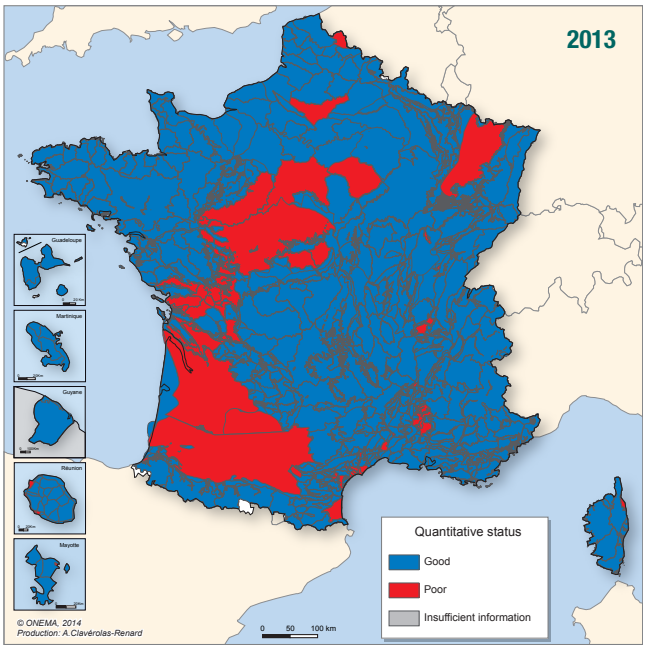


N.B. The confidence level is not indicated because it is not systematically requested.

Quantitative status of groundwater bodies

Source: March/October 2010 report / Article-5 reports 2013 - Data supplied by the river-basin level (STB).



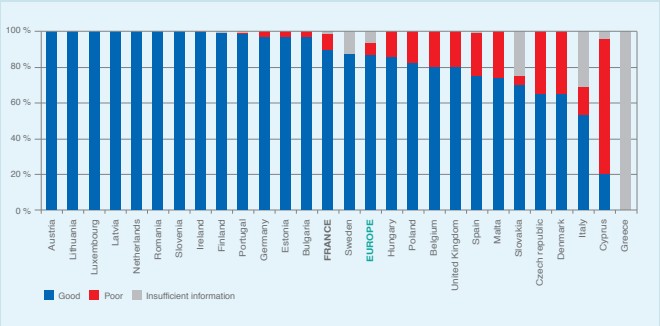


Quantitative status of groundwater in Europe in 2010

Source: European environmental agency - Data reported by the Member States.

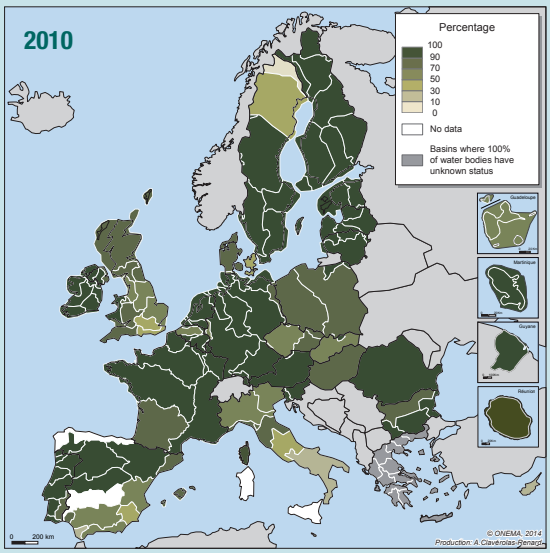
France ranks 14th, just above the European average of 86.5%. The percentage of water bodies with unknown status is 7.3% in Europe and the countries having the highest percentages are Greece, Italy, Slovakia and Sweden. Seven countries judged that 100% of their water bodies had good quantitative status, namely Austria, Lithuania, Luxembourg, Latvia, the Netherlands, Romania and Slovenia.

Breakdown of groundwater bodies according to the quantitative status



N.B. The EU did not impose a specific period for the monitoring data used to assess water status. Member States presented data ranging from 2004 to 2009.

Percentage of groundwater bodies with good quantitative status



Necessary research and action programmes

In order to better understand assessment results, the river basins make continuous efforts to identify the causes of degradation in aquatic environments, e.g. point and non-point source pollution (from urban areas, industry, agriculture, transportation infrastructure), excessive abstractions, morphological modifications (dams, weirs, bank-protection systems, etc.). Analysis of the pressures weighing on environments is useful in selecting the action required to reach environmental objectives. The resulting projects are included in the programmes of measures.

Thanks to the work put into gaining new knowledge, our understanding of the status of environments and of the pressures exerted on them has improved. But the latest data confirm that it is necessary to pursue the development of monitoring and assessment tools in view of obtaining a reliable and complete perception of the status of aquatic environments.

In 2013, the second WFD management cycle started off with the updating of the Article-5 reports. In 2015, the regulatory texts governing the programmes of measures will be updated to include the most recent scientific advances, but also to restructure the overall procedure in order to limit monitoring costs while complying with WFD requirements. For the first time in 2013 for littoral waters, the river basins also took into account congruent deadlines and synergies in terms of ecological-status concepts with the Marine strategy framework directive[18]. These efforts will be pursued in the future.

In terms of assessment methods, a number of aspects must be addressed, including:

> continued work on enhancing the existing biological indicators (IBGN, IPR) and making them WFD compliant (improved links between anthropogenic pressures and ecological status), and development of indicators for compartments not monitored to date (macrophytes, diatoms in lakes, etc.);

> formulation of indicators for the hydromorphological quality elements (hydrology, ecological continuity and morphological conditions);

> integration of 12 new substances, including 3 pharmaceutical substances (directive[19] dated 12 August 2013 modifying the WFD) in addition to the 33 priority substances for which Member States must implement environmental quality standards;

[18] Directive 2008/56/CE (17 June 2008).
[19] Directive 2013/39/UE (12 August 2013).

> improvements in the quality of data on micropollutants and standardisation of the methods used to calculate the chemical status of water bodies not directly monitored;

> joint work between the European commission and the Member States to propose an analysis method enhancing the perception of changes in water-body status.

The results of the above work will be taken into account during the next WFD management cycles. The assessment process will probably again be modified (thermometer effect) thanks to improvements in knowledge and enhanced monitoring efforts.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Note on methods

The maps on the status of water bodies are published in the basin planning documents (RBMPs, Article-5 reports) twice per management cycle. The assessment data presented in this document were taken from two different sources:

> the 2010 water-status data was drawn from the 2010-2015 RBMPs, consolidated on the national level and reported to the EU commission in March 2010, then corrected in October 2010, using the 2006-2007 monitoring data (drawn from the surveillance-monitoring network, operational monitoring and investigative monitoring, as well as from additional networks);

> the 2013 water-status data was drawn from the assessment data included in the Article-5 reports updated in 2013 at the half-way point in the 2010-2015 management cycle, based on 2010-2011 monitoring data used to determine the ecological status of rivers or on 2006-2011 data for the ecological status of lakes, or on more recent monitoring campaigns targeting the chemical status (in general, the dates of monitoring data depend on the types of water bodies monitored).

The manner in which assessment data are redacted, which can vary from one basin to another, can reduce the relevance of certain analyses on the national level. For example, identification of the disqualifying parameters (including large groups thereof) for the chemical status of surface water bodies is often valid only on a very local level. In addition, the comparison between 2010 and 2013 was based only on the water bodies monitored for both periods:

> i.e. 10 885 surface water bodies included in both the 11 523 from 2010 (94.5%) and the 11 435 from 2013 (95.2%) and 497 groundwater bodies in both the 574 from 2010 (86.6%) and the 646 from 2013 (76.9%), given that the reference dataset for groundwater bodies underwent significant changes between the two periods in certain basins;

> the terms "improvement" and "degradation" in the status of a water body are here understood to mean a change in the class, either up or down. The term "stagnation" is taken to mean that the water body was in the same class in 2013 as in 2010.

It should also be noted that the water-status assessment methods are continuously modified to include new parameters (pesticides, endocrine disruptors, etc.) and new knowledge for enhanced monitoring. These changes can influence the results and their interpretation. The methods did not undergo any specific changes between 2010 and 2013, but the volume of data increased significantly (e.g. number of parameters monitored, density of monitoring points), a situation that can induce notable differences in the results. The proposed indicators should be interpreted over sufficiently long periods of time to take into account the variability of natural conditions and the functional inertia of aquatic environments.

Finally, the parameters targeted in Europe were set by the European environment agency after processing the data supplied by the Member States in 2010. The fact that each Member State is free to design its monitoring programmes (e.g. number of monitoring points and substances monitored) and its assessment methods means that comparisons between assessment results from different European river basins should be approached with caution.

For more information

Data on water status may be found at:
www.rapportage.eaufrance.fr or www.data.eaufrance.fr

Find this document on the internet at:
www.eaufrance.fr/IMG/pdf/evaluation_2010-2013_201506_EN.pdf
or www.documentation.eaufrance.fr

eaufrance The French water-information portal:
www.eaufrance.fr

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