the Briefs
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Water-data collection systems

The data produced in France to evaluate water resources, uses, the state of aquatic environments, pressures (and the related impacts) on aquatic environments and the corresponding economic data are gathered via data-collection systems. These systems have been progressively set up since 1850. Recently, a project to create a database on the water-data collection systems, open to all, was launched to enable shared use of the data collected by the different players.

A national database on the sources of water data

Starting in 2004, information was gathered on all the data-collection systems and today precise descriptions are available, including the context in which each system was set up, its goals, the participants, the concerned environments and territories, the availability of the collected data and how it is disseminated, etc. Taken together, this information constitutes the national database on the water-data collection systems.

There are three different types of data-collection system:

- **Measurement networks**. They consist of measurement stations targeting specific data. The stations carry out measurements or draw samples for later analysis;
- **Self-monitoring systems**. Such systems are generally required by law to check the operation and/or impact of installations (e.g. wastewater-treatment plants, industrial sites, etc.);
- **Other collection systems**. These systems do not implement measurement devices, but rather collect data by various means (surveys, inventories, census, administrative instructions and declarations made to administrations, etc.).

At the end of 2009, the database covered 751 collection systems (where system data had been validated by the data producer), representing almost all the measurement networks and a majority of the self-monitoring systems. In the future, progress will be made by integrating a larger number of the other collection systems (e.g. surveys, inventories, etc.).

eaufrance
Public water-information system

A majority of permanent measurement networks

Among the collection systems listed, 76% are measurement networks, 19% are surveys and 5% are self-monitoring systems.

The two largest river basins alone (Loire-Brittany and Rhone-Mediterranean-Corsica) represent approximately 45% of continental France and 44% of the data-collection systems listed in the database. Their size made necessary a large number of measurement networks on the local, departmental and regional scales.

However, the number of networks is not always proportional to the size of the river basin. For example, the Adour-Garonne basin, the third largest, has only 52 networks, compared to 92 in Seine-Normandy, a smaller river basin.

These differences are due to divergent monitoring strategies for aquatic environments. In the Loire-Brittany basin, departmental networks were set up at the request of the departmental councils to facilitate their internal management processes.

A large majority (81%) of the networks are permanent, i.e. have no time limit. It should be noted, however, that due to regulatory changes and the creation of new networks for WFD purposes in 2007, a number of monitoring networks for water quality, previously considered permanent, terminated their operations in 2006.

Generally speaking, the self-monitoring systems address water quality at the output of installations classified for environnemental protection, wastewater-treatment plants and sanitation networks. Currently, these systems are not yet listed in all river basins. The Rhone-Mediterranean-Corsica, Adour-Garonne and Seine-Normandy basins have made the most progress to date.

The 33 national measurement networks

> The reference networks, the surveillance monitoring networks, the operational monitoring networks for WFD implementation,

> The monitoring networks on physico-chemical, hydrobiological and piscicultural quality of rivers,

> The network for hydrometry monitoring,

> The networks for qualitative and quantitative monitoring of groundwater,

> The networks for qualitative monitoring of coastal waters,

> Checks on water intended for bathing and untreated water,

> The network to collect pluviometric data.

The other types of collection system consist of:

> declarations concerning water abstraction, discharges, industrial activities, animal farming;

> surveys on water prices, economic activities;

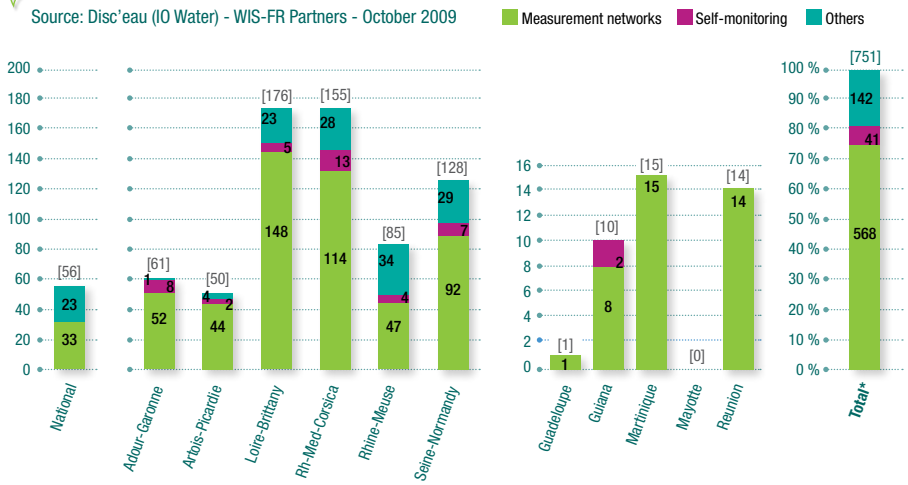
> inventories on wetlands, lakes, flood-risk areas, protection perimeters;

> general data collection on agricultural practices, work in rivers.

The above currently represent a minority in the database, not because they are less numerous, but because they were not considered the priority during the initial phase in setting up the database. They are generally used on a local scale and some river basins have already listed them, but not all basins, which explains the differences in the numbers between river basins. Similarly, the French overseas departments and Mayotte began to participate in the database only in 2008, which explains the low number of data-collection systems listed in those territories. The number should increase in the months to come.

Distribution of collection systems by type and by river basin

Source: Disc'eau (IO Water) - WIS-FR Partners - October 2009



* Total. This is the sum total of systems in the river basins and of national systems. The number in brackets is the total of each column.

An increase in the 1990s due to regulations

The initial systems were set up starting in 1850. They were the monitoring networks for pluviometry, hydrometry and piezometry. Then in the 1970s, the first inventories by the Water agencies appeared (water abstraction, discharges, sanitation) and the first monitoring networks on river quality. These systems were made mandatory by the first Water law in 1964.

The measurement networks for the quality of aquatic environments (groundwater,

surface fresh water, coastal waters) started progressively in the 1980s and then exploded in number in the 1990s. Almost half the systems (46%) were created between the second and third Water laws (in 1992 and 2006).

The networks for the monitoring programmes (surveillance monitoring networks and operational monitoring networks) were launched starting in 2006.

Year started	Number of collection systems	System percentages
Unknown	128	17 %
Before 1970	43	6 %
1970\1979	56	7 %
1980\1989	78	11 %
1990\1999	197	26 %
2000\2006	150	20 %
After 2006	99	13 %

Source: Disc'eau (IO Water) - WIS-FR Partners - October 2009

Monitoring primarily on departmental or regional territories

The geographic zones covered by collection systems generally follow administrative lines, i.e. 33% cover a department and 20% cover a region. The underlying cause is related to the ownership of each system.

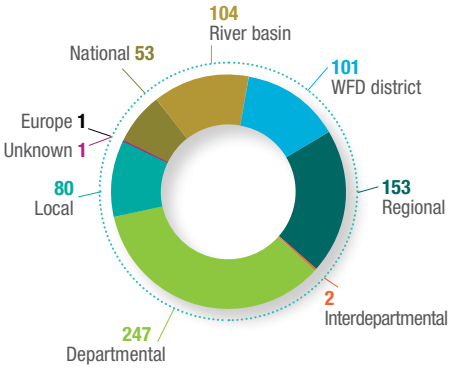
> Departmental systems are generally managed by the departmental councils (monitoring of wastewater-treatment plants, of water quality) and by the Ministry services in the departments (lake inventories, lists of water abstraction, monitoring of wastewater-treatment plants, monitoring of river quality, discharges to coastal waters and the quality of shellfish).

> Regional systems are generally managed by the regional councils (monitoring of water quality) and by the Ministry services in the regions (monitoring of water quality and of discharges).

The collection systems set up by the Water agencies generally operate in the given river basin, i.e. within the six major hydrological basins in continental France. However, in response to WFD requirements, monitoring-programme networks cover «WFD districts», i.e. the administrative units for RBMPs (river-basin management plans), given that France is divided into 14 river basin districts. On a more local level, the collection systems essentially address monitoring of particular aquifers, lakes or small catchments.

Distribution of collection systems by geographical zone

Source: Disc'eau (IO Water) - WIS-FR Partners - October 2009



Most systems report on the state of the environment

Three types of data are collected:

> data on **the state of the environment**, e.g. quality and functions of aquatic environments, quantities of water resources;

> data on **water uses and the pressures**, notably by human activities;

> data on **responses** to reduce the pressures exerted, notably on the progress made by measures to improve the status of water resources.

Over half the systems (56%) collect data on the state of the environment and consist of the many networks monitoring quality and quantity parameters of aquatic environments.

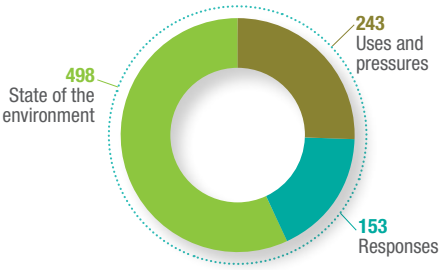
Data on water uses and pressures are collected essentially by the networks monitoring wastewater-treatment plants, networks for water quality at the output of classified installations and declarations on water abstraction and discharges.

Data on counter-measures are collected essentially by self-monitoring systems for wastewater-treatment plants, networks monitoring discharges and operational monitoring required by the WFD.

Almost one-quarter of the data-collection systems (176) collect several types of data.

Distribution of collection systems by type of data

Source: Disc'eau (IO Water) - WIS-FR Partners - October 2009



Note. Approximately 23% (176) of the systems cover two or all three types of data. In the diagram above, one system may be counted several times, which explains the total of 894 and not 751.

Primarily surface waters

Over half the data-collection systems (402) monitor at least fresh surface waters (rivers, canals, lakes), one quarter (202) monitor groundwater and a small number (130) monitor coastal waters.

It should be noted that 16% simultaneously monitor two environments:

> surface waters and groundwater for self-monitoring systems monitoring regulated installations and for declarations on water abstrction and discharges;

> surface waters and wetlands for inventories of lakes and similar water bodies;

> surface waters and precipitation for flood-warning networks;

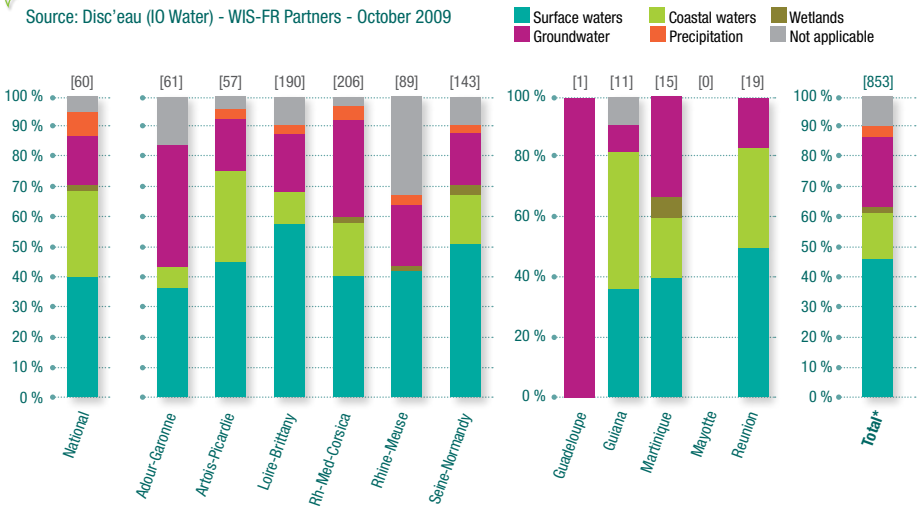
> surface and coastal waters for networks monitoring bathing waters and networks monitoring the quality of coastal rivers, estuaries and ports.

Lakes and similar water bodies are covered by 65 systems, namely the inventories and networks monitoring water quality that are essentially located in the Rhone-Mediterranean-Corsica basin (Berre, Thau and Bourget lakes, etc.).

Precipitation data is provided by pluviometric, hydrometric and flood-warning networks which measure precipitation in addition to flow rates.

Distribution of collection systems by environment and by river basin

Source: Disc'eau (IO Water) - WIS-FR Partners - October 2009



* Total. This is the sum total of systems in the river basins and of national systems. The number in brackets is the total of each column.

Note. Approximately 16% of the systems cover more than one environment. In the diagram opposite, one system may be counted several times, which explains the total of 853 and not 751.

Note on methods

The data presented here was drawn in October 2009 from the Disc'eau database which contains the information making up the collection-system database.

The collection-system database is supplied with data via an internet interface (www.sandre.eaufrance.fr/disceau) by the data producers themselves, e.g. water agencies, local authorities, BRGM (National geological survey), Ifremer (Research institute for exploration of the sea), Onema (French national agency for water and aquatic environments), local managers, associations, etc.

The data collected by the systems

Currently, data from 70% of the collection systems (751 out of approximately 1 000) are stored in data bases, called WIS-FR source databases, fully computerised, structured and organised. Approximately one half of the data is already accessible via internet sites.

The sites are part of the Eaufrance portal (**www.eaufrance.fr**), where the WIS-FR data (Water information system for France) may be accessed. There are two types of interface:

> national interfaces to consistent data covering all of France on a given topic, e.g. groundwater, economics, hydrology, data repositories, shell farming, data-collection systems, integrated water resource-management tools (and, in the near future, quality data on rivers, lakes, coastal waters, pollution);

> local interfaces to data covering a number of topics for a given territory, i.e. river-basin portals for the Adour-Garonne, Artois-Picardie, Corsica, Guadeloupe, Guiana, Loire-Brittany, Martinique, Reunion, Rhone-Mediterranean, Rhine-Meuse and Seine-Normandy basins.

For more information…

See the section on collection systems:
http://www.sandre.eaufrance.fr/disceau

Find this document on the internet:
http://www.eaufrance.fr/IMG/PDF/dispositifsdecollecte_201001_EN.pdf

Find this document, in french language, on the internet:
http://www.eaufrance.fr/IMG/PDF/dispositifsdecollecte_201001.pdf

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

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