

## Scorff River, France

### Location

The Scorff river is a coastal river flowing into the Atlantic Ocean at Lorient, on the South Brittany coast, in France. The main river course is 75 km long (among which 12 km of estuary) with a 480 km<sup>2</sup> catchment.



### Catchment description

The mean annual flow of the Scorff is 175 M m<sup>3</sup> of which 5 M is used for drinking water supply. The Scorff runs on a mainly granitic substratum but crosses two schist strips creating two slope breaks on its main course

Soils are permeable. Hydric soils cover 15% of the total area on granite and 30% on schist. The water is slightly acid and has a good quality.

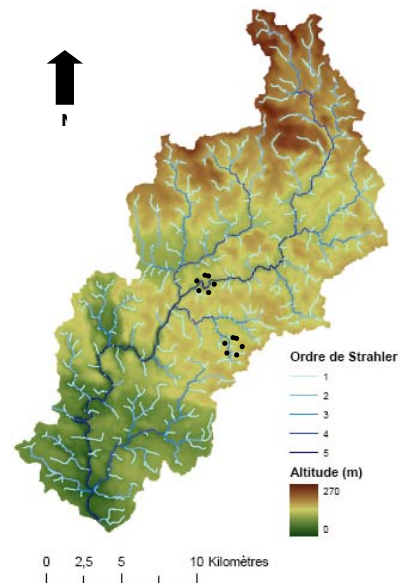
The catchment is essentially rural. Except for the urbanized area of Lorient (more than 200 000 inhabitants) located at the mouth of the catchment, the population reaches only 25 000 inhabitants, that corresponds to 35-45 inhabitants / km<sup>2</sup> for the middle catchment and 18 - 24 for the top of the catchment.

The major economic activity of the catchment is agriculture which covers 57 % of the territory and is essentially devoted to breeding (Dairy farming: more than 50 %, poultry: 20 %; pig farming: 20 %). Therefore, this activity is considered as the main pressure on the environment.

The Scorff is classified as a natural heritage river, and the catchment is classified in NATURA 2000. The site accommodates 11 natural habitat environments and 15 habitat environments of animal and plant species of community interest, threatened or rare in Europe.

### Key descriptors:

Catchment area	480 km <sup>2</sup>
Maximum elevation	220 m
Main stream mean slope	3.5 ‰
Mean flow	5.1 m <sup>3</sup> /s
Annual rainfall at the outlet	900 mm
Annual rainfall at the crest	1100mm
Temperature	6-20 °C



## Data availability

Diverse types of data are available. Their spatial scale ranges from the local facilities up to the whole catchment (including the river corridor) and intermediary scales of sub-catchments, whereas the temporal scale ranges from continuous monitoring to specific times (adapted to the phenomenon or to the species).

Data variables are the following

- Physical : Rain, temperature, discharge
- Physical and chemical quality of sediment, suspended matter and water.
- Ecological: Feature and variety of fish habitat environments, demographic characteristics of the populations of salmonids, structure of the fish population, the embryonic incubation of salmonids. Water trophic status.

## Research activity and outputs:

For more than 20 years, the stream was studied within the framework of scientific programs concerning the populations of Atlantic salmon. Gradually, these activities of researches diversified.

Research activities concern:

- The evolution of communities of fish amphihalins and macrophytes.
- The impact of wetlands as buffer zones: relations between catchment orders and the hydrological and hydrochemical functioning of the wetland.
- The nutrient budgets of the farms.

One sub-catchment (Naizin-Kervidy) is part of an ORE (Observatory for Research in Environment), a hot spot for studying the interactions between the farming activities and water quality, since 12 years; (with much data since 1976). (see [http://www.inra.fr/ore\\_agrhys\\_eng/](http://www.inra.fr/ore_agrhys_eng/) for details)

## Facilities

The Scorff River is equipped with a check point for migratory fishes. The installations for trapping are located on the limit of water salinity. They consist of various types of traps allowing to count fish during their up and down river migrations. On the site, a field lab and housing are available. INRA (with 2 technicians), and partnerships are in charge of the management of this site and the acquisition of the data.

Collaborations were established with diverse partners since a long time. They facilitate the access to the water course and to the data collected by others stakeholders and water authorities.

Currently, a wide panel of spatial data on physical-chemical parameters concerning the Scorff River and its tributaries, and on the pesticides found in waters are available.

## Institutional support

The Scorff river is part of an Observatory for Research in Environment (ORE) on small coastal rivers. It benefits from the support of INRA and other institutes. This ORE is supported by research programs founded by INRA, the Brittany region, the Ministry of Environment and Europe. These programs bring in different national or international research teams.

The Scorff river is also home for the water quality survey in the framework of a Large Regional program to improve water quality.

The water authority in charge of the river has diverse actions aiming to improve its quality. It centralizes the information and the data for these activities as well as those connected to sites Natura 2000. The hydrometeorological data are collected by various partners (National Met Office, Ministry of Environment).

## Value to network

The Scorff catchment and the associated Naizin catchment will bring an observatory devoted to the study of water resources in farming catchments specialized in breeding (mainly dairy farming and intensive pig farming), in the context of superficial water resources of ancient rocks (granite and schists), where the anthropogenic drivers are really very strong and the impact dramatic.

It will bring all the expertise of research teams in water survey from hydrological, chemical and biological perspective (as recommended in the WFD), and also in data management for environmental variables.

## Contact for further information

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Links:

[http://www.inra.fr/ore\\_pfc](http://www.inra.fr/ore_pfc)

[http://www.inra.fr/ore\\_agrhys\\_eng](http://www.inra.fr/ore_agrhys_eng)

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(For all references of the catchment see link)

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