

# Removal of the Fatou dam on the Baume River

## The operation

Category	Restoration
Type of operation	Partial or total weir/dam removal
Type of environment	Intermediate river zone
Issues at stake (water, biodiversity, climate)	River continuity
Start of operation	July 2007
End of operation	October 2007
Length of river affected by the works	50 m

## River in the restored sector

Name	Baume River
Distance to source	9.5 km
Mean width	2 m
Mean gradient	37‰
Mean flow rate	0.23 m <sup>3</sup> /s

## Aims of the project owner

- Ensure the safety of the general public.
- Restore river continuity.

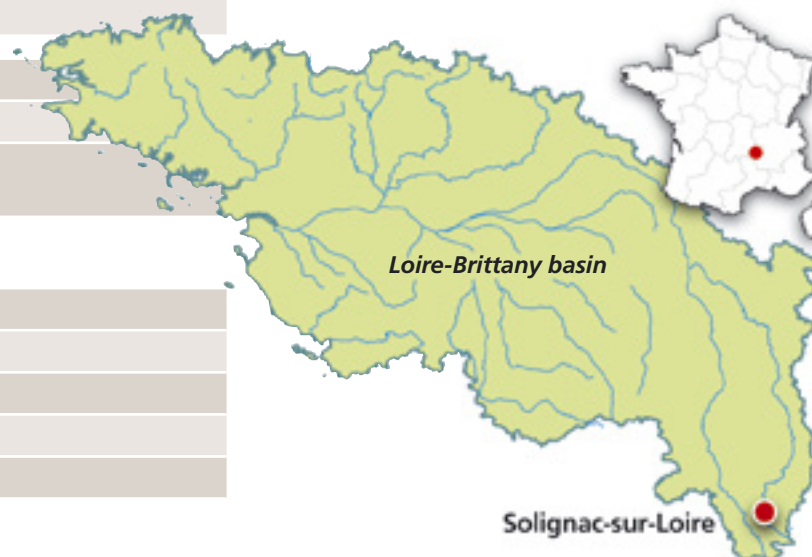
## Environment and pressures

The Baume is a tributary to the Loire River and runs a total of 10 kilometres. At the junction point of the communes Solignac-sur-Loire and Brignon, 2.7 kilometres upstream of the confluence with the Loire, the river goes over a natural waterfall, 27 metres high. The ecological quality of the river is fairly high with a fish community made up of trout, minnows and bullheads. The white-clawed crayfish is also present and the river is Natura 2000 listed as a "white-clawed crayfish river".

In 1907, a stone-masonry gravity dam was built on the Baume, creating a head drop of 6.1 metres. The dam was intended for hydroelectric generation at the Fatou power station. Hydroelectric production was terminated in the 1960s. The dam, located 400 metres from the confluence with the Loire, blocked river continuity. It was estimated that 6 000 cubic metres of sediment were blocked by the dam.

## The location

Country	France
River basin	Loire-Bretagne
Region(s)	Auvergne
Département(s)	Haute-Loire
Commune(s)	Solignac-sur-Loire



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The Fatou dam and its reservoir in April 2004.

Regulatory context	Not applicable
European directive references	
Water-body ref.:	FRGR1677
Natura 2000 site ref.:	FR8301096



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The Fatou dam.

### ■ Opportunities to act

The Loire EPTB (public river-basin territorial agency) acquired the dam in 1985 in the framework of the land purchases for the *Serre de la Fare* programme. The poor condition of the dam raised a number of safety concerns and it was decided to remove it.

### ■ Works and developments

The work consisted of totally removing the dam and the power station. It took place in four steps.

- During the low-flow period in July 2007, the reservoir was drained. The river was first diverted to one side along the reservoir to a point downstream of the dam. It was then possible to drain the reservoir progressively. A settling basin was created downstream of the dam to limit the quantities of mud entering

the river. Fishing campaigns to save fish were carried out both upstream and downstream of the dam, before and after the draining of the reservoir.

- The site was dredged once the sediment in the reservoir had dried sufficiently. Following a check to ensure its non-toxicity, the sediment was stored to dry for one year upstream of the reservoir.
- The gates and fixed elements of the dam were then dismantled. The power station was razed.
- The banks were then restored to their original condition. They were consolidated in certain places using materials drawn from the dam. Gravel was deposited in the riverbed.

The reservoir after being drained in July 2007.



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The Baume River in the process of re-establishing its bed in the mud of the former reservoir in July 2007.

One year after the work, the time required to flush out the bottom of the reservoir and the extracted sediment, the sediment storage area was seeded with plants typical of the area and agricultural operations could then resume.

#### ■ **Regulatory approach**

The work was authorised in accordance with the Water law.

#### ■ **Post-restoration management**

No particular management measures were taken.

#### ■ **Monitoring**

Fishing campaigns to establish an inventory were carried out prior to the work. During the work, the physical-chemical parameters for water quality were monitored upstream of the reservoir and immediately downstream of the dam. Fish populations were monitored after the work by electrofishing campaigns in 2008 and 2010, and trout spawning grounds were counted in 2007 and 2008. Monitoring work was managed by the departmental fishing federation.

#### ■ **Outcome of the project and outlook**

At the site of the former dam, the natural hydraulic gradient was restored. Along the river, the vegetation rapidly resumed its natural development without any planting being required. Within the former reservoir, rapid flows in the form of running facies reappeared. A coarser substrate also appeared. In 2008, just one

The Baume River in the former Fatou reservoir in December 2008.



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year after the work, the species diversity of the original fish community (trout, bullhead, stone loach) had been restored. The effective return of the fish populations was thus very rapid.

Three years following the removal of the dam, the monitoring work showed that the densities of trout and bullheads had increased substantially. In addition, the population structure of the trout population would seem to have evolved in that juveniles were present in greater numbers and better represented in terms of their age group.

## Costs

In euros ex. VAT

Studies	Not known
Purchase of land	Not applicable
Works and developments	<b>204,850 €</b>
Promotion	Not known
<b>Total cost of project</b>	<b>204,850 €</b>

### Financial partners and funding:

*State (40%), Loire EPTB (25%), Water agency (20%), European Union (15%).*

### Technical partner:

*Électricité de France (French national electricity company), Onema (National agency for water and aquatic environments), departmental fishing federation, local fishing association.*



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*The Baume River in the former Fatou reservoir in the summer of 2008.*

## Promotion of the project

An informational brochure was published for the general public. It highlights the ecological value of the project and can be downloaded from the Loire EPTB ([www.eptb-loire.fr](http://www.eptb-loire.fr)).



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