

# Reopening side channels along the Saône in Jassans-Riottier

## The operation

Project owner	Voies navigables de France (VNF - French waterways authority)
Category	Improvement of waterways
Type of operation	Creation or reopening of alluvial wetlands
Type of environment	Lowland rivers
Issues at stake (water, biodiversity, climate)	Good status of habitats, river continuity
Start of operation	September 2007
End of operation	April 2008
Length of river affected by the works	500 m

## River in the restored sector

Name	Saône River
Distance to source	408 km
Mean width	215 m
Mean discharge	400 m <sup>3</sup> /s

## Aims of the project owner

- Restore links between the main channel and the side channels.
- Recreate diverse habitats for various species.
- Improve site landscaping for tourism.

## Environment and pressures

The Saône originates in the town of Vioménil, in the Vosges mountains. The river is 480 km long and flows into the Rhône River in the city of Lyon. Its basin covers a surface area of 29 950 km<sup>2</sup>.

Over the centuries, first the floodplain of the Saône was modified, primarily in order to gain land for agriculture and other purposes. Then the riverbed itself was adapted and channelised in the 1800s to facilitate and develop trade between the Mediterranean and Northern Europe. Approximately 15 locks were created along this tributary to the Rhône.

Shipping is possible on the Saône from the town of Corre in the north of the Haute-Saône department to the point where it joins the Rhône in Lyon, 365 km downstream.

## The location

Country	France
River basin	Rhône-Méditerranée-Corse
Region(s)	Rhône-Alpes
Departement(s)	Ain
Commune(s)	Jassans-Riottier



There are numerous natural zones with high ecological value (ZNIEFF) all along the Saône valley. The town of Jassans-Riottier lies in the "Saône floodplain" Type-1 ZNIEFF. A number of regionally protected species have been observed, such as pike, beavers and several species of birds.

In this sector, the Saône has been channelised to enable the passage of large ships. The ships on this section of the river include pleasure boats and cruise ships (floating hotels 140 metres long), as well as large merchant ships.

Regulatory context	Not applicable
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### European directive references

Water-body ref.:	FRDR1807b
Natura 2000 site ref.:	Not applicable

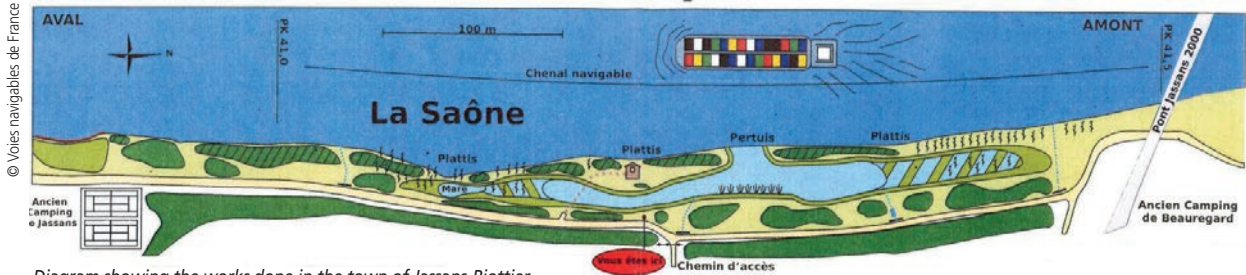


Diagram showing the works done in the town of Jassans-Riottier.

With these development works of the Saône river bed, certain alluvial side channels were cut off from the main channel and had started to fill in.

Filling in and cutting off of wetlands is a natural phenomenon, however it was significantly accelerated in this case due to the disconnection with the main channel. The lateral areas along the Saône in Jassans-Riottier were covered with nettles, brambles, and the next stage of shrub growth (ash, maple, alder) was already present on the site. It was no longer possible to walk along the tow-path.

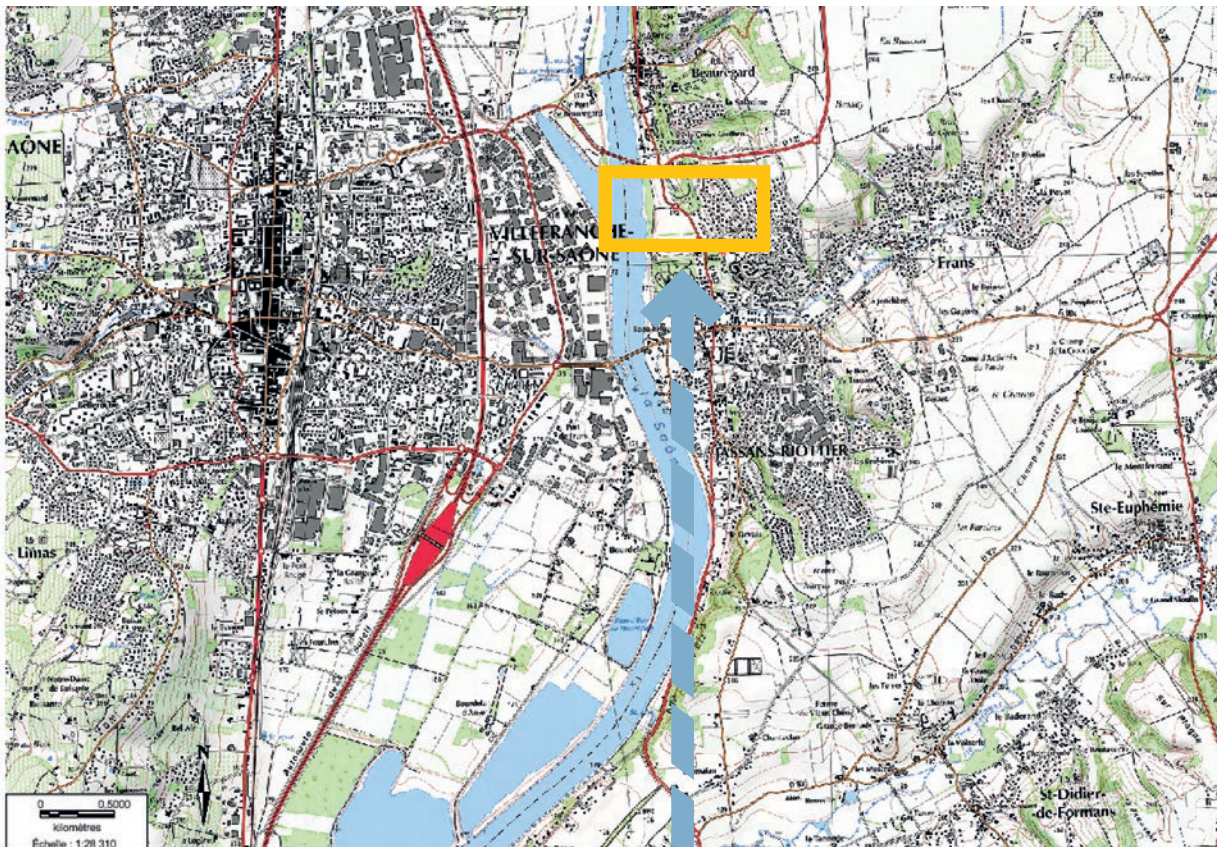
### ■ Opportunities to act

The 2003-2008 contract for the floodable Saône valley was an action programme managed by the Saône and Doubs public river-basin territorial agency (EPTB) to establish collective, sustainable and balanced management of water and the corresponding environments in the Saône valley.

As part of the programme, an assessment was run in 2003 to identify problems along the river and propose solutions adapted to the local issues.

The assessment pinpointed the areas suitable for ecological development work, with a low topographic level, without any major projects or issues nearby, and having worthwhile ecological potential (alluvial areas, etc.). It also identified areas of interest for tourism infrastructure along the river (boating sites, etc.).

Subsequently, VNF, the managing authority for the waterway, decided to work on the wetlands that were filling in along the Saône in the town of Jassans-Riottier. This project was part of the contract for the floodable Saône valley and met one of its objectives, namely to restore and protect natural environments.





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Earthwork to restore a side channel and ponds. October 2007.



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Flooding of the restored side channel. December 2009.



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The vegetation in the restored side channel had developed well 4.5 years after the works. September 2012.

### ■ Works and developments

Works were done on the remains of wetlands that still existed along the Saône. In 2007, secondary channels and ponds that were continuously or intermittently linked to the Saône were restored by moving 12,000 m<sup>3</sup> of earth.

Then the worked and graded sites and banks were planted with 8 000 clumps of helophytes comprising a total of ten species.

The foot of the bank at the connection point with the Saône was bio-engineered over a distance of 40 metres to limit erosion and the effects of ships' wakes on the restored alluvial zone.

A sluice ensures continuous connection between the river bed and the side channel.

In 2008, all the worked surfaces, not including the low areas, were planted with grass and the service road was restored with a stone surface.

### ■ Regulatory approach

The works were authorised in accordance with the Water law.

### ■ Post-restoration management

The vegetation is maintained by the town of Jassans-Riottier in a partnership with VNF. Each year, the town mows and clears the high banks and the area around the observation platform. The shrub vegetation is also monitored and any willows and others species are cut down if they are in poor health or represent a danger for site visitors.

### ■ Monitoring

A brief pre-works report was drafted in the framework of the preliminary study. It contained topographical measurements and an analysis of the terrestrial vegetation in the side channels that were slowly filling in.

Following the works, ecological monitoring by a consulting firm was carried out over four years from 2009 to 2012.

Monitoring addressed the physical compartment, e.g. with topographic, temperature and physical-chemical surveys, and the biological compartment with an analysis on phytoplankton, zooplankton, fish and the aquatic and riparian vegetation. An analysis on visits to the site and on site maintenance (number of visits, damage done to installations, etc.) was also carried out.

### ■ Outcome of the project and outlook

The topographic profiles prepared in 2009 revealed a high level of local sedimentation causing a narrowing of the side channel. On the basis of the results from 2010 to 2012, this sedimentation is apparently caused by readjustments on the worked site where successive floods and the wakes of ships even out the profile of the side channels.

The modifications made at the foot of the embankment limited erosion as planned.

However, the analysis also revealed that the wakes of ships produced effects in the side channel and represented a significant pressure on the environment by limiting biological development. Fine sediment in the side channel was regularly resuspended in the water by the wakes, which may reduce the environmental value of the area.

VNF planned for 2013 to set up an experimental technique involving a planted, submerged levee positioned

## Cost

In euros ex. VAT

Initial assessment and monitoring study <i>* of which the monitoring study: 80 365 €</i>	95 365 €*
Purchase of land	-
Works and developments	145 000 €
Promotion	6 500 €
<b>Total cost of project</b>	<b>245 865 €</b>

### Financial partners and funding:

*Rhône-Méditerranée-Corse water agency (60%), Rhône-Alpes region (20%), Voies navigables de France (20%)*

### Technical partners:

*Rhône-Méditerranée-Corse water agency, Ain departmental territorial directorate (DDT 01). Saône and Doubs public river-basin territorial agency, "Porte Ouest de la Dombes" intermunicipal association*



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Observation hut for wildlife that burned in November 2008 and was replaced by an elevated boardwalk. July 2008.

at the connection point with the Saône in order to limit the effects of wakes and to avoid the resuspension of the fine particles (suspended matter).

On growing, the plants will be visible and should break the wakes and stop them from entering the side channel via the opening.

Monitoring of the fish populations revealed an increase in the number of species caught in the side channel, from 17 species in 2010 to 21 in 2012. In the spring, the time of rising water levels, the side channel remains a calm environment that is favourable for small species. At the beginning of the fall of 2012, the side channel was home to a diversified

and more abundant community than in the spring, due to the hydrology of the Saône and to the development of the grass beds that enhanced site attractiveness. In addition, a number of fish-eating species were noted, including perch, pikeperch and pike, re-observed for the first time in 2012.


The aquatic vegetation in the continuously filled pond underwent considerable change with respect to the observations made from 2009 to 2011. The dominant Nuttall's pondweed, an invasive alien species, gave way to significant development of rigid hornwort, a native species. The number of inventoried plant species remained virtually identical. A stabilisation process would seem to be under way in some of the side channels.

The VNF technical department and the town are satisfied with the operation. However, the large number of visits to the site have resulted in vandalism creating pressure on the vegetation and incurring additional costs for maintenance and the installation of systems to limit access.

### Promotion of the project

In order to enhance the value of the wetlands in the eyes of the general public, the "Porte Ouest de la Dombes" intermunicipal association invested in facilities to welcome the public in the framework of a development programme for the Saône banks. An elevated boardwalk provides access deep into the wetlands and to an observation platform in the middle of the reed bed.

VNF set up informative signs explaining the works done on the site.

Project owner	Voies navigables de France (VNF)
	
Contacts	Noël Corget and Nicolas Bearez VNF Rhône-Saône office Mâcon subdivision noel.corget@vnf.fr nicolas.bearez@vnf.fr vnf@diee.fr



GREBE, 2012. *Etude de suivi des aménagements écologiques réalisés sur les frans-bords de la Saône à Jassans-Riottier – année 2012.* VNF