

# Restoration of the river continuity on the Touques Basin

## The operation

Category	Restoration
Type of operation	Partial or total weir or dam removal
Type of environment	Intermediate river zone
Issues at stake (water, biodiversity, climate)	Biological integrity
Start of operation	1980
End of operation	Process still ongoing
Length of river affected by the works	On several locations

## River in the restored sector

Name	La Touques
Mean width	15 m
Mean gradient	3 ‰
Mean flow rate	9 m <sup>3</sup> /s at the estuary

## Aims of the project owners

- Restoration of the river continuity of the Touques river catchment.
- Prevent flood risks.

## Environment and pressures

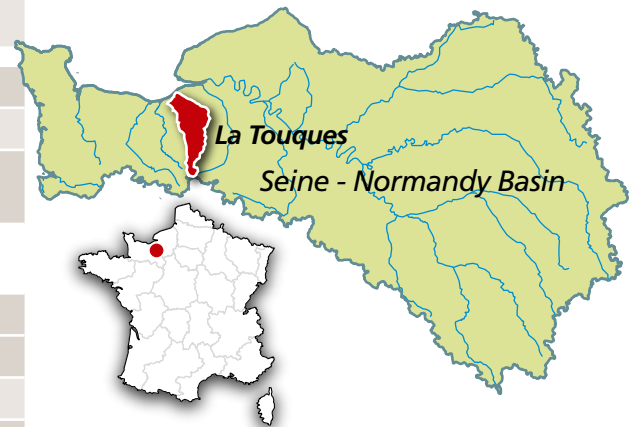
The Touques is a 110 km long coastal river which flows into the English Channel near the mouth of the Seine. Its 1,350 km<sup>2</sup> basin is mostly composed of meadows and orchards.

The most important tributaries are: the Calonne, the Orbiquet and the Paquine. These rivers offer a wide variety of habitats suitable for the reproduction and development of salmonidea. The scale of spawning grounds and their proximity to the sea explains the abundance of sea trout, a migratory subspecies of the common trout. These rivers are also home to eel.

With over 60% still covered by grassland and 26% by arable land, farming does not yet appear as a limiting factor for the quality of aquatic environments. The treatment of domestic and industrial sewage represents the major source of pressure on water quality, mainly in major urban areas.

## The location

Country	France
River basin	Seine-Normandie
Region(s)	Basse-Normandie
Département(s)	Calvados, Orne and Eure
Commune(s)	Towns in the Touques river catchment



The Touques downstream of the confluence with the Orbiquet has been classified under L 432-6 of the Environmental Code for the movement of migratory fish since 1924, and its main tributaries have been since 1999.

The hydromorphology of rivers is remarkably functional, but many hydraulic structures were blocking fish migration. Although some abandoned structures have not withstood winter floods, there remained several structures (approximately one hundred) to be treated in order to restore river continuity.

Regulatory context	Classified rivers APPB upstream of the basin
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## European directive references

Water body ref.:	FRHR275 and FRHR277 FRHR276, FRHR279, FRHR278
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Natura 2000 site ref.:	Not applicable
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## ■ Opportunities to act

In 1978, a specific study on sea trout in the Touques was launched. This study, continued under the 1981 "Migratory fish" Plan, confirmed the presence of an already large population of sea trout and especially highlighted the great potential of the basin, used at only 15% due to migration obstacles.

This study showed a desire by local players downstream of the Touques (group of anglers, communes and environmental organisations) to enhance the potential of tributaries downstream from the first impassable dam on the Touques at Breuil-en-Auge, 32 km from the sea.

Then, in the 1990s, the important habitat potential of the environment upstream of this obstacle incited the departmental fishing federation of Calvados, with the support of the *Conseil supérieur de la pêche*, CSP (now National Agency for Water and Aquatic Environments - Onema) to create fishways

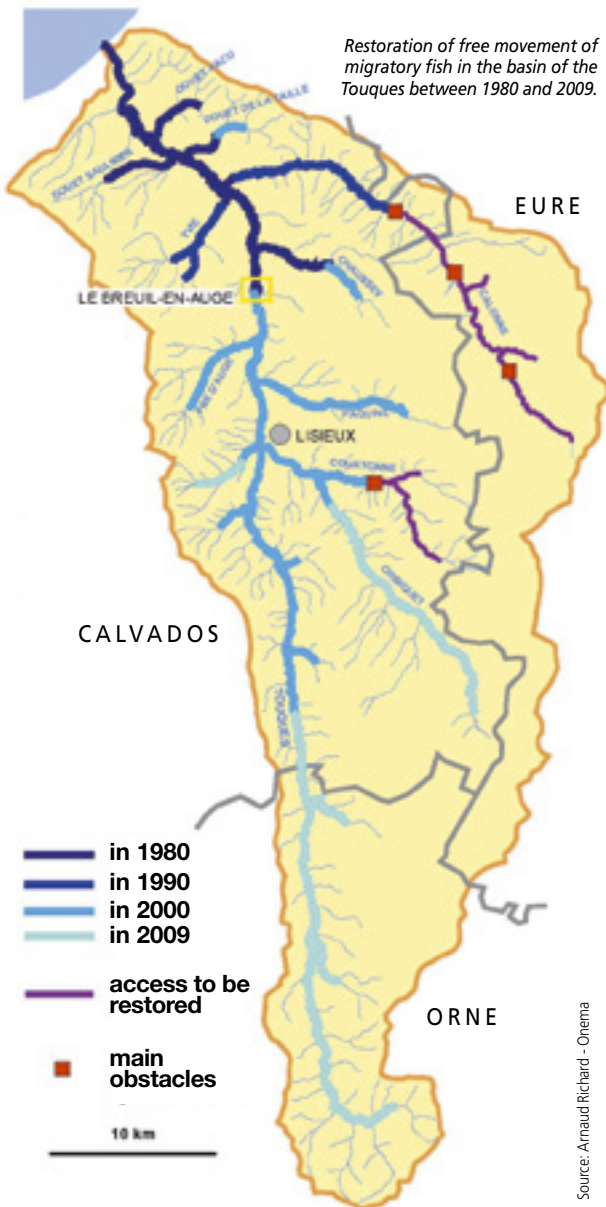


Orville dam on the upper Touques before its removal.

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upstream to offer sea trout an additional colonisable stretch with the development of a multi-species fishway in 1999 at the Le Breuil-en-Auge "lock".

Thus, the past 30 years have seen a succession of actions to promote the restoration of continuity in the Touques basin. Flood defence is also in some cases a factor justifying the removal of certain structures.

The number of project owners has multiplied over the years. The departmental fishing federation conducts actions in the context of the implementation of the "Retour aux Sources" ("Back to the River's Sources") agreement. These actions are complemented by the actions of newly created river associations, of communes owning obstacles and the "PARAGES" association, an operator developing angling-related tourism in the valley.

Decrees and Orders dated 15 December 1999, which classify the tributaries of the Touques under article L 432-6, reinforce this objective for the free movement of migratory fish.

### ■ Works and developments

Several actions are performed to restore river continuity. Obstacles (weirs, sluices, dams) are opened, removed or fitted with fish passes.

Before the first fishway on the Calonne in 1982, some fifteen or so obstacles in the Touques basin had already been dismantled or opened to facilitate flood evacuation. Almost 30 years on, 71 other obstacles have been redeveloped, i.e.:

- 33 weirs removed, lowered or opened including the removal of the Lisieux flap gate dam (implementation: 2007, project owner: *commune of Lisieux* - see the corresponding example from the collection).
- 38 weirs equipped with fish passes including a multi-species fishway on the Breuil-en-Auge dam (implementation: 1999, project owner: *Fishing federation of Calvados*) and the development of 4 fish passes on the Cirieux (implementation: 2008, project owner: *commune of Saint-Désir*)

### ■ Regulatory approach

The work on structures are filed under the Statement of general interest procedure.

Authorisation application for the elimination of large structures is filed under the "dossier d'autorisation" consent according to the French Water Act.

### ■ Post-restoration management

Assistance in the proper functioning of fishways, whose efficiency requires regular maintenance, is provided by the *Syndicat mixte du bassin versant de la Touques*.

### ■ Monitoring

Counting of sea trout travelling upstream at Breuil-en-Auge has been carried out since 2001. This monitoring is implemented under an agreement with the owner of the dam and of the fishway.

### ■ Outcome of the project and outlook

Reproduction areas accessible to sea trout have increased sharply, thanks to improvements works carried out over the past 30 years. The proportion of accessible surfaces thus increased from 15% before 1982 to 86% in 2009. The sea trout travelling upstream monitored at the Breuil-en-Auge fishway represented 2,500 fish in 2001 and more than 6,000 in 2008, a figure confirmed in 2009 with over 5,500 sea trout. As the monitoring station was located upstream to many tributaries, the current Touques

stock is therefore now 10,000 sea trout, making it not only the number one river in France for sea trout but also one of the best in all of Europe. These very good results are accompanied by a significant rise in fishing tourism.

The scale of these actions and their results make the Touques basin a benchmark for continuity in the Seine-Normandie basin.

The Touques axis is completely open to migration, but there are still a dozen or so more obstacles upstream of the tributaries. There are several projects under way. The most penalizing obstacle lies in the middle part of the Calonne. This obstacle, devoid of fish passes despite the regulatory obligations, neutralises the efforts already made upstream in the Eure *département* due both to the obstruction of upstream fish migration but also damage caused by the turbine on fish returning to the sea.



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Breuil-en-Auge fishway.

## Cost

In euros (ex. VAT)

33 weirs removed, lowered or opened, at a cost of:	1,200,000 €
38 weirs equipped with fish passes, for an updated cost of:	2,500,000 €
<b>Total cost of the action</b>	<b>3,700,000 €</b>

### Financial Partners and funding:

*As progress has been made, grants received by project owners have supported this programme: The Ministry of the Environment, Conseil supérieur de la pêche (CSP - now Onema), the départements of Calvados, Orne and Eure, the fishing federations of Calvados and Orne, European funds. Currently: the Seine-Normandie and the Region of Basse-Normandie water agency.*

### Technical partners of the project:

Direction départementale de l'agriculture et de la forêt (DDT), conseil supérieur de la pêche (now National Agency for Water and Aquatic Environments - Onema)

### Bibliographical references:

*Not applicable*

In late 2007, the *syndicat mixte du bassin versant de la Touques* was created, bringing together 5 intercommunal communities and 8 communes in the *départements* of Calvados and the Orne. Its remit to restore and maintain rivers namely includes assistance in the smooth operation of the fishways.

## Promotion of the project

The destruction of the Lisieux flap gate dam and the results of 30 years of removal and equipment of obstacles with fish passes were promoted in a field trip organised by Onema in the presence of the Secretary of State for Ecology in late 2009. A television report was broadcast for the occasion on the news of a major national channel (at <http://www.smbvt.fr/accueil/>).



Chantal Jouanno, Secretary of State for Ecology, at the Breuil-en-Auge fishway, 13 November 2009.

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