

## Elimination of a dike blocking a Petersbach tributary

### The operation

|  |   |
|--|---|
| Category   | Restoration                                       |
| Type of operation                                    | Elimination or diversion<br>of ponds along rivers |
| Type of environment                                  | Headwater stream                                  |
| Issues at stake<br>(water, biodiversity,<br>climate) | River continuity, good status<br>of habitats      |
| Start of operation                                   | September 2007                                    |
| End of operation                                     | November 2007                                     |
| Length of river af-<br>fected by the works           | 100 m   |

### River in the restored sector

|                    |                       |
|--------------------|-----------------------|
| Name               | Saumuehle             |
| Distance to source | 1.2 km                |
| Mean width         | 1 m                   |
| Mean gradient      | 5.5‰                  |
| Mean flow rate     | 0.1 m <sup>3</sup> /s |

### Aims of the project owner

- Restore river continuity for trout and minnows.
- Limit temperature rise downstream of the pond.
- Restore river morphology and habitats.

### Environment and pressures

The Saumuehle stream is a 1.5 km long, left-bank tributary of the Petersbach River. The stream, home to category-1 fish, is located in the *Petite-Pierre Nord* state forest. The main species are brown trout, bullheads, minnows and white-clawed crayfish.

In 1980, the Saumuehle pond, covering a surface area of 1.2 hectare, was created in the stream for recreational fishing. The French national forestry agency (ONF) was the owner. The pond resulted in temperature rise in downstream waters and constituted an obstacle to river continuity. A sign of the disruption was the fact that only bullheads could be found upstream of the pond.

In addition, the dike, made of the materials excavated to form the pond, had become less watertight over the years. The water level had dropped, leading to progressive silting of the pond.

### The location

|                |            |
|----------------|------------|
| Country        | France     |
| River basin    | Rhin-Meuse |
| Region(s)      | Alsace     |
| Département(s) | Bas-Rhin   |
| Commune(s)     | Butten     |



Rhine-Meuse basin



The Saumuehle pond prior to its elimination.

|                    |   |
|--------------------|---|
| Regulatory context | The Vosges du Nord<br>regional nature park. |
|--------------------|---|

### European directive references

|                        |           |
|------------------------|-----------|
| Water-body ref.:       | FRCR437   |
| Natura 2000 site ref.: | FR4201795 |



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The Saumelhe stream in March 2008, six months after the elimination of the pond.



IGN - Scan250

### ■ **Les opportunités d'intervention**

The site was chosen as a pilot project in the framework of the Interreg programme "*Optimising the role of forests in protecting streams and wetlands*", that targets improvements in the status of rivers flowing through forests.

At the time of the work, the pond was no longer used.

### ■ **Works and developments**

The work took place in three phases. To start, the pond was emptied by removing the planks from the draining system. After carrying out rescue fishing and temporarily diverting the stream to a lateral ditch, the materials making up the dike were spread along the banks of the pond. The site of the former dike was reworked to create a slight slope. The upstream distribution structure was eliminated. A pool was created nearby to maintain the amphibians that had been observed on the site.

### ■ **Regulatory approach**

The work was authorised in accordance with the Water law.

3.1.5.0: Destruction of spawning grounds.

### ■ **Post-restoration management**

No particular management measures were taken.

### ■ **Monitoring**

The study on the initial status condition was carried out by Onema in 2007 and addressed fish and amphibians. Post-work monitoring was done in 2009.



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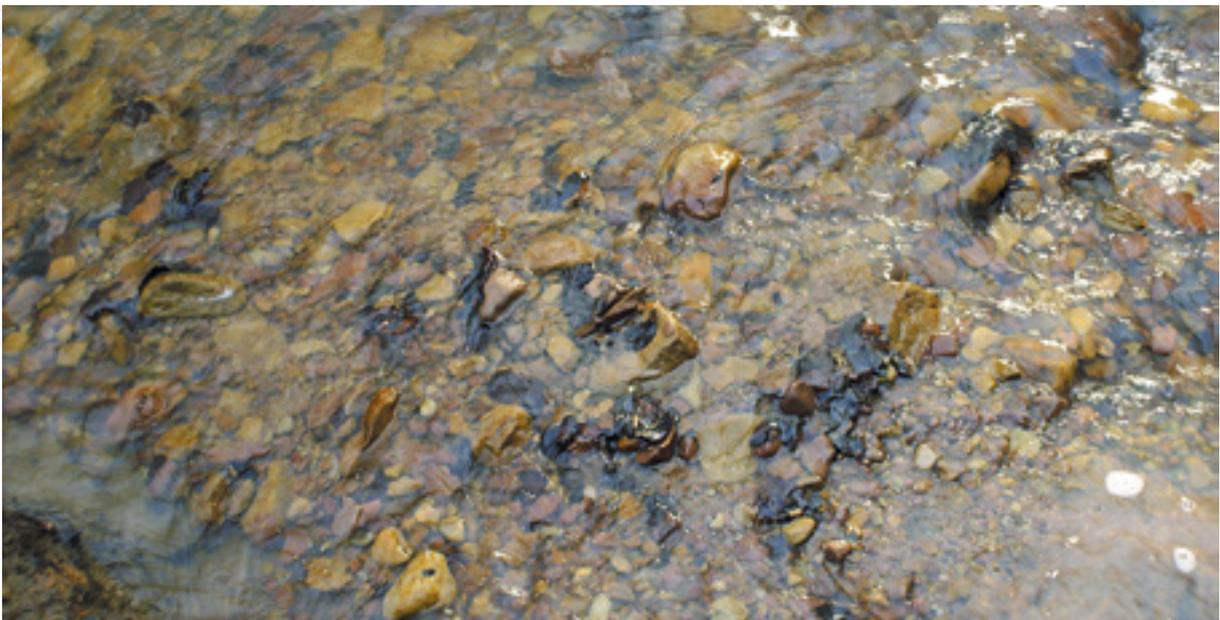
The removal of the Saumuelhe pond dike in 2007.



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The Saumuelhe stream in March 2008, just upstream of the former pond, six months after its elimination.

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The coarse substrate had reappeared in the former pond by March 2008.

## Costs

In euros ex. VAT

|                              |                |
|------------------------------|----------------|
| Studies                      | 0 €            |
| Purchase of land             | Not applicable |
| Works and developments       | 1,136 €        |
| Promotion                    | Not applicable |
| <b>Total cost of project</b> | <b>1,136 €</b> |

### Financial partners and funding:

EU via the Interreg IIIA fund (50%), Water agency (25%), Bas-Rhin and Haut-Rhin departmental councils (15%) and regional environmental directorate (DIREN) (5%).

### Technical partner:

Syncoparc, Onema (national agency for water and aquatic environments) local office, regional environmental directorate (DIREN), Water agency.

## Outcome of the project and outlook

This restoration project reconnected 1 400 meters of stream. Following the draining of the pond, the stream rapidly reverted to a sinuous path. The current removed the fine sediment, revealing the coarse substrate in the former pond. The effects of the elimination of the pond are also visible directly upstream where series of riffles and pools have appeared.

The electrofishing campaign following the work provided clear indications that brown trout had recolonised the upstream reach.

During the winter floods of 2008, the riverbed shifted a few meters to the left, reaching and rapidly absorbing the recently created pool. The latter was created too soon and it would have been better to wait until the riverbed had stabilised. The pool will therefore be created a second time once the riverbed has fully stabilised.

Due to the natural erosion of the restored river bed, parts of old culverts were progressively revealed. Minor work will be undertaken to remove them from the riverbed and enable a gradual return to a steady gradient.

## Promotion of the project

An article appeared in Sycoparc (issue 36, January 2009) and pages on the ONF internet site were devoted to this pilot project.

For information on the Life project on "Streams and wetlands in forests", see [http://www.onf.fr/projets\\_europeens/sommaire/projets\\_acheves/life\\_eau-foret/@@index.html](http://www.onf.fr/projets_europeens/sommaire/projets_acheves/life_eau-foret/@@index.html)



The Saumuelhe stream in December 2009, two years after the work.

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|               |  |
|---------------|--|
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|               |  |
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