Building a collection of river hydromorphology restoration examples in France

Josée Peress
ONEMA, the French National Agency for Water and Aquatic Environments
Risk Assessment of Water Bodies Status - 2004-2005

Half of WB could not achieve good ecological status due to poor hydromorphological conditions.
What is needed to implement hydromorphological restoration measures?

- We can’t predict restoration effects precisely
  - need to improve our knowledge on ecological responses in order to implement the most effective restoration measure

- Rivers and streams are private properties
  - actions have to be implemented by local project owners, e.g., local authorities or associations, etc..
  - need to convince local public and motivate stakeholders in order to multiply restoration projects

Building a collection of river restoration examples largely made available
What the collection of examples aims to do:

- To disseminate past and ongoing examples of river hydromorphology restoration projects

- To promote these examples amongst others who could take on similar actions (local authorities, riparian owners, associations, ...) and show what can be done.

- To facilitate information exchange at the local level about these restoration projects
Who collected and selected the restoration projects:

The French agency for water and aquatic environments (ONEMA)
The six French water agencies (Agences de l’eau)

The process started in 2009 followed by the writing up of each example

9 délégations interrégionales de l’Onema

6 agences de l’eau
What was the selection process:

Restoration projects:

• that aim to re-establish natural hydromorphological processes such as weir removal, remeandering, ...

• having multi-objectives: aiming to combine ecological benefits and other interests, such as reducing flood risk, improving water quality
Types of hydromorphological restoration

1. Partial or total weir/dam removal
2. Pond removal or derivation of the watercourse
3. Reconnection of side arms or ancient meanders
4. River gravel input
5. River bank protection or flood bank removal
6. Modification of the river bed geometry
7. Remeandering
8. Putting the watercourse into its original bed
9. Reoppening of culverted watercourses
More than 60 case studies

<table>
<thead>
<tr>
<th>TYPE OF HYDROMORPHOLOGICAL RESTORATION</th>
<th>Rhin</th>
<th>Rhone</th>
<th>Adour</th>
<th>Loire</th>
<th>Seine</th>
<th>Artois</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIVER GRAVEL INPUT</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>REMEANDERING</td>
<td>8</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>PUTTING THE WATERCOURSE IN ITS ORIGINAL BED</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>RECONNECTION OF SIDE ARMS OR ANCIENT MEANDERS</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>PARTIAL OR TOTAL WEIR/DAM REMOVAL</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>POND REMOVAL OR DERIVATION OF WATERCOURS</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>REOPENING OF CULVERTED RIVER</td>
<td></td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MODIFICATION OF RIVER BED'S GEOMETRY</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>RIVER BANK REMOVAL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>PRESERVATION</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>18</td>
<td>8</td>
<td>14</td>
<td>11</td>
<td>2</td>
</tr>
</tbody>
</table>
The content of each example

More than 3000 handbooks sent out
- In 2009
- To local offices Onema, 6WA, ministry ecology
To regional, departmental councils, syndicats (600), associations,
Factors leading to the implementation of the project

The works and techniques involved

The regulatory approach

Monitoring

Post restoration management
Where to find the examples:

- At the website:
  www.zones-humides.eaufrance.fr
  http://www.zones-humides.eaufrance.fr/?q=node/45

- The full document « recueil d'expérience sur l'hydromorphologie » is available at www.onema.fr
  http://www.onema.fr/Hydromorphologie,510
Thank you for your attention