5th European River Restoration Conference

The Rhône river : a river with a fragilized but true ecological potential



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Integrated River Basin Management (IRBM) on the Rhône Basin.

Some characteristics of the river Rhone

- Catchment of 98 500km²
- Mean annual flow rate = $1700m^{3}/s$
- Specific mean flow = 17,8 L/s/km² (high)
- A contribution of about 20% of the total flow reaching the Mediterranean sea
- 812km long in total, 545km in France
- \Rightarrow Some quite natural parts upstream,

more heavily engineered downstream



Integrated River Basin Management (IRBM) on the Rhône Basin.

Some characteristics of the river Rhone:

- A privileged axis between Northern Europe and the Mediterranean sea
- Some high stakes (water abstraction, energy production, flood risks...)
- A rich natural, historical and cultural heritage
- One main operator was given the concession in 1934 : Compagnie Nationale du Rhône. It produces over 15TWh (25% of national hydroelectric power, 3% of national total)
- A set of 26 surface water bodies including 19 heavily modified water bodies



Main river structures along the river Rhône



reach

The Integrated River Basin Management (IRBM) on the River Rhône : the 2007-2013 plan

An ambitious and integrated plan for a major French river

- <u>7 main dimensions:</u> cultural heritage, flood protection, water quality, resource sharing and biodiversity, energy production, transport management, sustainable tourism
- With a budget 613 million euros (state, county councils, CNR, European...with about 90million euros for water quality and biodiversity)
- With an extended governance and strong links with the scientific community (ZABR gathering 14 scientific organizations)



A river crossing urbanised areas...

...with remaining natural stretches.

Ecological river restoration in the River Rhône IRBM

The first decennial program of ecological river restoration at the end of the 90s identified priority reaches (key biodiversity areas)

- Three main components:
 - Restoration of **oxbows**
 - Increase of minimum flow rates in the by-passed reaches
 - Restoring fish migration



Over the period 1996 – 2012, over 26 oxbows were restored, over 42 km in total



Increase of minimum flow rates in the by-passed reaches and consequently in some oxbows







Chautagne



Belley

Brégnier-Cordon





Débit mini au barrage de Champagneux 65 m3/s

Ecological river restoration on the Rhône River

Some interesting results to share in terms of river restoration, obtained from long term monitoring

- For example: South of Lyon (Pierre-Bénite), the proportion of fish species prone to quick waters increased by 70% after restoration
- Improvement in terms of water quality



Zingel asper (the Apron)



Restoring fish migration : some ambitious plans

Some emblematic species:



Zingel asper (the Apron)

A first plan in 1993 – 2003

(Mediterranean Shad, data collection, monitoring)

- <u>Second plan 2004 2009</u>
 (more species, more territories to be regained)
- <u>A current plan for 2010 2014</u>
 with many stakeholders and a budget of 40M€





Lemprey





How to define the good ecological potential of the Rhône river (HMWB) on a very very large Alpine river

- A project at the scale of the Rhône river
- An inventory of all sites of ecological interest (oxbows, confluence etc...)
- Define the maximum ecological potential (applying all hydromorphological mitigation measures which do not have significant adverse effects on the specified uses)
- Define the good ecological potential: assess the remaining measures with the most efficient beneficial impact required to achieve good ecological potential



Being part of a community of practice

- Main strengths of the Rhone Mediterranean and Corsican Basins:
 - River restoration techniques on a wide range of rivers (ONEMA)
 - Monitoring (ONEMA)

CANAL



A guide was produced by our Agency and training was provided: "Sound design for negotiation"





Being part of a community of practice

- One workshop held in Lyon and co-organised with ECRR (March 2013)
- To share experience and exchange best practice

ZAMAL.

- To share innovative ways to communicate (e.g. Irwell and Obrigo basins)
 - A possible side event for the next I.S.Rivers conference in Lyon in 2015 (Integrative sciences and sustainable development of RIVERS)





MERCI / THANK YOU for your attention

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