

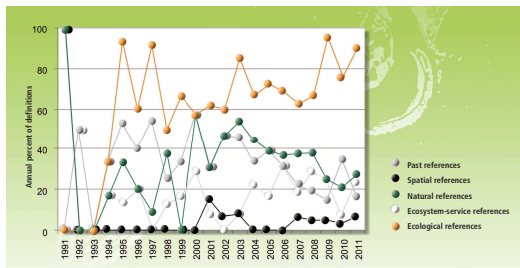
WHAT IS... RIVER RESTORATION

Outlook for the future

■ No consensus exists on a definition, it changes over time and has multiple dimensions (scientific, technical, ethical, political and social).

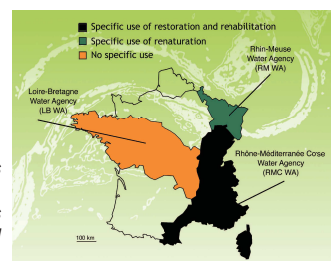
■ The aim here is to review current definitions of river restoration as it is now practised in France and abroad.

Defining the concept of river restoration



Scientific definitions of restoration call on different types of references used to set objectives for work. These references have evolved over time.

The concept of renaturation is specific to the RM Water agency. The RMC Water agency uses the concepts of restoration and rehabilitation.



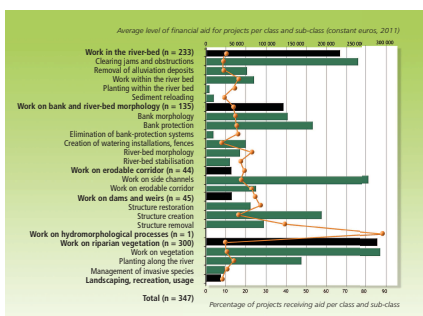
In scientific publications, the concept of restoration is:

- not limited to an ideal past or to any positive values related to naturalness,
- based on ecological references to the "structure" and "functions" of ecosystems,
- increasingly mentioned with respect to hydromorphological processes (mainly after the mid 2000s),
- seen as providing certain services to people or entire societies.

A variety of words are used by researchers and managers for river restoration, for example:

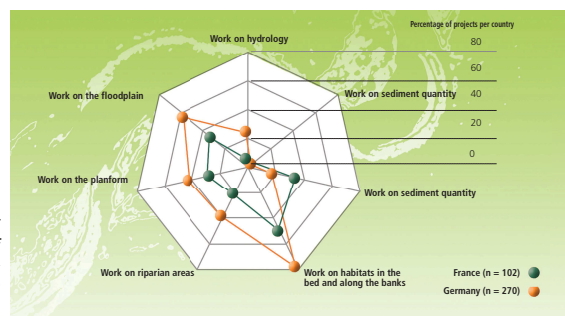
- restoration was seen by pioneer scientists as an ideal solution, a complete return to the river as it was prior to any degradation, whereas rehabilitation is now perceived as a more partial solution,
- the distinction made by scientists between restoration and rehabilitation also corresponds to geographic factors,
- restoration, rehabilitation and renaturation are not used uniformly by managers throughout France and their meanings differs from those used by scientists.

Techniques of river restoration



Breakdown of river-restoration projects with funding from the Loire-Bretagne, Rhin-Meuse and Rhône-Méditerranée-Corse Water agencies from 1997 to 2011.

The types of work for the ecological restoration of rivers differ significantly between France and Germany.



Two of main river restoration conceptions:

- hydraulic aspect and safety (as well as inheritance river usage and educational activities to raise public awareness),
- ecological, hydromorphological and physical-chemical factors.

These two conceptions co-existed in the projects carried out from 1997 to 2011.

A comparison of ecological restoration projects in France and Germany from 1960 to 2009 revealed:

- twice as many projects in Germany as in France,
- morphological pressures as the main issue in both countries,
- significant differences between the two countries in terms of restoration projects, for example projects concerning dead wood are very frequent in Germany, whereas in France a major issue is dam and weir removal to improve ecological continuity.

Current issues and strategies for river restoration

River restoration has gained importance in public policy:

- we need to clearly identify the kinds of river to be restored.

New environmental references should be based on different types of values:

- the intrinsic value of biodiversity and environmental functions and the related benefits for society, as well as their safety, aesthetic, affective and economic aspects.

River restoration is not the only way to manage rivers:

- policy must be coordinated with the other river policies for efficiency and consistency.

Success in river restoration is still an on-going issue:

- it is important to receive feedback on measures, to benefit from varied opinions with comparisons between European countries, to adjust the work and to understand the driving forces.

Bertrand Morandi¹, Hervé Piégay¹, Anne Vivier²

Morandi B., Piégay H., 2017. River restoration in France. Changes in definitions and techniques over space and time. Outlook for the future. Knowledge for action series. 28 p.
http://www.onema.fr/sites/default/files/EN/EV/cat7a-thematic-issues.html#action_m

1. Université de Lyon, UMR 5600 EVS – CNRS, ENS de Lyon (bertrand.morandi@ens-lyon.fr)

2. Agence française pour la biodiversité (anne.vivier@afbiodiversite.fr)