

NBRACER – Nature Based Solutions for Atlantic Regional Climate Resilience

Nature-based Solutions to improve water management

Nouvelle-Aquitaine region, south-west France

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The NBRACER project is an European project launched in October 2023. It brings together eight European regions, including the Nouvelle-Aquitaine, in six different countries and aims to experiment with adaptation projects to climate change using nature-based solutions (NBS).

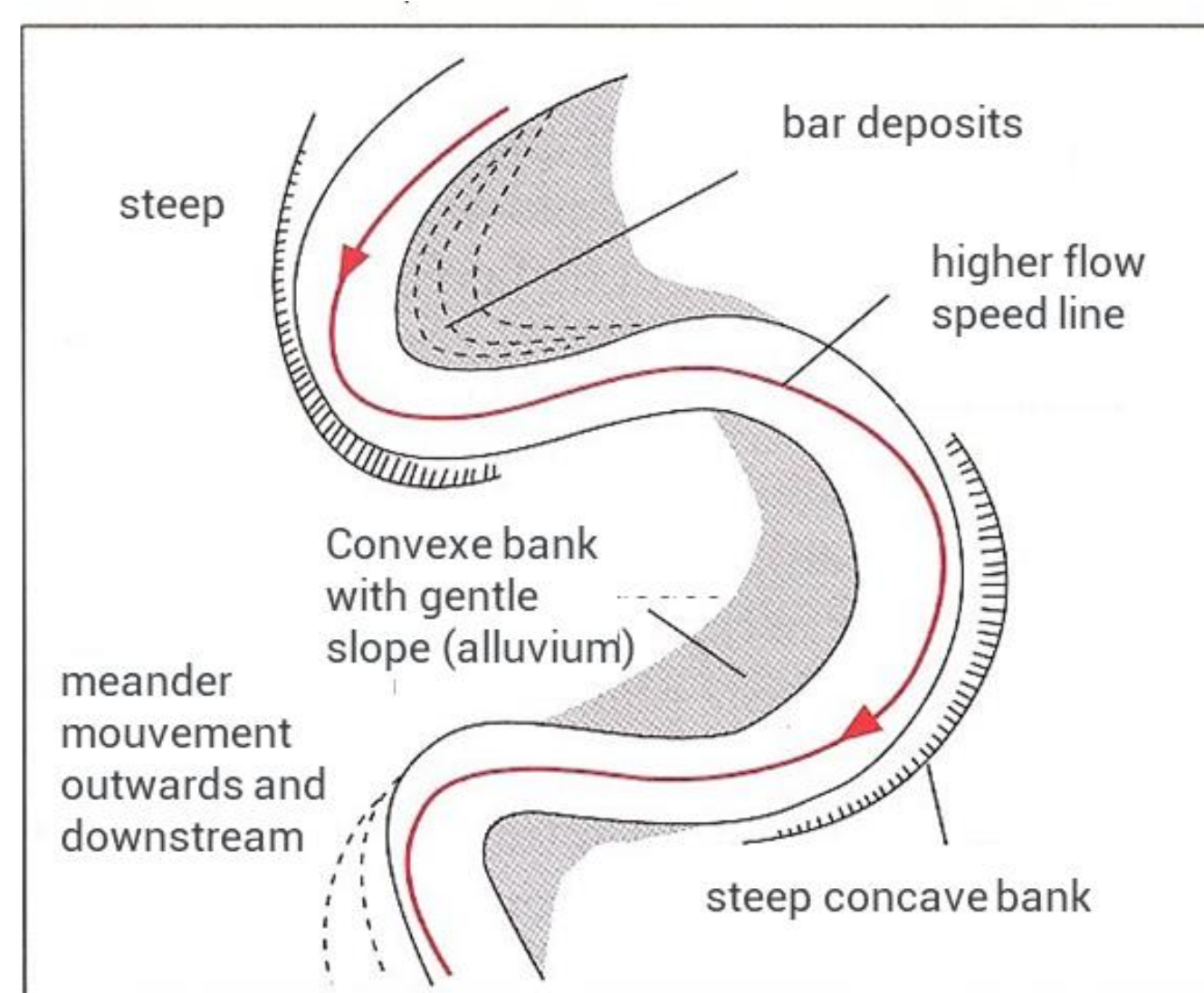
29 demonstrating and replicating projects will be developed under 3 landscapes: Marine and coastal, Urban and Rural during the 48 lasting months of the NBRACER project.

The Nouvelle-Aquitaine Region governmental entity is coordinating the project at a regional scale, in partnership with AcclimaTerra (Regional Scientific Committee on Climate Change), Bordeaux INP, the ME OSS company, the Marais-poitevin PNR, SMEAG and Sorbonne University.

In the Nouvelle-Aquitaine region, two projects are under way and will have consequences on water quantity and biodiversity:

- The first located in the north of the region, in the Marais poitevin Regional Natural Park (PNR), aims to measure the **impact of river morphology restoration** through sediment recharge on the groundwater table. The works are carried on by the Syndicat Mixte du Bassin Versant de la Sèvre Niortaise (SMBVSN).
- The second one, further south in the region, in the territory of the Syndicat Mixte d'Étude et d'Aménagement de la Garonne (SMEAG) is called RAMAGE standing for Annual Recharge and Alluvial Maintenance of the Garonne at Low Water Level and aims to **support low-water levels and provide fresh water through recharge**.

NbS in depth



In the PNR project several changes are being carried on:

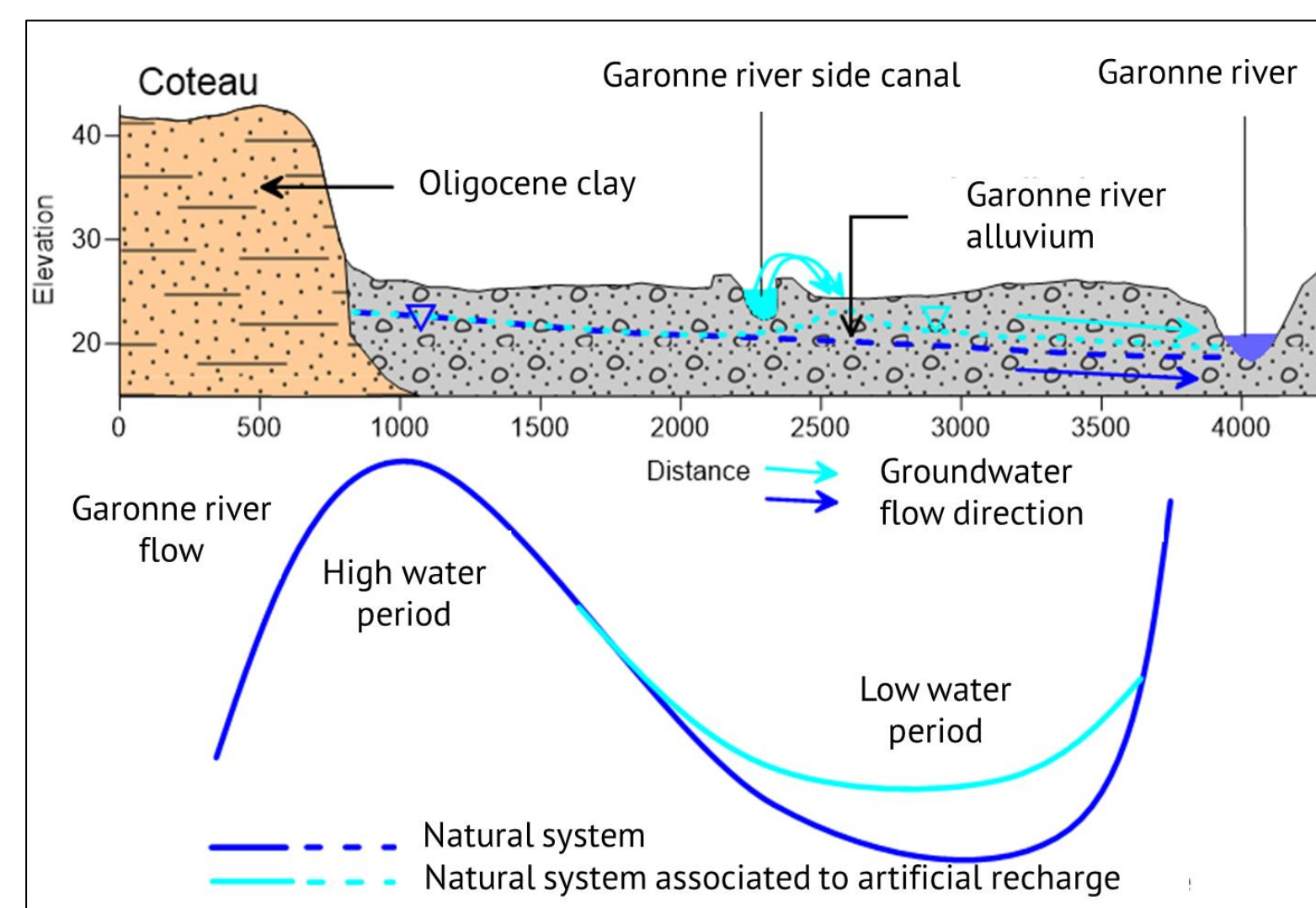
- Installation of mineral banks to restore the ecological functions of watercourses
- Restoring river dynamics, restoring all or part of the hydrosystem's functionality (ie.: fish habitats, oxygenation...)

Within the NBRACER project, equipment will be installed, and geophysical measurements will be performed in order to establish if there is an impact on the watertable following the surface water courses modifications.

The principle of the RAMAGE project is to store a fraction of the snowmelt flow (via the Garonne canal) in the water table to support low-water levels and provide fresh water during years of poor winter recharge.

This is an innovative project in Lot-et-Garonne, with an infiltration target of 1 m³/s from March to May (8 to 10 hm³).

Some infiltration sites have been identified and modelling tests were performed since 2019. With the NBRACER project the objective is to find new infiltration points and start *in situ* infiltration tests.



© Vivre Bordeaux – The city of Bordeaux and the Garonne river view

Climate change impacts are widely visible, and this part of the south-west of France is particularly affected. It is expected to a 2030 horizon:

- A drop in "natural" flows in the Garonne river of the order of 13 to 32 % (higher at the foot of the Pyrenees mountain range, in the south of the region)
- A lower recharge of the water tables

Both demonstrators are not focused on urban landscapes but in water management. Nevertheless, social benefits will be a consequence of the projects' implementations.

For example, in the RAMAGE project, water inputs *via* the water table with a temperature around 14-15° C will limit the warming of the Garonne river. This could have a positive influence on the city cooling, although not fully noticeable by the inhabitants because the lack of knowledge.

Social aspects will be considered mainly by AcclimaTerra and the PNR, both partners in the NBRACER project, in order to better communicate to citizens, the interest and benefits of NBS.

Environmental benefits



© PNR Marais poitevin / A. Texier / D. Decoene - Yannick Gouguenheim - Didier Cantin - Pierre Viola

The Nouvelle-Aquitaine is France largest region (it is the same size as Portugal) and therefore there is a large variety of environments and landscapes that interact and give this territory a vast and extremely rich biodiversity.

The Marais poitevin is an important wetland on the French Atlantic coast, listed as a Ramsar site and has 150 km of coastline.

It is also a remarkable natural heritage with:

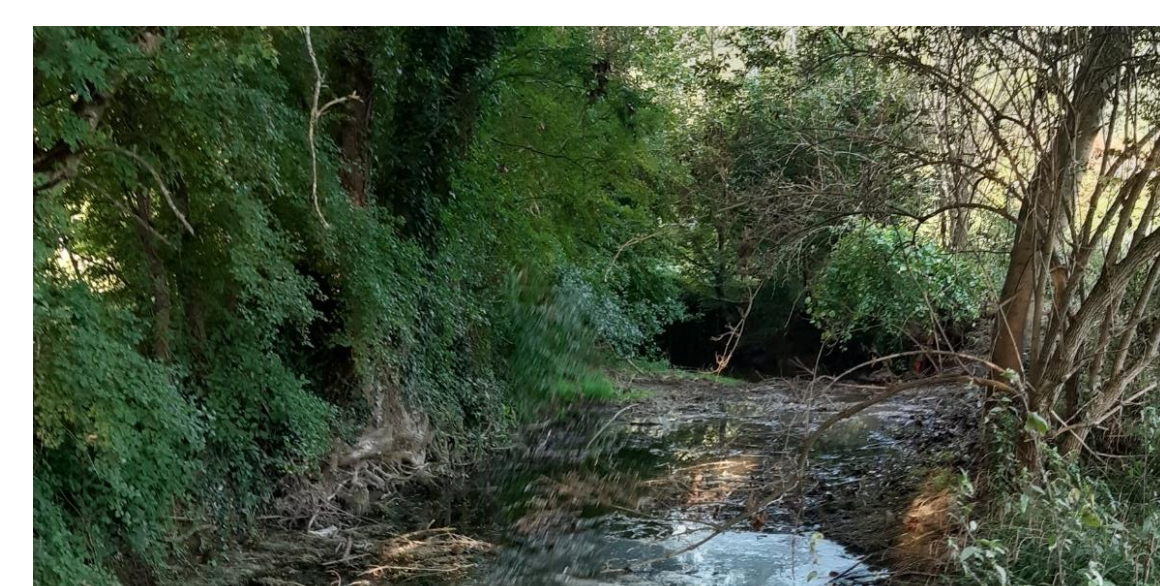
- 337 bird species
- 54 mammal species
- 54 species of dragonfly
- 63 butterfly species
- 34 fish species
- 17 amphibians
- 1,000 plant species

The river course restoration that started in September 2023, introducing among others nesting zones, has allowed fish population to recolonize the area.

This shows that simple changes can easily bring biodiversity back.

During the NBRACER project several aquatic species are going to be followed.

Concerning the RAMAGE project, sampling is being carried out to determine and follow the **stygo fauna** that could be present in the aquifers.



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Before ▲ / After ▲ Restoration



Funded by the European Union



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RÉGION Nouvelle-Aquitaine

