RIVER RESTORATION

The General Directorate of Hydraulic Works of the Provincial Council of Gipuzkoa, in collaboration with other Public Bodies, has been making a significant investment effort in sanitation works over the last 30 years, the main consequence of which has been that the quality of the rivers has experienced a great improvement from a chemical point of view. However, and in order to achieve a full ecological recovery of the rivers of Gipuzkoa, from the beginning there was a need to address other aspects of river restoration complementary to sanitation, and aimed especially at the recovery of their morphology.

WHERE WE ARE

Gipuzkoa, is a province, in the autonomous Basque Country, northern Spain. With a total area of 1,980 square kilometres, it is situated on the Bay of Biscay between Bizkaia (Biscay) province and the French frontier. With Álava and Bizkaia, it became one of the three component provinces of the autonomous region of the Basque Country

WHO WE ARE

The Provincial Council of Gipuzkoa is the governing body of the historical territory of Gipuzkoa, Basque Country, Spain located in the Provincial Palace of Gipuzkoa, in San Sebastián.

The Provincial Council has recognised competences as a provincial institution, especially in the areas of finance, economic development, roads and social policies.

WHAT WE DO:

The Department of Environment and Hydraulic Works of the Provincial Council of Gipuzkoa has made a significant effort in recent decades with the aim of improving the status of the water bodies of the Historical Territory of Gipuzkoa, thus complying with the requirements of the Water Framework Directive (60/2000/EEC), which establishes that the ecological status of water bodies transcends the mere physicochemical quality of the water. Physicochemical, biological and hydromorphological indicators also intervene. Thus, the concept of water body quality is extended to include aspects related to the status of biological communities (aquatic vegetation, invertebrates, fish), the continuity of the channels and their morphological conditions.

The objective of recovering or improving the ecological state of rivers is negatively conditioned by the lack of continuity of these as a consequence of the proliferation of obstacles, mainly dams and weirs, both in use and abandoned. These obstacles alter or even stop the transport of sediments and nutrients, reduce flows due to diversions and increased evaporation from their basins, and modify the downstream hydrological regime, regularizing it. Likewise, these elements create barriers to the upstream and downstream migrations of organisms living in the river, especially affecting migratory fish fauna (shad, salmon, lamprey, eel or trout), which require obstacle-free or permeable rivers to successfully complete their life cycle.

In addition to the above, it would be necessary to take into consideration the possible effects derived from climate change, which would increase or intensify the effects caused by the transversal obstacles. In the case of the Autonomous Community of the Basque Country, a decrease in precipitation of around 15% is estimated for the end of the century. The increase in temperatures would oscillate between 1.5°C and 5°C, which would cause, among others, the following alterations in the quality of water bodies, reinforcing the causes of water stress in river habitats:

- Quality problems when water resources decrease, if pollutant loads are maintained or increased.
- Reduction of flows to limits below the ecological flow.
- Decrease in oxygen content, mainly during the summer period of low flow.
- Alteration of the habitat and distribution of aquatic organisms.
- Change in bacteriological conditions and the incidence of some pathogens.
- Alteration of the nutrient cycle in aquatic systems and proliferation of algae.

In order to know the extent of this problem in the rivers of Gipuzkoa, the Provincial Council of Gipuzkoa has carried out in recent years several inventory works of obstacles and uses, essential to design subsequent actions to achieve an ecological recovery of the rivers. Among these works, it is worth mentioning, on the one hand, the "Update *of the inventory of obstacles, uses and actions of the river network of Gipuzkoa"*

The work carried out allowed an inventory of 784 obstacles, although it is possible that this figure is somewhat higher due to the presence of non-inventoried obstacles in small watercourses. Of the total number inventoried, 157 obstacles are considered to have a minimum impact, either because of the characteristics of the obstacle or because of the permeabilization actions carried out in 114 of them during the last 25 years, of which 102 have had the participation of the Provincial Council of Gipuzkoa.

In 2017, "*Proposal for the Master Plan for the Permeabilization of Obstacles*" was drafted, in which the situation of the basins of Gipuzkoa was analysed. Based on the updated inventory of dams, it included the proposal for action on 84 dams. Subsequently, heritage, environmental and geological-geotechnical assessment reports were made for all these dams. However, this proposal did not include relevant obstacles in relation to the significant impact they

have on the fluvial connectivity of the rivers of Gipuzkoa, mainly due to their peculiar administrative situation: with current concession and without permeabilization works, with current concession and with obsolete or ineffective permeabilization works, or in rehabilitation or dismantling phase. Therefore, it is necessary to include these obstacles, regardless of their administrative situation, in a Master Plan to plan actions to improve river connectivity.

Consequently, in 2019 an Advance of the Master Plan was drafted, culminating in this final document, called "*Master Plan for the Permeabilization of Obstacles in Gipuzkoa 2020"*, with proposals for action on 228 obstacles. This document aims to address this problem from a management point of view and its objective is not only to prioritize and organize the actions in the future , but also to give visibility and dissemination to them, promote public-private collaboration in the actions of permeabilization of facilities in use and establish a program for the improvement of knowledge.

The actions contemplated not only contribute to the restoration, naturalization and improvement of river ecosystems in Gipuzkoa, but are also measures that allow the adaptation of these ecosystems to climate change, reduce the risk of overflowing rivers in flood situations and contribute to the integration of the Sustainable Development Goals promulgated by the UNESCO Agenda, with special emphasis on: Climate Action, Underwater Life and Life of Terrestrial Ecosystems.

CATCHMENT	
BIDASOA	700 km² (Gipuzkoa 62 km²)
OIARTZUN	85 km²
URUMEA	279 km²
ORIA	882 km²
UROLA	337 km²
DEBA	533 km²

PURPOSE OF OUR WORK

The objective of the work is to develop a master plan of actions to improve the longitudinal connectivity of rivers, eliminating and/or permeabilizing obstacles, over a 16-year period. The master plan establishes a prioritization of the actions in 3 phases between the years 2020 and 2035, taking into consideration, among other aspects, the timeliness of execution, the ecological benefit and the economic cost of the actions.
The master plan includes, in addition to the economic assessment of the actions, a monitoring proposal to assess the effectiveness, mechanisms for monitoring and reviewing the master plan and a proposal with measures for the dissemination of the work carried out and the generated knowledge.

For more information:

Complete Master Plan document (ES)

Visit our webside

Work executed in Gipuzkoa