| ACTION NAME: D10 Assessment of the operation of fish way devices |
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| **D10 Fish way follow up** |
| **Special Conservation Zone (SCZ) being acted upon:** |
| **River Leitzaran and River Bidasoa** |
| **LINK WITH NATURA 2000** |
| The action is encompassed within the following SCZ Management Plan Operational Objectives:<br>5.1.2 Improve the habitat conditions of the Atlantic salmon, shad, sea lamprey and European bullhead |
| **Key Elements of the promoted SCZ -REASONS** |
| This follow up action is necessary to:<br>- Ensure the continuity of the river and the free circulation of aquatic species, in particular fish, along the river channels.<br>- Enable fish, in particular salmonids and distance migratory fish, to access the best breeding grounds, generally located at the highest part of the river and in the main tributaries.<br>- Detect faults in the operation of available fish ways, analysing the causes behind these faults and proposing the most suitable corrective measures in each case. |
| **PLACE OF ACTION AND MUNICIPALS:** |
| |
| **Date** |
| **2016-2020** |
| **Budget** |
| **€131,136** |
| **Related project actions** |
| The related preservation actions are those that imply the removal of impassable dams in the project. |
| **Description of the action - OBJECTIVES** |
| The aim of this follow-up is to assess the functioning of the passing devices with which the 15 dams on the Bidasoa and Leitzaran rivers are equipped, which would remain available for other fish ways upon eliminating the impassible obstacles in other project actions.<br>Likewise necessary maintenance measures will be proposed, along with maintenance advice for concessionaires of hydroelectric plants that are still operating today and therefore cannot be demolished, and where poor operation is detected.<br>The target species upon which follow-up actions will be performed is the common trout. As well as the results obtained with this species in terms of whether or not the fish ways assessed are passable by the other species of interest: Atlantic salmon, sea trout or brown trout, etc. |
| **Description of the action - BACKGROUND** |
| The demolition of dams proposed on the Bidasoa and Leitzaran rivers within the preservation actions seeks to recover the connectivity of the river, and |

facilitate the displacement of species in their migratory movements. These actions have been complemented over recent years with others that seek the same objective, on dams that are still operative today and therefore cannot be demolished. When the obstacle cannot be demolished, the common solution applied is to construct fish ways, allowing fish to climb upstream over the obstacle. Once the fish way device has been constructed, it must be checked to ensure it works correctly, allowing fish to overcome the obstacle with the minimum delay and with as little effort as possible.

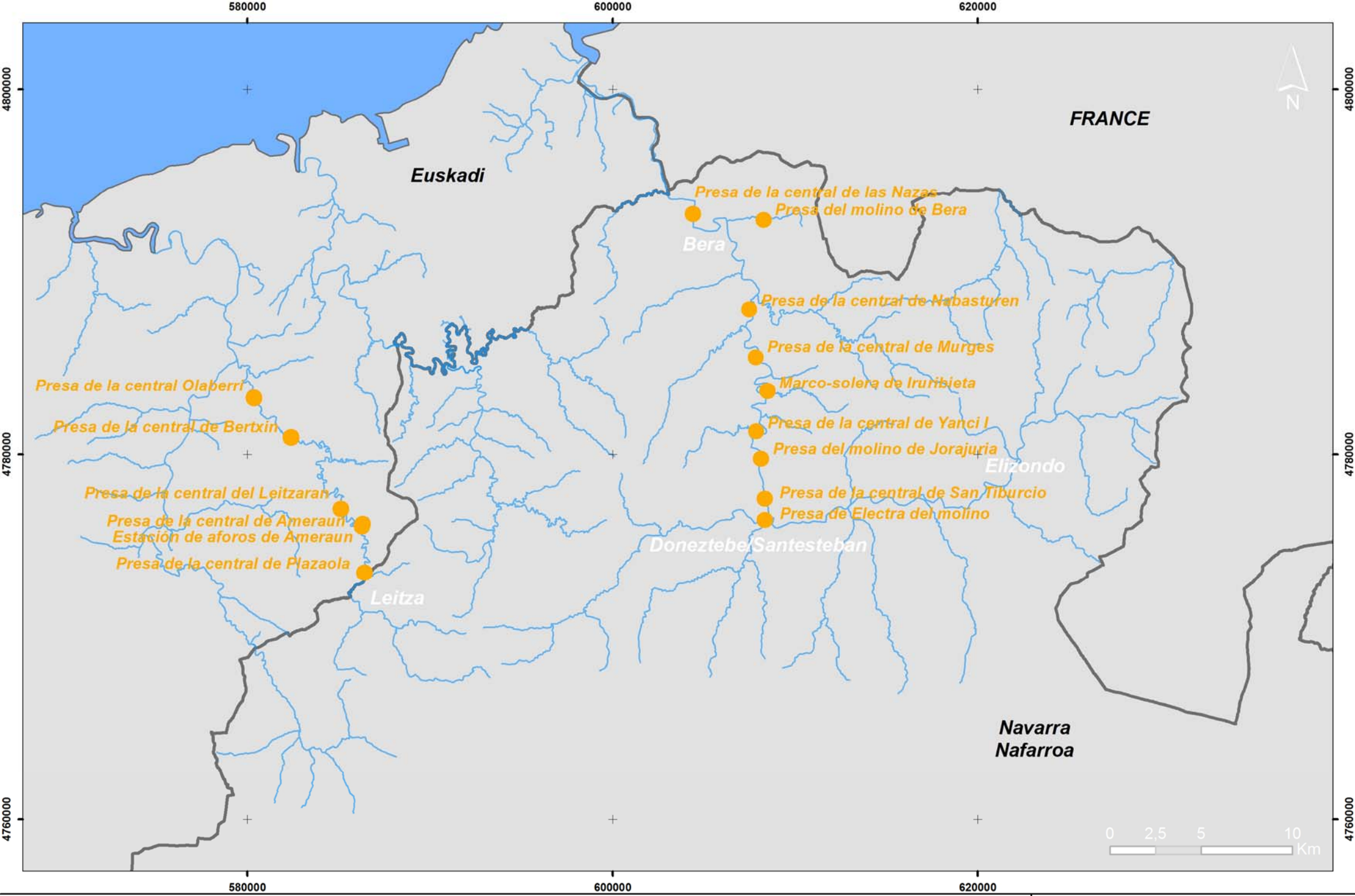
**Description of the action - DESCRIPTION OF FOLLOW UP**

The target species upon which follow-up actions will be performed is the common trout. This choice is down to both its large numbers in both rivers, as well as its easy capture and handling with electric fishing. Furthermore, the results obtained with this species regarding the successful or unsuccessful operation of the fish ways assessed can be completely transposed to the other species of interest: Atlantic salmon, sea trout or brown trout, etc. Follow-up will be performed over the salmonid reproduction period, as this is when the reproductive specimen start their longest migrations in search for spawning grounds. Fish marking will be carried out mid-September and follow-up will continue from this point up to mid-December.
Two follow-up techniques will be used: fish marking and monitoring using passive antenna positioned on the dams, and marking with radio-transmitters, and their monitoring using manual antenna along the rivers.

In Navarre, to monitor marked trout, at each dam 1 detection device will be installed with a double antenna, which reads and records the detected signals.
The indicators that will be used to assess the operational and efficiency results will be:
- Percentage of marked fish that manage to overcome the obstacle
- Number of tries to overcome the fish way made by each marked specimen
- The time spent by each successful specimen at each fish way

**JUSTIFICATION What are the desired results? - ENVISAGED RESULTS**

The expected results for this action are:
- Obtain an assessment of the passable nature of all 15 obstacles studied.
- Identify the devices that reveal deficiencies in the passable nature.
- Notify concessionaires of the deficiencies, along with maintenance advice (cleaning, channel regulation, etc.).
- Obtain annual campaign reports.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Elizondo
Presa de la central de San Tiburcio
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Donezteben Santesteban
Presa de la central Olaberri
Presa de la central de Bertxin
Presa de la central del Leitzaran
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