

ACTION NAME	D2 Follow-up of the movement and characteristics of sediment along the restored stretches
SCZ in which the action is undertaken	SCZ Leitzaran river
LINK WITH NATURA 2000	This follow up action is necessary to: <ul style="list-style-type: none"> - Establish the effect of the elimination measures for large obstacles (Erreka Trout Farm, Inturia and Oioki) on the natural sediment transportation processes in the SCZ Leitzaran river. - Assess the need to modify the execution of pending actions or to adopt corrective measures for their possible negative effect on habitats and species, as well as on the goods or interests of third parties. - Establish the spatial (stretch affected) and temporal scope (point of balance or slowing of changes) of the mentioned actions, as well as their repercussion on the availability of suitable conditions for habitats and species in the SCZ, in coordination with the specific follow-up of habitats.
Key Elements of the promoted SCZ	These effects and processes relate: <ul style="list-style-type: none"> - Direct benefit to the key elements “Alder and poplar trees COD EU 91E0*”, Ecological River Corridor "<i>Parachondrostoma miegii</i> and the Fish Community in general” of the SCZ Management Plan. - Potential benefit to the species of community interest Atlantic salmon (<i>Salmo salar</i>), whose movements from the Cantabrian sea up to the convergence of the Leitzaran with the Oria have been documented (radio-monitoring in 2008), with an already implemented reintroduction plan.
PLACE OF ACTION AND MUNICIPALS:	All the SCZ Leitzaran river
Date	2016-2020
Budget	€50,000
Related project actions (follow-up)	The related preservation actions are those that imply the removal of dams or irrigation dams of a certain size in the Leitzaran river. Specifically (in ascending order from convergence to the Oria river): “C2 Truchas Erreka”, “C3 Inturia” and “C4 Oioki”.
Description of the action - OBJECTIVES	The aim of this follow-up action is to assess the evolution of the exportation of sediments and their characteristics, along the stretches foreseen to be affected by the project actions.
Description of the action - BACKGROUND	In the lower part of the Leitzaran river, there is a gauging and water quality station. As well as measuring the flow and level of the river, the station has sensors that measure the turbidity and suspended solids transported by the water. It also has an automatic river-water sampler designed to take pumped samples from a specific turbidity value; as well as a device for the integrated timed sample of sediments in suspension that are currently submerged in the channel.

Some of the actions will result in the movement of sediments accumulated in dammed areas.

The thickest part of these sediments (for which there is not a huge amount of data available) will be moved using a bottom trawling dynamic, but the finest part will be transported in suspension by the water, mainly during overflow periods. Mobilisation of the most significant pollutants present in the channel, which are associated with the sedimentary fraction, also occurs during these overflow periods.

Partners have recent experience in the Leizaran and in other fields, both in carrying out actions that lead to these changes (partial demolition of the Inturia dam and other smaller obstacles), as well as in the follow-up of these changes.

In previous experiences the evolution of the sedimentation dynamic has been documented. Furthermore conclusions have been drawn regarding the scope and speed of change, which have been extremely useful when designing other restoration interventions such as the foreseen actions. The results of these follow-up actions are particularly useful in determining:

- The correlation between the value of the turbidity and of the solids in suspension measured by the sensors with the real value collected in each sample to continuously obtain the curve of the amount of sediment exported by the basin. This way the influence of the dam demolition on the transportation of sediments can be identified.
- The possible presence of some pollutants related to the solid particles.

Both lines of information link to the foresight of impacts on habitats and river species, and consequentially, with decisions related to the fractioning of the actions into phases, as well as with the entity.

Description of the action - ENVISAGED ACTIONS/DESCRIPTION OF FOLLOW UP

Follow-up will be carried out using the data obtained by the devices mentioned in the background section (gauging and quality station, sampler, integrated sampling device), complemented with regular bottom trawling samples along 4 representative stretches of the river, positioned in relation to the main envisaged actions.

With this data, as well as its respective historical records, the aim is to achieve the following results:

- Export sediments in suspension from the Leizaran basin.
 - Sediment dynamic and characterisation during overflow periods. With particular attention paid to the possible presence of some pollutants related to the solid particles.
- With regards to the **seasonal distribution** of the follow-up, the plan is based on a comparative scheme between the initial state, or that prior to interventions, and the final state, or after each one of them or after their phases.

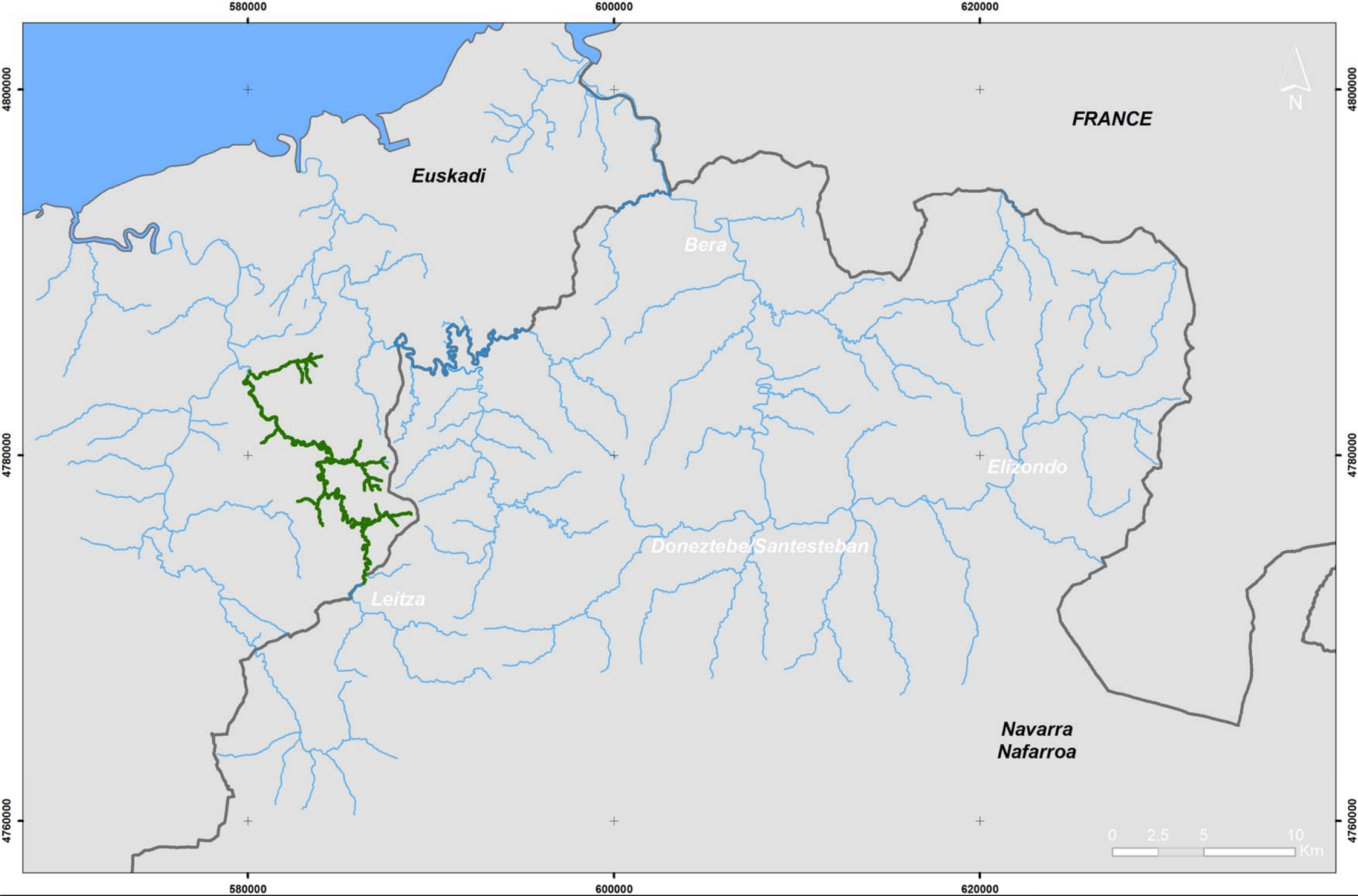
As with other envisaged follow-up actions, data will be used that was generated during the determination of the initial status and after the first two Inturia dam demolition phases (outside the project proposed in this candidacy). Due to the watershed approach inherent to this type of follow-up, there is therefore **abundant information available prior** to the envisaged actions, which will be complemented with timely analyses from the Oioki setting (the only one without private samples).

Later, **annual follow-up** will be performed, which will be coordinated with the different actions and their envisaged phases, to undertake more significant efforts immediately after the actions, when the changes are more dynamic.

Finally, the **final condition** will be established once all the actions are completed, and after one hydrological year, in 2020.

JUSTIFICATION What are the desired results? - ENVISAGED RESULTS

- Establish the effect of the elimination measures for large obstacles (C2, C3 and C4) on the natural sediment transportation processes in the SCZ Leizaran river.
- Obtain reports about the initial and final condition (project deliverables).



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