

Ecohydrological integrative approach to restoration interventions on Pellice River (Piedmont Region, Italy)



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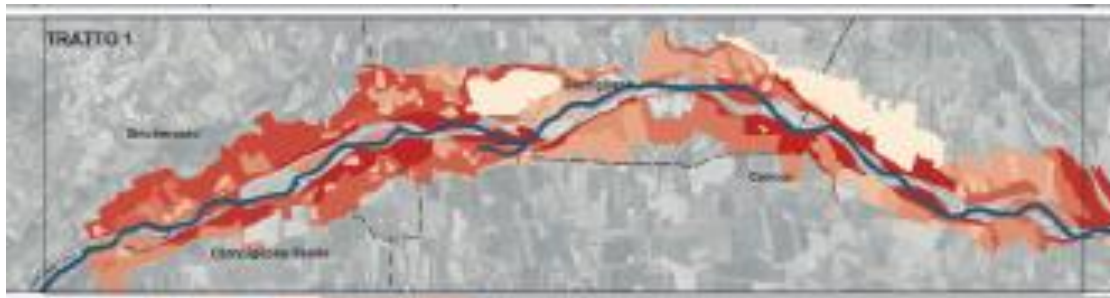
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Scope of the work

- To design interventions of river engineering with an integrative approach, in the framework of the European water quality Directive 2000/60/CE, under a contract with the Italian Agency for the Po River – AIPO.

Methods

1. Definition of the environmental context, by means of site investigations and analysis of:
 - Geological framework and aquifers
 - Topography and cadastral information
 - Geomorphology (from year 1852 to 2018)
 - Vegetation status
 - Hydrology and temporal discharge variations
 - Habitat (fauna, connectivity and size)
2. Identification of the critical areas in terms of erosion, sedimentation, habitat, etc.
3. Proposal of interventions and 2D hydraulic modelling for 1-, 20-, 200-year return time
4. Definition of priorities between the analysis of a «multi disciplinary evaluation matrix»



Main results

- Not all the proposed interventions have a contemporary hydraulic and environmental significance. However, a **global evaluation at a basin scale** can show the integrative approach of the interventions along a river reach
- In the Italian context several **private fields are present** in the river corridor and this can be a difficult issue to solve in order to effectively realize the needed interventions
- The proposed « **multi disciplinary evaluation matrix** » allows to determine a ranking between the interventions and can also be used in order to evaluate the effectiveness of the works during their lifetime
- The multi disciplinary interventions are strongly affected by the **maintenance actions** and **monitoring campaigns** that are going to be carried out.

