



## **Budget and sources of suspended sediment transported in the Bilancino Reservoir, Northern Apennine, Italy**

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The objectives of this research is to determine the levels of sediment input into three streams that are tributaries of the Bilancino reservoirs catchments, and the movements of such sediments within the streams. Two hypotheses were developed to investigate these objectives: (i) that increased inputs of sediment to Bilancino reservoirs have resulted from highway line construction and/or from present land use; (ii) that downstream sedimentation associated with accelerated erosion in the catchments is mitigated by sediment storage in the catchment slopes and tributary valleys. The approach consists of analysing the amount of sediment contributed by the different tributaries on Bilancino reservoir using a time-integrated fluvial suspended sediment samples. Also turbidity is monitored and recorded continuously. From preliminary results, it appears that turbidity (NTU) variability is highly complex and does not appear to be directly correlated to suspended solid concentration. The quantity of sediment entering a stream is not necessarily related to runoff but may be related to earthmoving near the stream; so no seasonal effects are apparent for these streams. A statistical analyses on the turbidity data was used to determine its variability in space and time. Preliminary analyses of three time series involving a probability density function (PDF) analysis, show that the pdf is skewed to the right. In addition, the measured suspended sediment show that the impact of highway construction is three times higher than the non-impacted watersheds. In both situations the sediments transport to the reservoir is affected by the presence of man constructed barriers that retain the sediments.