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Emerging priorities of sustainable uses of water resources and challenges of climate change require an advanced understanding of the ecological issues and a practical implementation of new environmental strategies. To protect natural aquatic environments, a series of national and international statutory policies were developed during the past decades. The EU Water Framework Directive 2000/60/EC (WFD) represents one of the most important legislative instrument introduced in the field of water policy. Its main objective is the achievement of a good ecological status for all water bodies by 2027, on the basis of a basin management approach. Despite of its advanced theoretical background, the WFD presents some weakness, such as the negligence of the hydromorphological elements in the classification system. Potentially, this lack could permit further alterations of water bodies, failing the Directive requirements.

In contrast with their role for ecosystems, the WFD explicitly considers the hydromorphological quality elements as important only in the case of water bodies classified as “high” ecological status. Indeed, the assignment of water bodies to the “good” class is made only on the basis of biological and physico-chemical elements, while the other three classes (“moderate”, “poor” and “very poor”) rely only on biological elements. Following these considerations, the revision process of the WFD plans, forecasted in 2016, requires a more widespread involvement of the hydromorphological elements.

To give an example of the relationship between sediment transport and ecological status of rivers, a reach of the Spree River near Cottbus, Germany, is studied. A restoration project, beginning in 2006 and completed in 2014, is here presented. During the recent flooding events of the summer 2013, a lot of fine sand was moved and deposited along the floodplains, causing the closure of secondary channels and threatening the habitat of the aquatic flora and fauna. Various data are available for the period pre and post project, such as aerial images, bathymetries, hydraulic measures and sedimentological samples. Using these data, a sediment balance is under development, with the aim to give advices for the future WFD implementation cycles.

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