



## **The Shorezone Functionality Index applied to Central Europe lakes.**

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While most of earlier indices were characterized by a particular analysis, for example to the water itself (chemical analyses) or the biotic environment (biotic extended index), the Lake Shorezone Functionality Index (SFI) looks at the overall status of the lacustrine environment, extending out from the lake itself to also include the surrounding territory and watershed topography.

Biotic and abiotic parameters are collected in the field with an ecological point of view to evaluate the buffering capacity of riparian vegetation, the complexity and artificiality of the shoreline, the anthropogenic use of the surrounding territory, and the way the inputs from the watershed enter the lake.

Each shore stretch with similar parameters is evaluated in the field with a different form. The parameters collected are then run into a dedicated software (SFIX02) that will assign a functionality level ranging from excellent to bad (divided into 5 categories as suggested from the WFD 2000/60/CE). The same software can also be used to model different scenarios, offering therefore a tool to foresee the impacts that public or private work may have on the lake, or to plan tailored restoration actions.

The data transferred into a GIS environment is used to carry out further spatial analysis and to easily display the results in maps.

The SFI reports, thematic maps and brochures give specific indications on what actions are needed to improve the functionality of the lake and to avoid stress to the lake. Therefore this index can be used to plan, monitor and evaluate restoration efforts.

The SFI index is easily surveyed, speedily and economically, and it evaluates the state of the environment, assists in the identification of the causes of deterioration and represents a powerful tool that can be used for sustainable planning and management.

To date, the Shorezone Functionality Index (created in 2009) has been used within the Eulakes and Silmas European projects in Italy (Lake Garda, Idro, Levico, Caldonazzo), Austria (Lake Neusiedl, Wottersee and MillstatterSee), Slovenia (Lake Bohinj), Poland (Lake Charzykowskie) and Hungary (Lake Balaton), and in Chile on lakes of the Araucania region (Lake Villarica, Boho).