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Use of Aquatic Biota to Detect Ecological Changes in Freshwater: Current Status and Future Directions

Guest Editors:

Dr. José Maria Santos

Forest Research Centre,
Associate Laboratory TERRA,
School of Agriculture, University
of Lisbon, 1349-017 Lisbon,
Portugal

Prof. Dr. Maria Teresa Ferreira

Department of Natural
Resources, Environment and
Landscape, School of Agriculture,
University of Lisbon, Tapada da
Ajuda, 1349-017 Lisbon, Portugal

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Message from the Guest Editors

Debuting one century ago, aquatic biota has been increasingly used worldwide to monitor and assess ecological changes as a result of environmental stressors. A large number of types of biological indicators have arisen to express changes in the structure (patterns) and function (processes) of freshwater ecosystems, such as benthic invertebrates, macroscopic plants, fish, phytoplankton and phytobenthos. Recent advances in molecular techniques, such as environmental DNA, remain however a promising tool to complement and replace traditional morphological identifications. Following the experience gathered in the last quarter of a century, new issues have come to the surface, including the level of determinism of cause–effect links, the capacity of bioindicators to integrate multiscaled complex pressures, and the variability of responses of biota under different restoration scenarios and land use changes. This Special Issue invites fundamental and applied research which follows on from recent developments in the biomonitoring of freshwater ecosystems to detect environmental stressors and point out future directions.



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Special Issue



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Dr. Jean-Luc PROBST

Centre de Recherche sur la Biodiversité l'Environnement (CRBE) UMR CNRS/UPS/INPT/IRD, Centre National de la Recherche Scientifique (CNRS), University of Toulouse, Campus ENSAT, Auzeville Tolosane, Toulouse, France

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Contact Us

Water Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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