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

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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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