Abstract

The Fish Quality Index (FQI) Application in Extremadura (Spain) †

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Abstract: Both Royal Decree 817/2015 which establishes in Spain the criteria for monitoring and evaluating the surface water status and environmental quality standards, and the Order ARM/2656/2008, by which the hydrological planning instruction is approved, contemplate among their indicators of the biological quality elements in rivers and lakes, the proportion of individuals of native species (ichthyological fauna) in the different water bodies. In Extremadura region, seven fish species have been declared invasive in all cases and another six species according to their habitat. As for the native fish species, there are ten threatened and two officially extinct. Different degrees of conservation are assigned to the rest of the continental native fish species, generally in regression. To evaluate these changes in fish communities, the Extremadura Fisheries Council approved a Fish Quality Index (FQI) in 2019, based on the presence/absence of exotics, without forgetting the importance that marine species contributed to the river environment before the implantation of the large dams and consequent loss of their migrations. This index completes the evaluation of the river environment in combination with the Biological Quality of waters (macroinvertebrates and diatoms) and its Geomorphological Quality (banks, fluvial continuity, minimum flows and generators, among others). Following the guidelines of the European and Spanish regulations applicable to hydrological planning, the FQI establishes five categories: (1) High quality for those water bodies with marine species; (2) Good, when there are native continental fishes and no exotic fish; (3) Moderate, when the river, reservoir, lagoon or pond can still lean towards one extreme or the other of the index due to the scarce or null presence of local or non-native fish; and (4) Poor and (5) Bad, for bodies of water with exotic species, according to their severity and abundance. The classification of water bodies within these categories of the FQI is based on the results obtained in more than 500 sampling stations over a period of more than 20 years. Then, it shows with high reliability the recent changes suffered in the environment and responds in an agile way before the decision-making needs in the management and investment of funds for the conservation of the river environment and for those who inhabit it.

Keywords: fish quality index; native fish species; presence or absence of alien species; management; conservation

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