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Special Issue Reprint

Integrating Science into Aquatic Conservation

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As a key support for human survival and development, how to protect aquatic ecosystems is a hotspot of global concern. This Special Issue was built with the hope of providing scientific references for the conservation of aquatic organisms and ecosystems. Papers cover both freshwater and marine ecosystems, focusing on a single species and multiple species or specific ecosystems. For single-species studies mainly used molecular tools and statistic models to focus on the evolutionary relationships among species, the differentiations among populations within species, and the responses of species to the environment changes. The results of these studies shed light on the evolution, spatial dispersal, and future changes of these species and provided recommendations for the management of population dynamics in these study populations. In multi-species research, biophysical modeling, acoustic technology, and ground surveys were mainly used to predict biodiversity in ecosystems, spatial distribution of different species, and population connectivity among communities. The results of these multi-species studies revealed the spatial patterns of biodiversity, community composition, and ecological corridors from different perspectives, which offer a direct reference for the selection and delineation of marine protected areas. In summary, these papers utilized different tools to reveal the changes or threads faced by important components of water ecosystems from the micro to macro level and provide scientific advice for the conservation and management of protected animals and ecosystems on different spatial scales from local to global.

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