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Assessing ecological integrity in marine waters, using multiple indices and ecosystem components: Challenges for the future

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ABSTRACT

During the last decade, there have been substantial scientific advances in the development of indices that measure the condition of biological ecosystem elements in coastal and estuarine waters. Though successful, these advances were only the initial steps and a special session on use of indices in ecological integrity assessments was held at the Coastal and Estuarine Research Federation meeting to focus the field on the most appropriate directions for the next decade. The session identified four primary scientific challenges: (i) reduce the array of indices by identifying the index approaches that are most widely successful; (ii) establish minimum criteria for index validation; (iii) intercalibrate methods to achieve uniform assessment scales across geographies and habitats; and (iv) integrate indices across ecosystem elements. Where an explosion of indices characterized the last decade, the next decade needs to be characterized by consolidation. With increased knowledge and understanding about the strengths and weaknesses of competing index approaches, the field needs to unify approaches that provide managers with the simple answers they need to use ecological condition information effectively and efficiently.

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