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TITLE: A Synthesis: What Is the Future for Coasts, Estuaries, Deltas and Other Transitional Habitats in 2050 and Beyond?

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ABSTRACT:

We synthesized the results of many case studies from experts worldwide on the state of the environment, sustainability, and the likely future of estuaries, lagoons, semienclosed seas, and coastal ecosystems. There is a high natural variability in these ecosystems and in their responses to historical human pressures within their catchments, the river, and the estuary, and the potential for sustainability depends on many variables including population growth, the culture, historical changes, and the involvement of the communities. The problems faced by half of the global population living near coasts are truly worldwide challenges and they give us the opportunity to study commonalities and differences and to provide solutions. Fundamental to addressing these challenges is an understanding of the biophysical constraints especially along the catchment-river-estuary ecosystem continuum. We emphasize that there is a need to better manage all these areas to ensure that we can maintain natural ecological structure and functioning while also allowing these systems to deliver services that produce societal goods and benefits, both now and in the future. By investigating the problems, we can offer solutions for specific issues graded within the framework of the socioeconomic and environmental mosaic. These challenges include fisheries, climate change, growing resource scarcity, coastal megacities, a growing population and an increaisng urbanisation and industrialisation of the coast, evolving human-nature interactions, remediation measures, and the willingness to adopt governance at the catchment scale. In these case studies, the DAPSI(W)R(M) problem-solving framework usefully allows us to assess risks and potentials for an effective response which have to be based on the use of good science. To be effective, this framework must be accompanied by the so-called 10-tenets of sustainable management, which include the ecological, economic, technological, societal, administrative, legislative, political, ethical/moral, cultural, and communication aspects. Stakeholder involvement therefore becomes central to successful management of the coasts and estuaries in accommodating changes over the coming century.

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