

Developing an adaptive monitoring network to support integrated management in a multiuser nature reserve

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We elaborate the necessary conceptual and strategic elements for developing an effective adaptive monitoring network to support Integrated Coastal Management (ICM) in a multiuser nature reserve in the Dutch Wadden Sea Region. We discuss quality criteria and enabling actions essential to accomplish and sustain monitoring excellence to support ICM. The Wadden Sea Long-Term Ecosystem Research project (WaLTER) was initiated to develop an adaptive monitoring network and online data portal to better understand and support ICM in the Dutch Wadden Sea Region. Our comprehensive approach integrates ecological and socioeconomic data and links research-driven and policy-driven monitoring for system analysis using indicators of pressures, state, benefits, and responses. The approach and concepts we elaborated are transferable to other coastal regions to accomplish ICM in complex social-ecological systems in which scientists, multisectoral stakeholders, resource managers, and governmental representatives seek to balance long-term ecological, economic, and social objectives within natural limits.