**An ecosystem-level redundancy analysis decision tool to inform the integrated ecosystem assessment indicator selection process**

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Integrated ecosystem assessment (IEA) provides a practical framework to implement EBFM and balance social economic and ecological management objectives. However, significant challenges remain including (1) identification of ecosystem-level indicators for monitoring and management, (2) quantitatively describing historical changes in a fishery ecosystem's state variables as they may relate to changes in both the environment and human use patterns, and (3) communicating results to stakeholders and managers. Using an opportunistic dataset from the Gulf of Mexico, we demonstrate the use of the ecosystem-level redundancy analysis decision tool (ELRADT) to address these challenges. This flexible tool can utilize a redundancy analysis (RDA) approach for describing any relationships between the indices of fishery ecosystem state and those of environmental and socio-economic drivers. The most influential indicators identified can then be targeted for inclusion in further mechanistic studies, management, and monitoring. ELRADT includes a web based interactive decision tool used to distill complex relationships between important ecosystem drivers and responses over time in a non-expert format. By examining relationships between indices of fishery ecosystem status, historical ecosystem stable states, and dynamic environmental and human usage patterns, we can develop suites of indices for monitoring the success or failure of management strategies, based on the goals set forth in the IEA scoping process. ELRADT can also help inform managers of any potential shifts in regime state so that appropriate management adjustments can be considered.

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