

Models for adaptive management in the face of climate change

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Abstract

Changing ocean ecosystems are altering the distribution and abundance of fish populations and impacting the people whose health, well-being and livelihoods depend on them. While general trends are clear, the exact spatial and temporal scales of impacts are unknown and difficult to predict. An adaptive management framework based on a long-term climate strategy, effective monitoring, accountability on the water, predefined flexible regulations, and real-time infrastructure could mitigate many of the impacts of climate change. Scenario planning, management strategy evaluation and risk assessments are promising approaches for developing long-term climate adaptation strategies in the face of uncertainty. Recent and ongoing technological progress brings the potential to turn fishing fleets into data collection platforms providing real-time information to feed a range of indicator-based frameworks that reduce lags between signal detection and response. Dynamic permitting and relaxing specific rules while adding full accountability (electronic monitoring) in turn, increases fishers ability to respond to the current conditions while ensuring they stay within the overarching regulations. Fishery managers can increase adaptive capacity by developing predefined responses to a wide array of potential future conditions through long-term planning that links management actions to indicator values provided via effective real-time monitoring systems. These are not new concepts and based on a literature review, all these components are currently in practice. The current frontier is designing and implementing integrated management systems that combine all these elements to sustain productive and economically viable fisheries in the face of climate change.

Keywords:

climate change, adaptive management, real-time monitoring

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