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**OysterFutures: applying a spatially-explicit model and testing a collaborative process for developing oyster fishing regulations in Chesapeake Bay**

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**Abstract**

From forestry on mountains to fisheries in the ocean, people differ in opinion about how to use a natural resource. The processes used for developing regulations may lack science-based decision making and can result in clashes among stakeholders. For some fisheries, like that of the eastern oyster *Crasosstrea virginica* in Chesapeake Bay, the conflicts among stakeholder groups have existed for decades and the century-long decline in oyster populations has not been substantially reversed. The objective of the OysterFutures research program is to test a consensus-based process for developing fishing regulations and restoration policies that meets the needs of major stakeholders and integrates the latest scientific understanding of oysters, the fishing industry, and oyster ecosystem services in the Choptank and Little Choptank Rivers, tributaries of Chesapeake Bay. Through a series of facilitated meetings, stakeholders are participating in a science-based collaborative modeling process which allows them to participate in building the OysterFutures model which projects how well policies are expected to meet their objectives. This approach integrates spatially-explicit models on oyster demographics, fishery economics, larval transport, 3D water quality and oyster filtration. The iterative process of multiple meetings with stakeholders and scientists ensures that the model includes and focuses on the outcomes most important to the stakeholders and that it can forecast outcomes of alternative management strategies that the stakeholders propose. Stakeholders are scheduled to make their recommendations to Maryland Department of Natural Resources in July 2017. This presentation will provide an overview of the OysterFutures process and model, a description of model results, an assessment of the new fishing regulations recommended by stakeholders compared to current regulations, and discussion of the potential for this process to improve natural resource sustainability and management.

**Keywords:** spatially-explicit models, stakeholders, collaborative modelling, sustainable fisheries

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