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**A multi-model approach to incorporating traditional ecological knowledge and human dimensions into Pacific herring management: an Ocean Modeling Forum case study**

Tessa B Francis, Phillip S. Levin

Pacific herring range in the North Pacific Ocean from Alaska to California and play important roles as a fisheries target and prey for birds, mammals, and other fishes. They are also cultural keystone species for a number of indigenous communities. Herring populations are naturally highly variable and have also been greatly affected by human stressors including fishing, contaminants, and oil spills. Many herring fisheries have been closed or severely limited through much of their range for more than a decade. Evaluating management strategies for herring fisheries is hampered by a poor understanding of the factors affecting herring productivity, poor forecasting by stock assessment models, and the lack of a social-ecological framework that would facilitate the integration of traditional knowledge and cultural ecosystem services into fisheries management decision-making. Here we present preliminary results from a working group convened by the Ocean Modeling Forum, including modelers, empiricists, managers and key stakeholders, to evaluate the social, cultural and ecological consequences of herring fisheries by using multiple models and diverse knowledge streams, including traditional ecological knowledge. In a comparative framework we also assess the important role of spatial scale in evaluating tradeoffs between social, cultural and economic services provided by herring in Haida Gwaii, British Columbia (Canada) and Sitka, Alaska (USA). We will discuss how the Ocean Modeling Forum framework can be applied across ecosystems and management issues.

**Key words:** forage fish, herring, ecosystem-based management, human dimensions, TEK

**Contact author:** Tessa Francis, University of Washington Tacoma, tessa@uw.edu