

**Strong connections, loose coupling: understanding environmental and social influences on commercial fisheries and subsistence harvests in the Bering Sea ecosystem, Alaska**

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**Abstract**

Human-environment connections are the subject of much study and the details of those connections are crucial factors in effective environmental management. In a large, interdisciplinary study of the eastern Bering Sea ecosystem from 2008-13, involving disciplines from physical oceanography to anthropology, one of the research teams examined commercial fisheries and another looked at subsistence harvests by Alaska Natives. Commercial fisheries and subsistence harvests are extensive, productive, and valuable, demonstrating strong connections between the ecosystem and the humans who use it. At the same time, however, both research teams concluded that the influence of ecosystem conditions on the outcomes of human activities was less than anticipated. Likely explanations of this apparently loose coupling (i.e., the lack of direct response to changing conditions) include (a) ecosystem change has not (yet) been extensive enough to cause major impacts to human systems, (b) fishers and hunters have multiple connections to the ecosystem, allowing them to adjust to variable conditions, and (c) social factors mediate the human-environment interaction so that, for example, policies and markets may produce larger changes than the ecological factors by themselves. In brief, we need a greater understanding of the social systems in which commercial fisheries and subsistence harvests take place if we are to understand their interactions with the ecosystem processes that marine management typically focuses on. We propose a new conceptual model for future studies that incorporates a greater range of social factors and their dynamics, in addition to similarly detailed examinations of the ecosystem itself.

**Keywords**

Bering Sea, commercial fisheries, subsistence, human-environment connections, ecosystem studies

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