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Seeking a Safe Operating Space for People and Nature: Roles of Recreational Fisheries

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Freshwater recreational fisheries are embedded in ecosystems influenced by a complex of changing factors such as climate, land use, chemical inputs, human demand for recreational opportunity, and so forth. Many important drivers are changing directionally in ranges that have no historical analog. It is widely accepted that large-scale drivers and ecosystem context may have critical effects on freshwater recreational fisheries. Nonetheless, our tools for addressing these factors often seem inadequate. For example, large-scale changes in climate or demand for fishing opportunity are not directly addressed by tools available to regional fisheries managers. Nonetheless, regional fisheries managers may use the tools they have to maintain a safe operating space for a fishery in the presence of large-scale change. The safe operating space (SOS) of a recreational fishery is the multidimensional region defined by levels of harvest, angler effort, habitat, predation, and other factors in which the fishery can be sustained. The talk will illustrate this idea using examples from the literature and a social-ecological model. The SOS concept organizes opportunities to manage harvest, food web structure, or angler expectations to maintain quality fisheries in the presence of multiple changing drivers.

About Steve Carpenter

Steve Carpenter uses whole-lake experiments to understand the dynamics of fishes and other key components of lake ecosystems. He has led or co-led whole lake experiments on trophic cascades, co-regulation of production by apex predators and nutrients, role of terrestrial organic carbon for production of consumers in lakes, and statistical indicators of ecosystem resilience. Other experiments focused on applied issues such as removal of harmful invasive species, restoration of woody habitat, or management of rooted vegetation to improve fish growth. Carpenter has a long-standing interest in social-ecological processes and the need to improve concepts and tools for analyzing human-environment interactions. He is Director of the Center for Limnology and Stephen Alfred Forbes Professor of Zoology at the University of Wisconsin-Madison.