

## KEYNOTE SPEAKER

**MARE Conference People & the Sea V**  
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### **SHIFTING PERSPECTIVES ON RESOURCE MANAGEMENT: Governance and Resilience Approaches for Adapting to Change**

#### SUMMARY

Living with uncertainty and adapting to change require some major shifts in the way in which we consider human interactions with the sea, and in the way we perceive and practice 'resource management'. The current theory and practice of fishery management evolved over the past century or so in response to major developments in a number of fields. The history of the notion of 'resource management' is closely associated with several 'large ideas' in political economy and environmental philosophy: the separation of nature and culture, the commodification of nature, the rise of the managerial class, the evolution of a tradition of reductionistic and positivistic science that assumes that the world is predictable and controllable.

However, over the last few decades, many of the basic assumptions that underpin the science of management in general, and classic fisheries management in particular, have in fact been abandoned one by one. Instead of the separation of nature and culture, we are recognizing that the social and ecological aspects of fishery management are closely associated as integrated social-ecological systems. Instead of production-oriented objectives with fish-as-commodity, we are learning to appreciate the need to foster healthy fishing communities and healthy fish habitats and ecosystem processes as the basis for the fishery. Instead of entrusting resource decision-making to managers and experts, we speak of civil society, user participation, co-management and fisher knowledge. Instead of reductionism that models individual fish species and fishing fleets separately, we emphasize holistic approaches that consider fisher-fish-environment together. Instead of positivistic science that assumes that the world is predictable and controllable, we are emphasizing living with uncertainty.

Hence, the meaning of the term 'resource', which carries implications of creating commodities, can be revised to include objectives to produce ecosystem services for human well-being, while maintaining social-ecological systems. The term 'management', which carries implications of domination of nature, can be updated to highlight institutions and social relationships, the essential uncertainty of complex systems, and adaptation processes. Such shifting perspectives on resource management take us in the direction of learning-by-doing and adaptive governance, and create new opportunities for bridging social and natural sciences. Resilience thinking has a special role to play in such a synthesis, as it brings together several of the strands involved in these shifting perspectives.

Resilience treats ecosystems as complex adaptive systems characterized by cycles and uncertainty. It considers dynamics of social systems as inseparable from ecosystems, and the two together as coupled and co-evolving social-ecological systems. According to this view, the environment needs to be managed, not for commodities but for resilience, defined as the

capacity of the system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks. Production objectives and maximization tends to reduce natural variability in systems, impairing their renewal capacity and their ability to absorb shocks and stresses, leaving them vulnerable in the face of change. Managing for resilient fisheries means protecting diversity, working with natural variation, maintaining the ability for self-organization, and operating flexibly while learning and adapting.

Originating in ecology, notions of resilience have not entered into mainstream social science but have the potential to contribute to the debates, for example, on adaptation to change. At the same time, the inclusion of the social component into social-ecological systems has already had a major impact on scientists using resilience ideas in dealing with change. For example, it is being recognized that the capacity to adapt to shocks and stresses associated with climate change is largely a function of the social component of the integrated system. It includes values, interests, power and politics, as well as economic, social and technological factors often considered in change and adaptation.

#### BIOGRAPHY

Fikret Berkes is a Professor at the Natural Resources Institute, University of Manitoba. He holds the Canada Research Chair in Community-Based Resource Management and the title of Distinguished Professor. He is an applied ecologist by background and works at the interface of natural and social sciences. He has devoted most of his professional life to investigating the relations between societies and their resources, and to examining the conditions under which the "tragedy of the commons" may be avoided. He has played an international leadership role in the areas of commons theory and linked social-ecological systems, and served as the President of the International Association for the Study of Commons and as the leader of a number of research groups. His publications include the books, *Sacred Ecology* (Routledge, 2008), *Navigating Social-Ecological Systems* (Cambridge U Press, 2003), and *Managing Small-Scale Fisheries* (IDRC, 2001).