Immersion Lecture: Resilience in Social-Ecological Systems: Models and Field Studies

Time of Event:
Wednesday, April 13, 2016 - 09:15 to 10:00

Video:

In this lecture on the foundations and current applications of resilience theory, Dr. Steve Carpenter overviews the major concepts and historical evolution of resilience thinking. He explains that resilience theory came out of an understanding of adaptive cycles, which have a stable front loop where changes are small or noncritical, and a chaotic backloop, where an accumulation of change eventually pushes a system to a tipping point and reorganization. He uses an example from a scenario planning project in northern Wisconsin to highlight the need to identify potential critical transitions and backloops before they occur, in order to build capacity in human systems to deal with uncertainty. He also highlights current thinking and writing from younger resilience scholars, which focuses on concepts and methods to better understand complex adaptive systems. These include maintaining heterogeneity and connectivity, broadening participation and identifying slow variables to help manage the state of the system. He concludes by noting that more work needs to be done in characterizing the backloops of systemic change, and highlights the use of scenarios and models to explore these changes before they occur.

Reading list


Presentation slides

Click here to download the presentation slides. [1]

Stephen Russell (Steve) Carpenter [2] is a leader of whole-ecosystem experiments and adaptive ecosystem management focused on freshwaters. Topics include trophic cascaded and their effects on
production and nutrient cycling, contaminant cycles, freshwater fisheries, eutrophication, nonpoint pollution, ecological economics of freshwater, and resilience of ecosystems and social-ecological systems. Carpenter serves as the Director of the Center for MLimnology at the University of Wisconsin-Madison, where he is the Stephen Alfred Forbes Professor of Zoology. He is a member of the U.S. National Academy of Sciences, A Fellow of the American ACademy of Arts and Sciences, and a foreign member of the Royal Swedish Academy of Sciences. Carpenter is the 2011 laureate of the Stockholm Water Prize. Other notable awards include a PEw Fellowship in Cosnervation and Environment, the G. Evelyln Hutchinson Medal of the American Society of Limnology and Oceanography, the Robert H. MacArthur Award from the Ecological Society of America, the Excellence in Ecology Prize from the Ecology Institute, and the Naumann-Thienemann medal of the International Scoiety for Limnology. Carpenter is Chair of the Science Committee for the Program on Ecosystem Change and society of the International Council of Science. He is the co-Editor in Chief of Ecosystems, and a member of the governing board for the Stockholm Resilience Center. He received a B.A. from Amherst College (19740, M.S From Univeristy of Wisconsin-Madison (1976, and Ph.D. from U.W.-Madison (1979). From 1979-1989 he served as Assistant and Associate Professor at the Unviersity of Notre Dame. He joined the U.W.-Madision faculty in 1989.

Event type:
Immersion Speaker

Event Attendance:
Private Working Group

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