Analysing and managing social-ecological regime shifts

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Abstract

There is increasing recognition that social and ecological systems rarely operate as independent systems but in fact are often tightly coupled together. The consequences of this coupling, however, are only partially understood. For example, while ecological regime shifts that result from human activities have long been studied, research on social-ecological regime shifts, in which both social and ecological processes contribute to and are affected by the regime shift, is only now emerging. Many open questions exist, for example how a social-ecological regime shift differs from an ecological one, what social processes are important and how they are linked to ecological processes, as well as how to analyse and model these interactions. This Session will assemble experts from a variety of disciplines to discuss emerging research and viewpoints on social-ecological regime shifts.

During the session we aim to, firstly, allow researchers to communicate their emerging research on social-ecological regime shifts. For example, some recent findings indicate that the coupling between the social and ecological sub-systems can be as important for triggering regime shifts as the dynamics of the individual sub-systems. Secondly, we seek to explore what different research fields and methods can contribute to, and on the other hand what biases they bring to, the study of social-ecological regime shifts. Even the definition of a social-ecological regime shift, which is not currently clear in the literature, may vary according to research field. Thirdly, we seek perspectives from leading researchers on the major conceptual and methodological challenges confronting research on social-ecological regime shifts, and opinions on where future research efforts should be directed. For example, modelling human decision making is seen by many to be an important open problem. Finally, we seek to discuss how current research on social-ecological regime shifts, and the perspectives of different disciplines, can assist in the governance of social-ecological systems.

The session will be organised in a combination of short talks and panel discussion as follows. Each of the following presenters will have three minutes for a short presentation.

Vasilis Dakos (CSIC, Sevilla): Using economic information to anticipate transitions in social-ecological systems

Caroline Schill/Therese Lindahl/Anne-Sophie Crepin* (Beijer Institute, Stockholm):

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The value-added of laboratory experiments for the study of social-ecological regime shifts

Tatiana Filatova (University of Twente): Modelling critical transitions in coastal housing markets under climate change

Roman Seidl (ETH Zurich): Human decisions and resilience dynamics. How systemic analysis of historical cases could help addressing human-ecological problems

Oonsie Biggs/Juan Carlos Rocha/Garry Peterson* (Stockholm Resilience Centre): Identifying social-ecological regime shifts: Challenges and insights from the regime shifts database

Daniel Ospina (Stockholm Resilience Centre): Exploring alternate social-ecological regimes – An empirical assessment of multistability using global land cover data

*where multiple authors are listed, only one will present.

Once the presenters have introduced themselves, we will have a panel discussion session focused around three questions:

- What are the characteristics of social-ecological regimes and regime shifts from the perspective of your field/approach? (Related questions: What distinguishes a social-ecological regime shift from a social or ecological regime shift? How can a social-ecological regime/ regime shift be defined?)

- What are the most pressing challenges for future research on social-ecological regime shifts? How should future research proceed? (Challenges could be methodological, conceptual, data-related, etc.)

- What targets for policy intervention regarding social-ecological regime shifts does your field/approach point to?

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