

Introduction to Socio-Environmental Synthesis Series

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What are socio-environmental systems, what is synthesis, and how does one conduct synthesis research? In this three-part video series, we address those questions and provide examples that highlight the complexity and rewards of studying the relationships and dynamics between social and environmental systems. The video series also helps to clarify the importance and the process of forming diverse interdisciplinary teams, and provides an overview of some analytical tools used to conduct synthesis research.

Part 1: Understanding environmental problems through a socio-environmental lens

In the first video of the three-part series, we present examples of how researchers use a socio-environmental lens to study environmental problems. We introduce and provide examples of socio-environmental systems as complex dynamical systems, characterized by nonlinear interactions and feedback loops both within and between the social and ecological subsystems. Throughout the video, we focus in particular on feedbacks, because they can lead to unexpected and sometimes dramatic social and environmental outcomes. Because both human and ecological systems often change or adapt based on experience and outcomes, they are more correctly called complex adaptive systems.

[Additional resources can be found here](#) [1].

Part 2: Synthesis research and team science process to address socio-environmental problems

The second video of the three-part series focuses more closely on the synthesis and team science process. Throughout this video, we present research and experience about approaches that have been shown to foster and support collaborative, interdisciplinary team processes. Tackling complex socio-environmental problems requires very diverse teams, composed of both social and natural science scholars, often working with stakeholders or participants from other sectors. Members of these interdisciplinary teams work together to integrate data, theories, and other forms of knowledge to address difficult questions.

[Additional resources can be found here](#) [1].

Part 3: Approaches and methods to integrate diverse socio-environmental data

In the third video in the three-part series, we provide an overview of the diverse types of data and methods used in socio-environmental synthesis. Heterogeneous data from across the natural and social sciences forms the basis of socio-environmental synthesis, and we discuss in particular the increased interest in integrating qualitative and quantitative data. Common methods include statistical and spatially explicit modeling, dynamical systems modeling, and agent-based modeling. These and many other specific methods reflect the general analytical approach of synthesis research, which requires teams to articulate a shared conceptual understanding of a socio-environmental system, identify diverse data sources to measure social and environmental dimensions of the system, and integrate those data into complex analyses.

[Additional resources can be found here](#) [1].

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Links

[1] <https://www.sesync.org/videos/resources>