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can assist decision makers and residents to consider more carefully the long term and systemic impact of hard infrastructure development for risk reduction but also contribute to broader reflection on transformations. Landscape transformations should focus on increasing adaptive capacity rather than on controlling hazards, which may induce vulnerability transfers through the degradation of common pool resources and other ecosystem services.

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Contributed session oral presentation:

**Working Together: Building Databases and Collaborative Platforms for the Study of Social-Ecological Systems**

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Working together to understand institutional arrangements and governance structures of shared resources requires the careful comparison and analysis of many different case studies from around the world. Information and analysis of these case studies represents shared knowledge infrastructure in its own right. The SES Library at the Center for Behavior, Institutions, and the Environment at ASU (see [seslibrary.asu.edu](http://seslibrary.asu.edu)) was developed in order to promote the development of such a knowledge resource by seeking to provide data, analytical tools, a collaborative platform, and a community of practice to the research community. This, in turn, requires that the research community contribute case study data and analysis to the SES Library as well. Currently, the SES Library contains around 200 cases of Social Ecological Systems (SES) in its database. These cases have been analyzed based on the principles of the Institutional Analysis and Development (IAD) and Robustness Frameworks of Ostrom et al. "Case studies" represent the focal point of analysis, i.e. the examination of the complex interactions between communities, the shared resource(s) they govern, and the set of institutional arrangements and social structures within which they are embedded. The SES Library also includes formal mathematical representations that have been developed for various SESs around the world, and data from the original CPR database which was coded by Ostrom, Schlager, and Tang. Additional databases will be added soon. Although the database has been used for comparative case-study analyses and mathematical model development, there remains an unrealized potential for comparative and collaborative research on fundamental organizing principles for governance, e.g. the relevance of the Ostrom's Design Principles, and fundamental feedback structures between different types of infrastructure in SESs. This speed talk will illustrate how the SES Library can be used to advance that potential, and how new community members can contribute to the collaboration.

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Contributed session oral presentation:

**From vulnerability transfer to maladaptation: exploring processes at stake through observation, experimentation and simulation**

Olivier Barreteau<sup>1</sup>, J. Marty Anderies<sup>2</sup>, Bruno Bonte<sup>1</sup>, Chloe Guerbois<sup>4</sup>, Raphaël Mathevet<sup>3</sup>, Clara Therville<sup>5</sup>

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Adaption patterns undertaken by policy makers within their own jurisdiction may bump into adaptation patterns undertaken by others at their own level. The consequences of these interactions may lead to mutual reinforcement or a neutralization of each policy maker's adaptation capacity. Since adaptation plans are proliferating we seek to better understand the processes behind these transfers of vulnerability that might incidentally lead to maladaptation. In this presentation, we adapt Anderies (2014) framework by considering social ecological system (SES) adaptive management as autonomous feedback loop. We identify the interactions between these loops to characterize transfers of vulnerability or robustness as a mechanistic process, without the need to assume any intention of transfer. We use this representation in its capacity to encompass narratives observed in coastal case studies in France, South Africa and England. This enables the interpretation of observations and identification of possible connections between adaptive management autonomous processes, and the proposition of a typology of sources of transfers. We complete our analysis of observations through simulations in an artificial society, SugarScale, and experimentations with serious games. Sugar Scale features transfers of vulnerability between "countries" that use two complementary resources with contrasted exposure to hazards. The possibility to trade resources and migrate from one "country" to another generates virtual examples of vulnerability transfers among populations. Ultimately policy makers seek ways to increase the overall efficiency of adaptation plans but lack understanding of these complex relations. Our serious games raised the awareness of these possible transfers, made them visible and enabled discussion of (1) the plurality of adaptation patterns (and related goals), and (2) the mechanisms behind them that could be corrected. The outcomes of these preliminary experiments demonstrated the considerable potential of these settings to raise awareness and trigger discussion about vulnerability transfers.

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## **Wednesday, 23 August - Room 32 (30) - 11:00 - 12:30**

### **Connecting to the biosphere with our head, hand and heart – approaches, methods and examples from arts and crafts practices**

Contributed session - Approaches and methods for understanding social-ecological system dynamics

Chair/s: Viveca Mellegård

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Calls for a fundamental shift in mindset about achieving global sustainability have so far placed the emphasis on mental, not practical, physical or sensory approaches. Craftsmanship is recognised as a source of practical wisdom, however, it has proved difficult to access and articulate the knowledge and skills embedded in craftsmanship and, there are many outstanding questions about what role crafts practices play in fostering and facilitating social-ecological resilience for sustainability. This session centres around methods and approaches used by craft artists, practitioners and researchers of craftsmanship to understand and respond to social-ecological interactions using their head, hands and heart.

Contributed session oral presentation:

### **Making craftsmanship visible as a source of social-ecological resilience: Photographic insights from Sámi duodji and Baltic Sea small scale fishing**

Viveca Mellegård

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