tools exist for exploring these at different scales, but a critical review of them suggests that they often do not create spaces for learning, thought to be essential for resilience. We will present evidence of pilot projects that attempt to move from reaction to reframing through participatory workshops that created spaces for communities to identify and address issues that they prioritise and resource. The results were communal solutions to address vulnerabilities and their underlying drivers. However embedding this reframing as a new form of programming requires a third loop of learning (re-learning), where change is created through continuous learning, action and reflection. Through interviews and observation we have identified that a barrier to the third loop is a culture where critical reflection is often absent, which limits reflective and reflexive learning. This presentation intends to stimulate critical reflection, describing the reality of the challenges faced by NGOs wanting to take part in resilience building processes.

Contributed session oral presentation:

**ESPA Insights into Resilience and Wellbeing: Research Frontiers for Sustainable Development**

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The concepts of wellbeing and resilience are centre stage in debates on how to achieve sustainable development alongside the eradication of poverty, and have both been touted as ‘new development paradigms’. We seek to identify they have been applied in recent research on ecosystem services and poverty reduction, how they might relate to each other and how they inform contemporary development. The Ecosystem Services for Poverty Alleviation programme (ESPA), a joint programme of UK’s NERC, ESRC and DFID has funded international interdisciplinary research over the last decade, which seeks to promote the sustainable use of ecosystems in a way that contributes to poverty alleviation and to inclusive and sustainable growth. As the programme comes to a close we utilise and review this large body of research from more than 100 collaborative projects that advances knowledge on ecosystem services and their relationship with poverty. Through a combined synthesis of ESPA science, which focuses on the wellbeing-resilience contribution of key findings and learning, we seek to answer core questions which guide resilience thinking and are a critical dilemma for current development policy: How can resilience building strategies affect well-being and of whom? What are the trade-offs between resilience and well-being approaches? Our research addresses the criticism that resilience thinking should take greater account of how adaptation strategies, which can build greater resilience, affect wellbeing outcomes, recognizing the trade-offs and decision-making that are involved in negotiating different pathways. Similarly, wellbeing needs the dynamic element that resilience provides as most wellbeing and poverty analyses describe the conditions of being poor rather than the consequences of change and how or why the conditions exist. ESPA science can inform the dynamics of sustainability. We argue that the interplay between wellbeing and resilience can offer opportunities for informing sustainable development in the face of global unprecedented changes.

Contributed session oral presentation:

**Governing ecosystem services for building resilience in food security**

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Food is a very basic human need which can’t be met without nature and the ecosystem services it provides. In West Africa, a large part of the population is chronically food insecure and affected by recurrent crises while natural resources are under pressure. Strengthening resilience of food insecure people, villages or countries has then become the watchword of donors and policymakers involved in the food security field. The Global Alliance for Resilience (AGIR) in Sahel and West Africa launched in 2012 has led to many projects aiming at better linking emergency and development, and to many works focusing on the analysis and the measurement of resilience so as to assess the results of projects. Resilience indicators tend to emphasize endowments ("capitals") and their respective evolutions, while resilience-thinking would highlight how this dynamic interconnect. In this communication, we aim to go beyond the framework of development projects and debates on resilience metrics, to discuss how people in West Africa use natural resources for their food and nutrition security in face of diverse shocks and long term constraints. What strategies are adopted at individual, household and collective level to build a socio-environmental context that maintains or increases the capacity of natural resources to contribute to food and nutrition security? How multi-levels governance on access and use of natural resources and the power relationships affect these strategies? Burkina Faso is our field to study the evolution of farm households’ strategies over the medium and long term, and how particular events in governance have affected these trajectories. We highlight the key role of natural vegetation, fallows and parklands in food and nutrition security as well as how learning processes serve to build strategies aiming at preserving this role.

Monday, 21 August - Room 21 (30) - 11:30 - 13:00
Using big data to understand marine social-ecological systems: challenges, opportunities, and frontiers
Contributed session - Approaches and methods for understanding social-ecological system dynamics

When combined with specific criteria for action, data science products – characterized by increased data volume and variety, and the velocity at which it is acquired – can help us understand key drivers of change and enable managers to better understand human-environment dynamics and make decisions. Yet applying data science to marine social-ecological systems has received relatively less attention compared with terrestrial systems to date. By bringing together a diverse group of leaders to discuss their perspectives and visions for the future of data science in an ocean context, this symposium seeks to advance our knowledge around leveraging big data to manage marine social-ecological systems. The session has been coordinated by the chairs, Angee Doerr and Lisa Wedding.

Contributed session oral presentation:
The role of the SESMAD project in the analysis of marine social-ecological systems