

MSEAS 2016 keynote abstracts

Monday, 30 May, 9:30-10:30

Dr. Serge Michel Garcia
Chair IUCN-CEM-FEG

Fisheries: from biological clockworks to socioecological systems and ecosystem services

Abstract

Driven by the evolution of data availability, science, computing capacity, governance and institutional developments, technological innovation, political and economic contexts and societal requirements, the world of fisheries has progressively revealed its complexity. The constraints that imposed drastic simplifications on our representations of the world and on our resulting action for decades have progressively been relaxed allowing more realistic representations of the fishery sector’s functional mechanisms. At the same time, evolving governance processes have become more complex and our capacity to predict at the appropriate scale and to authoritatively “govern” the system has decreased, calling for a significant increase in actor’s participation in research and decision-making. The originally mechanistic “biological” fishery system has progressively been recognized as a fluid and integrated « social-ecological » system and many important consequences of that change have still to be fully understood and faced effectively. In addition, the cross-sectoral nature of the ocean economy is emerging very rapidly calling for even higher levels of governance integration with higher degrees of involvement of the private sector and civil society.

The presentation will describe the trajectory of fishery systems over time and highlight some of the key changes looming in the near future.

Tuesday, 31 May, 9:00-10:00

Elizabeth A. Fulton, Ingrid van Putten, Rebecca Gorton and Éva Plagányi
CSIRO, Hobart, Australia

What’s easy and hard about modelling socioecological systems

Abstract

Integrated coastal zone and oceans management is increasingly the global standard for management of these increasingly crowded areas. This form of management has been demonstrated to be the most effective (perhaps only) means of achieving sustainability under cumulative impacts of global change. Integrated assessments can be a key component of such management and they must explicitly reconcile the effects and interactions of all the active and developing sectors in the region – including: fisheries, aquaculture, catchment use, coastal development, oil and gas, renewable energy, ports, transport and conservation. Pulling together information on all these industries, as

well as the biophysical parts of the system, is not a trivial exercise. Dynamic modelling of such complex systems has been (surprisingly) successful, but challenges remain. Drawing on examples from the IndoPacific, we discuss what’s easy and what’s not when modelling socioecological systems in support of integrated assessments and sustainable multiple use management.

Wednesday, 1 June, 9:00-10:00

Linwood Pendleton

International Chair of Excellence
AMURE/LABEX/IUEM
Brest, France

Indicators, indices, and essential variables: Oh my! A decidedly non-statistical take.

Abstract

A proliferation of indicators, indices, and essential variables have emerged to better understand and manage marine socio-ecological systems. But, what do they mean? Which ones should you use? What are the limits? Do these “essential statistics” represent empirical measures of the “state” of socio-ecological systems or are they hypotheses about intangible and difficult to measure attributes of these systems? Are they data or results? What values, preferences, and societal assumptions are embedded in essential statistics and how are they expressed? How do indicators, indices, and essential variables change over time? Should they change over time? What are the risks and benefits of condensing knowledge into a handful of essential statistics? What happens when we have too many indicators, indices, and essential variables? This keynote will lay out key challenges to be considered during the course of Theme C: From data to indicators to reference points and performance evaluation.

Thursday, 2 June, 9:00-10:00

Dr Edward Hugh Allison

School of Marine and Environmental Affairs, Seattle, USA

Adventures in Integration: Unexpected Insights for Coastal and Marine Governance from Interdisciplinary Assessments

Abstract

Coastal and marine issues are embedded in systems that are multi-scalar and characterized by complex interactions and non-linear feedbacks. Disciplinary traditions have allowed us to understand how different elements of the system work and how to govern them in ways that benefit coastal societies and economies. We know a lot about how to manage fisheries for optimal yield,

how to treat effluents to meet water quality standards, and how to deal with oil spills. When we extend our assessments beyond the sectoral and disciplinary foundations upon which we have built our understanding of the sea, however, we discover surprising and sometimes disturbing things. By combining epidemiology, sociology and occupational health, we discover that fishing ports and landing beaches can be centers of high prevalence of HIV and AIDS among the people who live and work there. Studies of illegal fishing by criminologists, when broadened to consider other illegal activities, reveal a world in which slave labourers work in global shrimp value chains and fishing boats are redeployed to smuggle people, drugs and weapons. This suggests that the benefits of improved fisheries governance might transcend lost fish. More positively, by combining nutrition science, food policy and fisheries and aquaculture studies, we can identify and promote the contribution that fish makes to human health through the supply of critical micro-nutrients. The papers in this theme sessions provide experiences on how integrated approaches can be a practical means to resolve complex inter-sectoral problems. But integration of previously unconnected bodies of work can also help us redefine the human relationship with the sea so that, in the Anthropocene, both human wellbeing and marine and coastal ecosystem health are sustained and enhanced.

Thursday, 2 June, 16:30-17:30

Simon Levin

Princeton University, Princeton, USA

Dealing with Public Goods and Common-Pool Resources

Abstract

Ecological and economic systems are alike in that individual agents compete for limited resources, evolve their behaviors in response to interactions with others, and form exploitative as well as cooperative interactions as a result. In these *complex adaptive systems*, macroscopic properties like the flow patterns of resources like nutrients and capital emerge from large numbers of microscopic interactions, and feedback to affect individual behaviors. In this talk, I will explore some common features of these systems, especially as they involve the evolution of cooperation in dealing with public goods, common-pool resources and collective movement. I will describe examples from bacteria and slime molds to vertebrate groups to insurance arrangements in human societies and international agreements on environmental issues.

Friday, 3 June, 9:00-10:00

Anthony Charles

School of the Environment & School of Business
Saint Mary's University
Halifax, Nova Scotia, Canada

Assessing and Managing a Multi-Sectoral Multi-Objective Ocean: Challenges of Integration and Participation

Abstract

In recent years, there has been remarkable growth in the attention paid, within marine systems, to ecosystem-based management and more recently integrated ecosystem assessment. Underlying this trend is the complexity and multi-sectoral reality of oceans, including multiple uses of ocean space and conflicting values and objectives across economic sectors (and 'non-use' values). These considerations call for combining ecosystem-centred and people-centred thinking, in the form of social-ecological systems approaches that include human dimensions – socio-cultural, economic, political, institutional, and technological, all driven by needs and values. Indeed, the human side of the marine social-ecological system can (and should) receive equal attention to the ecological side, with human dimensions included from the start, not as 'add-ons'. While these approaches are becoming well accepted, in practice significant challenges arise in integrating assessment and management across ocean use sectors, across scales, and across varying perspectives (social, ecological, economic, institutional, etc.). The challenges include: (1) the reality of competing objectives, (2) the range of implementation scales, from local to global, and the difficult issues around setting boundaries, (3) the variety of benefits and costs, seen from social, economic, ecological and management perspectives, and (4) the difficult choices of incentives and institutions. This presentation explores these challenges, focusing on the problems and solutions arising in integration, participation and decision-making within multi-sectoral, multi-use, multi-objective marine systems. The discussion leads to a conclusion that effective integrated ecosystem assessment and management must begin from a base in integrated 'systems' thinking, and proceed using a suitable participatory approach. The latter is tied closely to the creation of appropriate governance arrangements, participatory processes for consultation and decision making (such as inter-sectoral advisory committees), the options for adoption of rights-based approaches, and attention to ubiquitous issues of power and equity.