Coping with Global Change in marine social-ecological systems

Summary Presentation for PICES by

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Sponsors

• GLOBEC, Eur-OCEANS, and FAO
  – With support from PICES

• Co-convenors:
  – R. Ian Perry (Canada)
  – Rosemary Ommer (Canada)
  – Philippe Cury (France)
Co-Chair Ian Perry
Human dimensions of the ecosystem approach to fisheries: an overview of context, concepts, tools and methods
Central Goals of Symposium

- Share experiences across disciplines
- Identify key next steps and common elements and approaches that promote resilience of marine social-ecological systems in the face of global changes.

1. exploring conceptual issues
2. analyzing case studies
3. synthesizing the work of natural and social scientists
4. developing innovative approaches to the use of science and knowledge in management and policy
5. identifying lessons for governance
Symposium Content

• Over 150 people from 38 countries
• Eight (8) sessions and over 20 posters
• Issues of:
  – Economics
  – Society
  – Environment
  – Technology
Eminent scholars
Keynote presentations

• Fikret Berkes
  – University of Manitoba, Canada

• Bonnie McCay
  – Rutgers University, United States

• Katrina Brown
  – University of East Anglia, England

• Judith Kildow
  – Monterey Bay Aquarium Research Institute, United States
Fikret Berkes

• Broadening management objectives
• Expanding range of Knowledge
• Multi-level linkage of institutions
• Governance beyond government
Bonnie McCay

*Signs & Waves: Responses to Change in Marine Social-Ecological Systems*

– People and marine systems
  • Exploiters, Drivers and Disrupters
  • Beneficiaries and Victims of Ecosystem and Regulatory Change
  • Witnesses and Chroniclers
  • Participants and Agents of Change
Vulnerability, Adaptive Capacity and Resilience in marine and coastal social-ecological systems

Katrina Brown
University of East Anglia, UK
Katrina Brown

• Vulnerability, resilience and adaptive capacity at multiple scales
  – Insights from different scales and across scales
  – Understanding interactions with multiple stressors
  – Assessing vulnerability from global to household scale
  – Resilience – focus on adaptive capacity
Direct and indirect impacts of CC on fisheries

- **Climate change**
  - Temperature
  - GHGs
  - Extreme events
  - SL rise
  - Acidification

- **Politics, society and economy**
  - Markets
  - Migration
  - Labour
  - Consumption patterns
  - Mitigation measures
  - Fuel prices

- **Ecosystems**
  - Ecosystem processes
  - Aquatic Environment
  - Fish stocks & production

- **Fishing activities**
  - Yield
  - Effort
  - Livelihoods
  - Management

**Ecological impacts (covered in paper 1)**
- Change in yield
- Change in species distribution
- Increased variability of catches

**Direct impacts**
- Damaged infrastructure
- Damaged gears
- Increased danger at sea
- Loss/gain of navigation routes

**Socioeconomic impacts**
- Influx of migrant fishers
- Increasing fuel costs
- Reduced health due to disease
- Relative profitability of other sectors
- Resources available for management
- Reduced security
- Funds for adaptation
Greatest environmental impacts will affect:

- Life furthest from the tropics
- Those in low lying areas
- Areas with fastest growing populations
- The poorest and least educated
Kildrow

• **Social Tipping Point**
  – Can society catch up with the science of global climate change?

• **The Solution – Not technology but humans**
  – Clear and effective scientific communication
  – Public education, understanding and engagement
  – Government receipt and effective use
  – Urgency
Wrap-Up Panel

- Poul Degnbol – European Commission
- Mitsutaku Makino – Fisheries Research Agency, Japan
- James McGoodwin, – University of Colorado, United States
- Barbara Neis – Memorial University, Canada
- Samuel Pooley – NOAA, United States
- Jurgenne Primavera – Southeast Asian Fisheries Development Center, PPI
The politics of global ecosystem change?
Lessons

• Relationships between global (in particular, climate) changes and marine ecosystems
  – starting to build humans and social and economic impacts into climate models.

• Common language across disciplines, increasingly more sophisticated conceptual frameworks
  – Strong focus on drivers and system dynamics
  – Couplings/interactivities
  – Scale (spatial, temporal, organizational)
  – Complexity
  – Coping and adaptation
  – Governance (helped by common property research).
Gaps and Weaknesses

- Systems theory tendency towards teleological or circular thinking
- Blunt distinctions
- Stretched concepts
- Paradigmatic stasis
Gaps and Weaknesses

• No systematic gender-based analyses
• More attention could have been paid to human as well as environmental health,
• More attention on aquaculture
Taking the summer air
Convenors’ Conclusion

What scale for fishermen?

Although life is mostly lived locally, we must continue to think globally, while remembering that most fishers’ perspectives are decidedly local, and their lives are embedded in the particular local environment in which they live, upon which they depend, and from which they derive important aspects of their individual and cultural identities.
Grant Murray: After Thoughts

• Provide a way to operationalize and empirically test some of the assumptions and conceptual relationships that stem from SES thinking.
• Provide a common set of indicators to facilitate comparison across case study examples.

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Final Thought

Building the social into the ecological requires more than adding on a couple of variables, because social power is multi-dimensional and operates at multiple scales, especially during periods of rapid change.
Mitsutaku Makino

Personally, I think this is a very good balance.

4 people

3.5 fish

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Next Steps

• Book proposal
• Special journal issue

• http://www.peopleandfish.org/

• http://www.globec.org/structure/fwg/focus4/symposium/symposium.htm
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