



## Coping with Global Change in marine social-ecological systems



FAO, Rome, Italy, July 2008.

# Summary Presentation for PICES by

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**Coping with Global Change in  
marine social-ecological systems**



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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



# Follow-on from a United Nations Food and Agricultural Organization Initiative

**Cassandra De Young**

**Fisheries and Aquaculture Economics and Policy Division  
FAO Fisheries and Aquaculture Department**

**Anthony Charles, Saint Mary's University and Antonia Hjort, Munkarp,  
Sweden**

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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

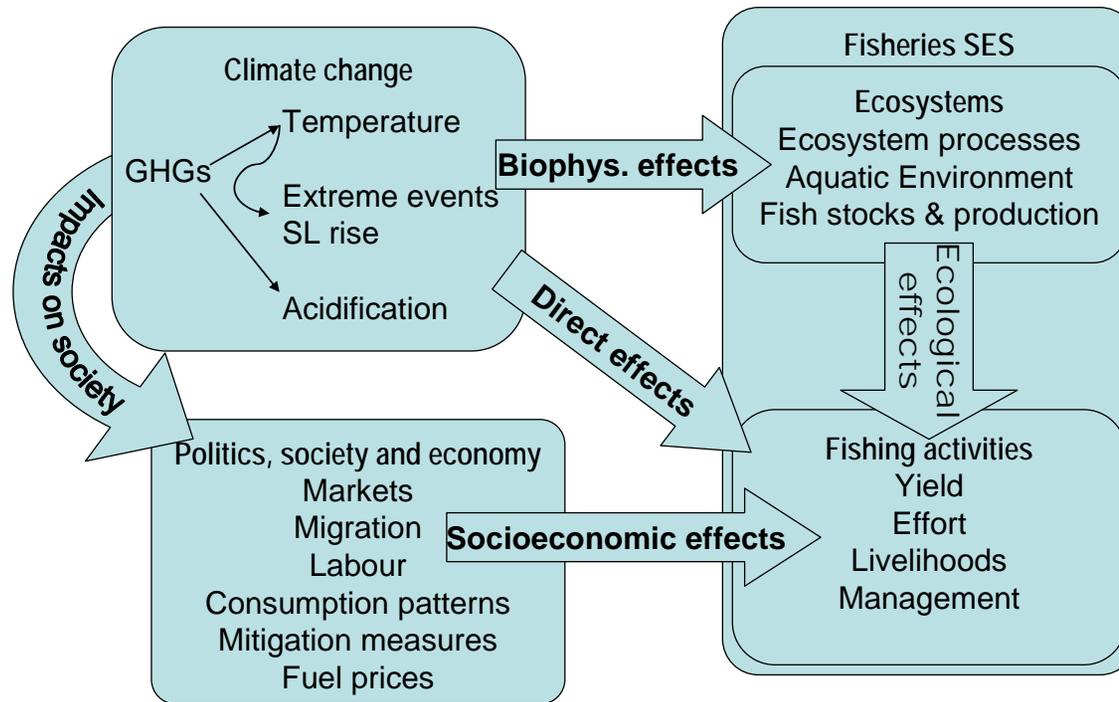
Katrina Brown  
University of East Anglia, UK



# 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



<p><b>Ecological impacts (covered in paper 1)</b></p> <ul style="list-style-type: none"> <li>Change in yield</li> <li>Change in species distribution</li> <li>Increased variability of catches</li> </ul>	<p><b>Direct impacts</b></p> <ul style="list-style-type: none"> <li>Damaged infrastructure</li> <li>Damaged gears</li> <li>Increased danger at sea</li> <li>Loss/gain of navigation routes</li> </ul>	<p><b>Socioeconomic impacts</b></p> <ul style="list-style-type: none"> <li>Influx of migrant fishers</li> <li>Increasing fuel costs</li> <li>Reduced health due to disease</li> <li>Relative profitability of other sectors</li> <li>Resources available for management</li> <li>Reduced security</li> <li>Funds for adaptation</li> </ul>
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# Judith Kildow

## Tipping Points

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.*

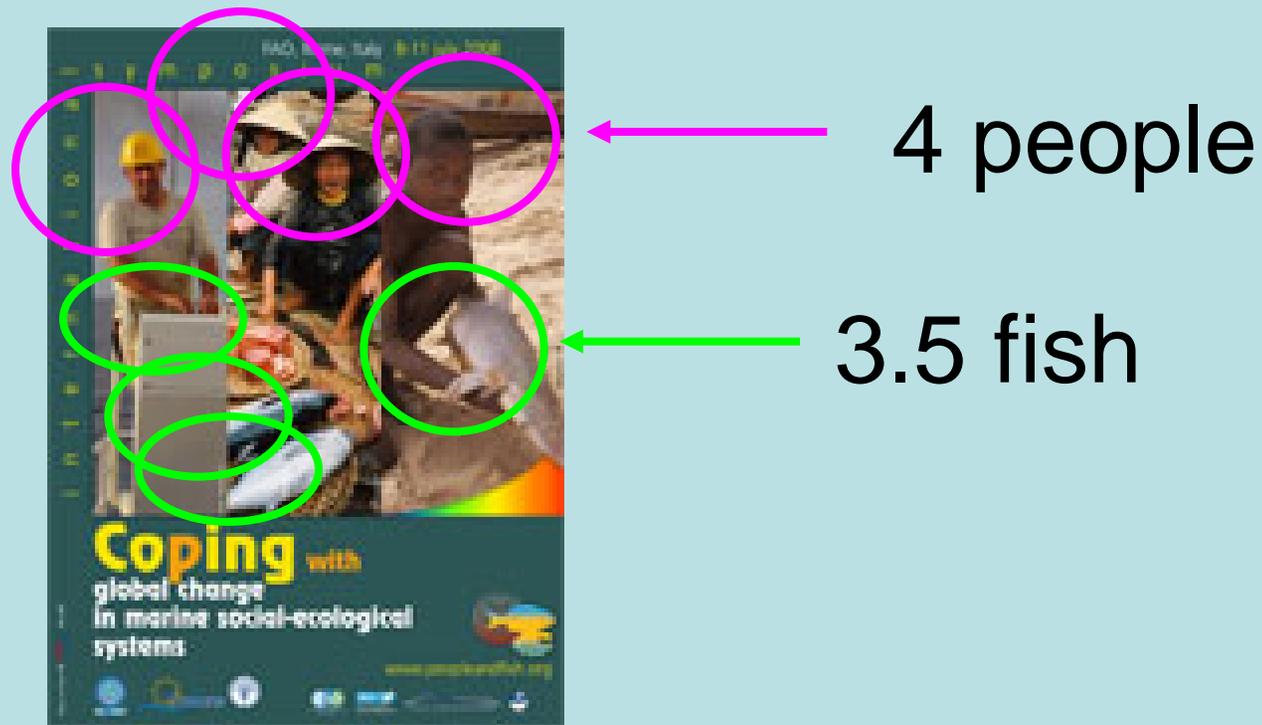
## Grant Murray

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Nanaimo, British Columbia, Canada  
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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.*

# Next Steps

- Book proposal
- Special journal issue
- <http://www.peopleandfish.org/>
- <http://www.globec.org/structure/fwg/focus4/symposium/symposium.htm>

Xie Xie

