Communities, Climate Change and Adaptability

Jake Rice
Chief Scientist Emeritus – DFO
Co-Chair IPBES Regional Assessment - Americas
Small-Scale Fisheries and Adaptation
My use of Terms and Concepts

• Small-scale Fisheries
  – By North Atlantic standards – first hand exposure
  – By Global Standards - IPBES and WOA

• Adaptation
  – What it means in IPCC uses: lawful, structured
  – What it means in IPBES uses; creative, dynamic, but lots of inertia and momentum

• What did I get “insights” about it?
  – Research: Fisheries, Food Security & Climate Change
  – Policy advisory contexts: IPBES, WOA, UN-DESA, CBD...
What are the strengths of communities in SSF / livelihoods contexts

• Flexibility
  – They have survived by recognizing events in their surroundings and reacting appropriately
  – Tend to invest in “portable” and multiple-use capital infrastructure & technology
  – Can draw on labour force that it skilled but not too highly “guild-structured” on micro-scales

• Awareness – they are connected to the parts of “Nature” on which their livelihoods depend.

• “Networked” – Share experiences and lessons learned (within reason)
What are the “challenges” of communities in SSF/livelihoods contexts

• Top-down monitoring and surveillance costly and of limited effectiveness
  – Important management tools won’t work
• Limited capacity for medium term actions
  – Insufficient capital for extensive contingency planning
  – Limited mobility while still maintaining identity
• “Stable systems” are highly invisible to more mobile and technologically intensive strategies
• Sense and reality of self-governance important
What is needed to keep fisheries sustainable

• Effort control (direct or not)
  – License limitation, ITQs etc

• Non-destructive ecosystem fishing practices
  – Gear impacts, bycatches, community structure

• Trust between management authorities and participants in fisheries
  – Drive for devolution of decision-making

• Stable and reliable chains from catch to markets
Combine these, add climate change, and what do we get? (1)
Communities will need to know:

• if key current target species will decrease AND if new species will be becoming available
  – obvious implications
  – If this is only issue, SSF fishers can adapt (plays to their strengths

• how the role of fishing might change within their livelihood strategy:
  – What will happen to agriculture, forestry etc.
  – New demands on time from storms, sea level change ...
Combine these, add climate change, and what do we get? (1)
Communities will need to know:

• If regulatory frameworks will change:
  – Changing species composition makes licensing controls impede flexible responses
  – Species – at – risk controls may amplify

• how market chain structure and receptivity may change:
  – Reliability, regularity and timing of supply
  – What’s competing in the traditional markets
What information do communities need to address these issues (suitable “thermal envelop” models)
What do we need to look at as scientists and modellers?

• Forecasting PHENOLOGY of seasonal patterns
  – When to prepare for seasonal fisheries
  – How to budget timing of multi-skill livelihoods
  – Augment with forecasting of seasonality of storms

• How are rare and charismatic species going to change distribution
  – These are increasing often “choke“ species and need to plan to avoid bycatches

• Will mid & high latitude systems become more species rich
  – Many more mixed-fishery challenges

• Lots of social science needs for understanding “adaptations”
What do we need to look at as managers / regulators

• Licensing
  – How to simultaneously manage effort and allow communities the flexibility they can use to accommodate *on-going* change?
  – Multiple scale dimensions essential to consider.

• Spatial & temporal control measures
  – Effectiveness will change, & temporal likely to be *harder*

• Protected species regulations
  – Protected species are not “protected” from CC
  – Abundance & distribution will change
  – Current regulatory frameworks hypersensitive to presence of protected species, so increasingly intrusive under CC
What do we need to look at as social scientists & communities

• How many aspects of livelihood strategies are going have to adapt to climate change
  – What mixes of adaptation strategies will be even feasible, let alone stable

• Human demographics and migrations
  – How will food security needs change?
  – Direct and indirect (conflict) climate migrants will be an increasing reality, and most end up coastal
    • How will they change effectiveness of community-based management