Understanding the Relationship between Risk and Resilience in Small-Scale Coastal Fisheries: Experiences from Southwest New Brunswick and Saint John areas, Canada


Lisette Wilson
Interdisciplinary PhD Program/Marine Affairs, Dalhousie University
Co-Author - Tony Charles

June 27 - 29th, 2011
People in Places Conference,
Saint Mary's University, Halifax

OUTLINE

- Overview-Purpose
- Research Questions
- Research Approach
- Geographical Area
- Preliminary Findings
  - Changes
  - Risk and Resilience
  - Complexities
- Next Steps


2

Overview

The coastal area is the interface between land and sea environments.

- Diverse and dynamic ecological systems :
  - e.g. Tides in the Bay of Fundy in Canada or the influences of the Benguela Current on the coastal areas of the South Western Cape region in South Africa.
- The social context and the interactions between users can also be very diverse and complex:
  - Further complicated by the embedded relationships within and across these groups
- Relationships can also be the basis for a variety of locally-based risk management strategies
  - Support and maintain more sustainable and resilient communities, ecosystems and ecosystems services.

Purpose

- To better understand how concepts of resilience and risk manifest and interact in a small-scale fishery system
  - Comparative Case Study - SWNB & Saint John areas, Canada and South Western Cape region in South Africa
- Objectives:

a) How resilience attributes may help to prevent or mitigate the impacts of future risks to a small-scale fishery and/or help the fishery recover faster after an event;

B) Role of legislation and polices in changing or maintaining a resilient small-scale fishery

Research Questions

1. What are the significant economic, social, technological, ecological and political changes in the last 20 years that have affected small-scale fishermen in the SWNB and Saint John areas?
   - How have fishermen coped with these changes?
2. What are the significant economic, social, technological, ecological and political risks to the livelihoods of small-scale fishermen in the next 10 years?
   - How do fishermen think that they can address and/or prepare for these risks?
   - What risk management approaches could be identified and implemented to improve the resilience of small-scale fisheries (who, when, what is needed?)
3. What role has legislation, policies and natural resource management plans played in changing or maintaining resilient small-scale fisheries? (What is its future role?)

Working Definitions

- **Governance:** Public and private interactions that are undertaken to resolve societal challenges and the institutions and principles which mediate those interactions. It includes the formulation and application of principles guiding those interactions and care for institutions that enable them (Kooiman et al., 2005).
- **Risk:** Characterized by reference to potential events and consequences and expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence (ISO 31000:2009).
- **Risk Management:** Systematic application of management policies, procedures and practices to the activities of communicating, consulting, establishing the context and identifying, analyzing, evaluating, treating, monitoring and reviewing risk (ISO 31000:2009).
- **Resilience:** The capacity of human and natural systems to deal (cope) with change and continue to adapt/function (Hollings, 1973).

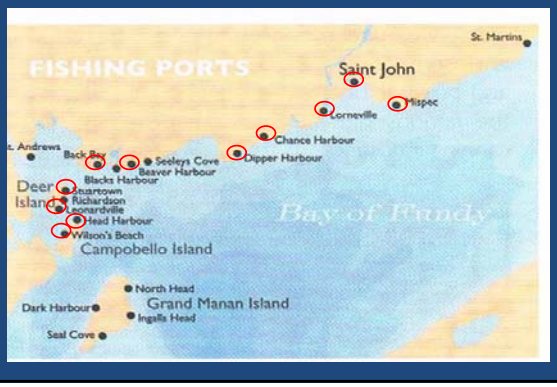
Characteristics of resilience (Folke, et al., 2002, Walker et al., 2002) :

- (a) the magnitude of shock that the system can absorb and remain within a given state;
- (b) the degree to which the system is capable of self-organization after a surprise, and
- (c) the degree to which the system can build capacity for learning and adaptation.

Research Approach

- Case Study Methodology
  - Small-scale fishery
  - Similar Issues: (a) expansion of large corporations and (b) compounding implications of legislations and frameworks
  - Time frame: 1990-2020
- Data collection
  - **Semi-structured interviews**
    - Fundy North Fishermen 's Association: 30 participants~ 68 members (175 fishermen, LFA 36), herring, lobster, scallop,
    - Government (1 participant with others to follow)
    - NGO's (2 participants)
  - **Ranking of risks:**
    - **Consequence**: Stay in the fishery, reduce fishing hours, leave the fishery
    - **Likelihood:** 25%, 50%, 75% likelihood
  - **Literature**
- Data analysis:
  - Codes and themes
  - Mapping of risk and resilience

Geographical Area: Fundy North Fishermen's Association



Preliminary Findings: Lobster Fishery: Deer Island and Campobello Island

* Ecological Changes (aquaculture)	Economic Changes	Social Changes	Technological Changes	Political Changes
Displacement of nursery areas	Licensing prices : 25c to $$$$$+	Harder to find and maintain crew	Electronics	Lobster logbooks (DFO)
Displacement of fishermen	Fluctuations in market price	Plants, schools, wharfs, RCMP presence, village stores	Upgrading of gear, boat engines/size; bait bags, bait type	Community conservation efforts: notching, seasons
Sea lice chemicals killing adult lobster	Gear & fishery related expenses	Immigrants working in plants	Other industry technology	Establishment of wharf associations
Lobster gear is lost or fouled by aquaculture waste.	Merging of fishermen associations	Sons/family members not encouraged to enter the fishery		MoU between Fisheries/Province: Aquaculture sites
Lobster pounds have more dead lobsters	Opportunities for employment	Values-meeting expenses "fish harder"		

LEK Study, Wiber et al., 2010

Interim Notes: risk & resilience-scale & issues

Saint John Harbor

Deer Island and Campobello Island

Complexities:

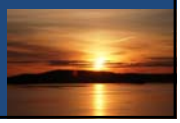
- Risk and Resilience: Who's Risk and Who's Resilience:
  - E.g. Potential for lobster quotas?
    - "Fishermen A" It's a good thing as I now know how much lobster I have allocated and so can plan for the season (and hence potentially increase my market resilience as it reduces my risk)
    - Fishermen B "It is not a good thing, see what has happened in the groundfish fishery and scallop), things are working well now, we have season restrictions and other conservation measures " (sees this as a risk because of past experiences)
  - Underpinning factors:
    - Fishermen A does not have a son that will follow in his footsteps and see's quotas as a "insurance for retirement"
    - Fishermen B does have a family member who wants to get into the fishery and is concerned with future regulations, which may impeded his entry into the fishery (e.g. historical catch)

Next Steps:

- Follow-up interviews (Govt. , Academics etc.)
- Analysis – trends (Prob. X Consequences) and thematic interpretations
- Map of risk and resilience attributes (Visual tool)
- Develop through participatory approaches the different scenarios for risk and resilience
- Undertake the South Africa case study component

Acknowledgements

- The participants who generously made time to take part in this study
- Fundy North Fishermen's Association members
  - Director: Sheena Young (and Family)
  - Former Director: Maria Recchia
- Melanie Wiber (University of New Brunswick)
- Funding Support:
  - Coastal CURA
  - Izaak Walton Killam Memorial Trust
  - P.E.O. International Peace Fund
  - Robin Rigby Trust
- Photo Credits:
  - Sarah Bood
  - Sheena Young
  - Donna Curtis



Thank you

14