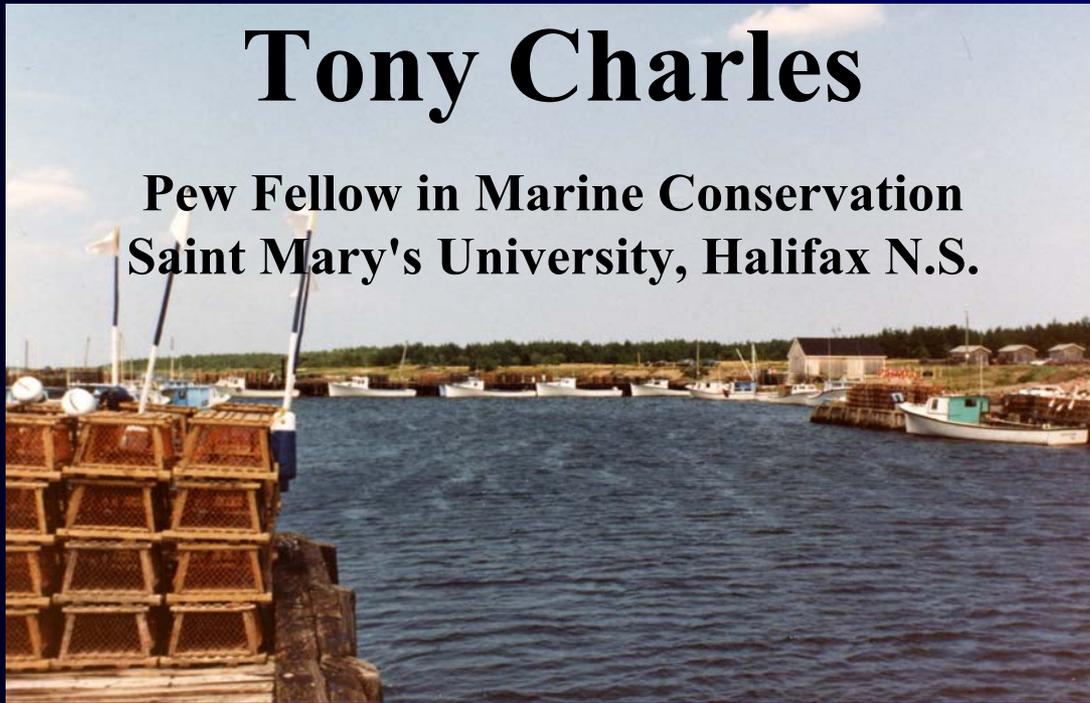


Systems Approaches and Community Approaches for Coastal Planning

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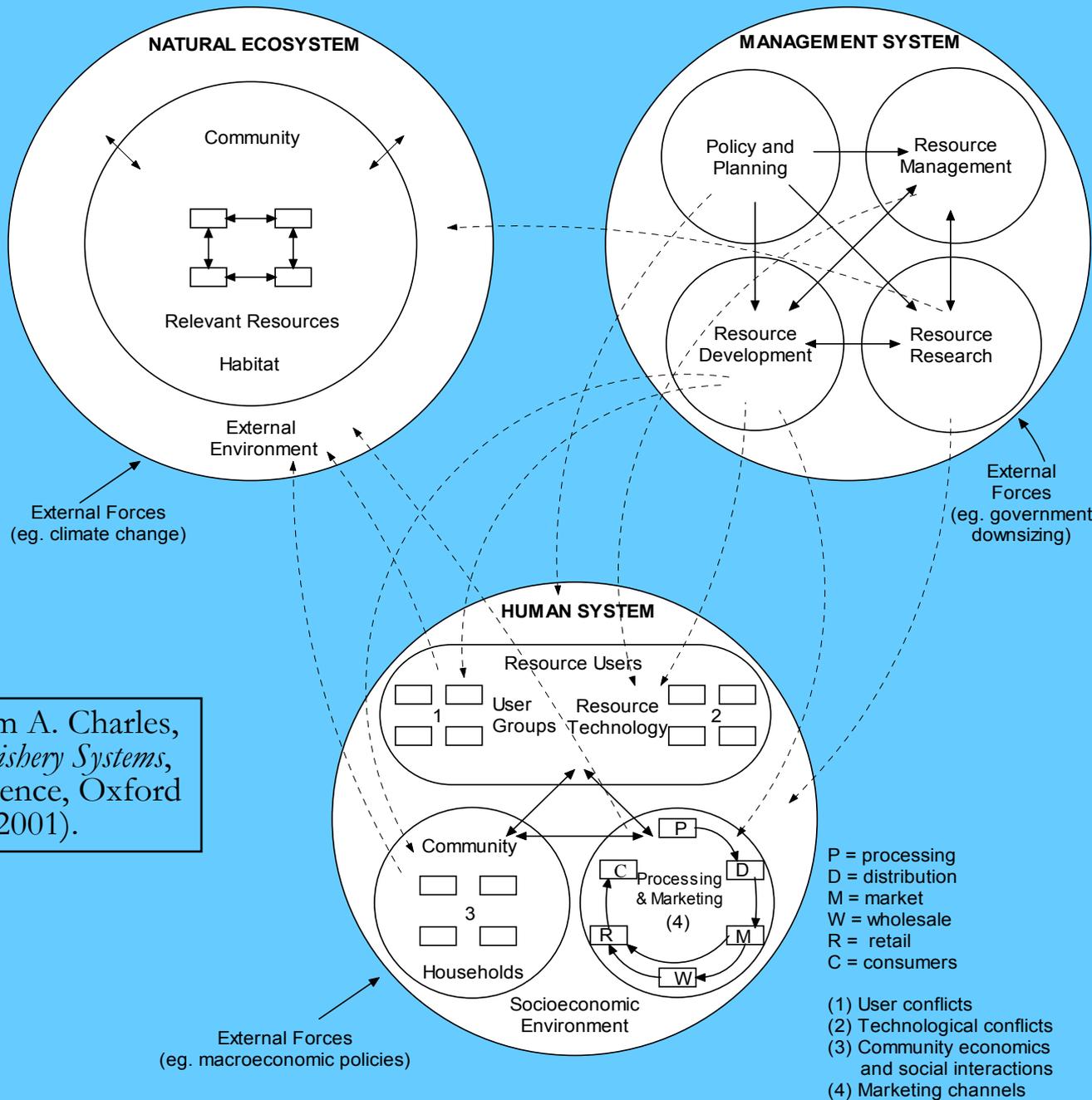
**Presented at the OMRN Science and Local Knowledge Node Workshop
"Examining Best Practices in Coastal Zone Planning:
Lessons and Applications for BC's Central Coast"
Alert Bay, B.C. April 3–5, 2003**

Five Themes for Coastal Planning

1. Coastal Systems
2. Sustainability, Resilience & Indicators
3. Community-Based Coastal Management
4. Integrated Impact Analysis
5. Networking: The OMRN

#1. Coastal Systems

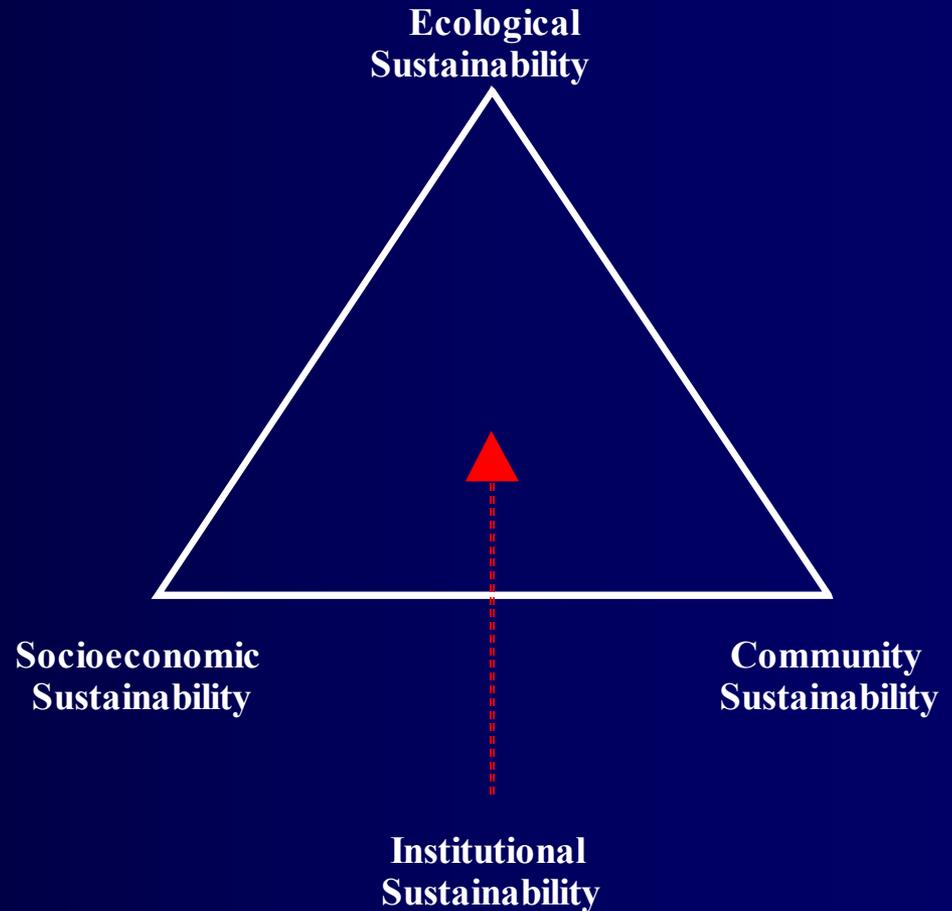
- *The Natural System:*
 - Natural Resources
 - The Coastal Ecosystem
 - The Biophysical Environment
- *The Human System:*
 - Coastal Resource Users
 - Households and Communities
 - Social/Economic/Cultural Environment
- *The Resource Management System:*
 - Policy and Planning
 - Integrated Coastal Management
 - Development and Research



Adapted from A. Charles,
Sustainable Fishery Systems,
 Blackwell Science, Oxford
 UK (2001).

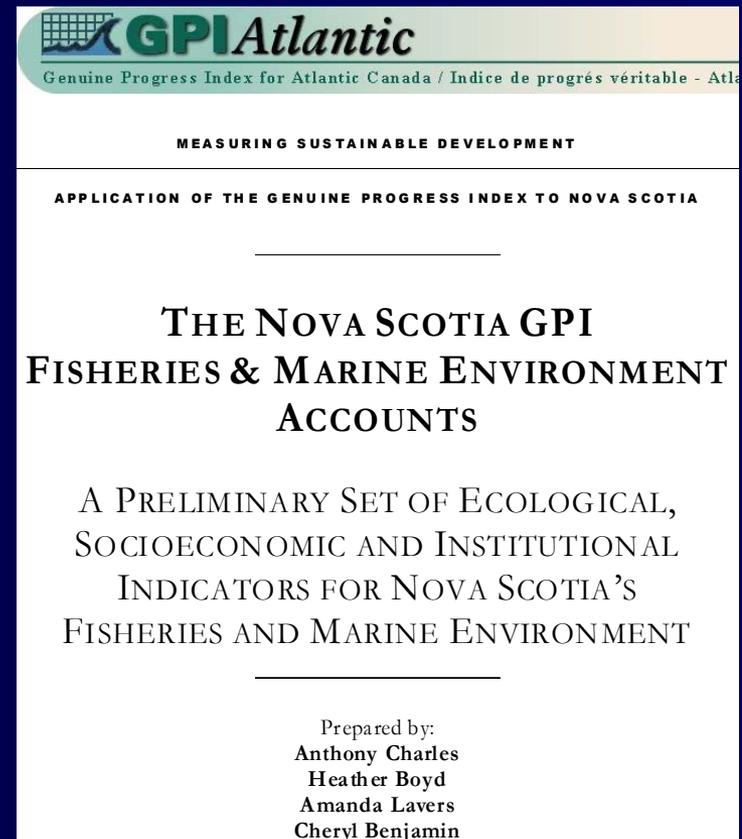
#2. Sustainability, Resilience, Indicators

An integrated view of sustainability in coastal areas requires that we pay attention to a range of ecological, socio-economic, community & institutional factors. An assessment process can use checklists or sets of indicators...



(a) Sustainability Indicators

- Ecological Indicators
- Socioeconomic Indicators
- Community Indicators
- Institutional Indicators
- see www.gpiatlantic.org

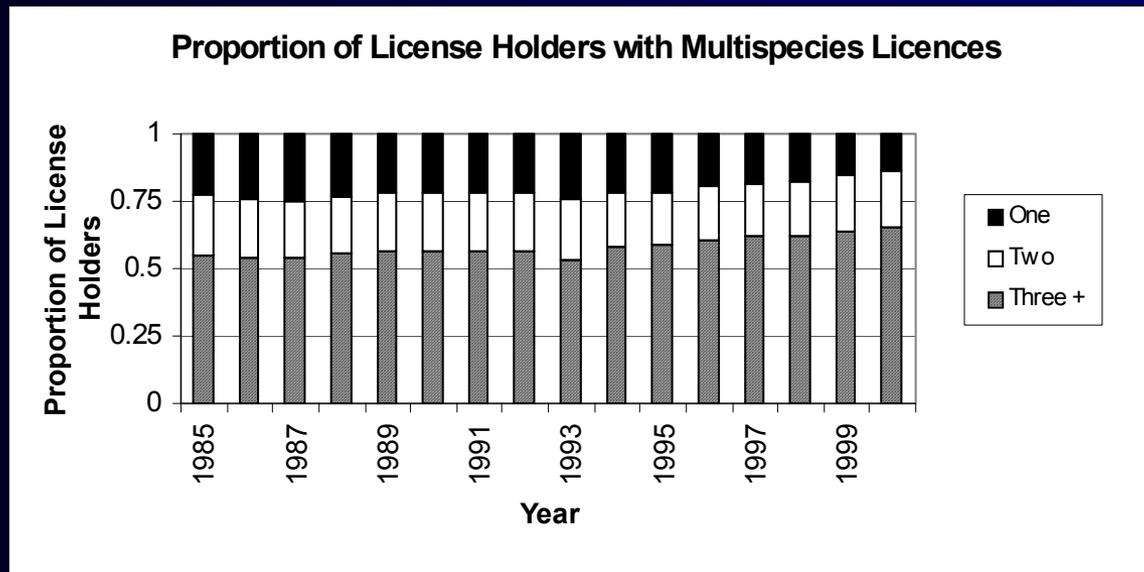


(b) Resilience Indicators

- Resilience is the capability of a system, such as a coastal zone (including ecological, human and management components) to persist or ‘bounce back’ following unexpected shocks to the system
- Desired ingredients of a resilient coastal system:
 - ✓ Resilient ecosystem
 - ✓ Resilient communities
 - ✓ Resilient socioeconomic structure
 - ✓ Resilient management institution

Resilience Indicators (cont'd)

- Debt, Bankruptcies
- Age Structure of Fishers
- Diversified Landings
- Multi-Fishery Access
- Diversified Employment
- Econ. Diversification
- Biodiversity
- Benthic Integrity



#3. Community-based Coastal Management

- The idea: local resource users and their communities should have significant responsibility for management
- “a nested system that reflects in social and policy terms a similarly nested relationship of organisms, species, and associations that is found in ecosystems” (Uphoff 1998).
- W. Coast Vancouver Island Aquatic Management Board
- Annapolis Basin, St. Mary’s Bay Working Groups (Bay of Fundy)



CBCM : Aboriginal Connections

- Community-based management is the traditional approach in many aboriginal communities;
- But while access to coastal resources is improving, many First Nations in the Maritimes also seek recognition of the right to involvement in managing local resources;
- A focus on CBCM can help to rectify this, for First Nations as well as non-aboriginal communities...





- With support from the Pew Fellows Program in Marine Conservation, efforts are underway in Canada's Maritimes to support grass-roots community-based fishery and coastal management, linking aboriginal & non-aboriginal fishers, communities; and connecting with B.C. communities

www.turningthetide.ca

#4. Integrated Impact Analysis: The Example of Climate Change

- Physical Changes (e.g. Sea Level, Temperature)
- ↓ Biological Implications (e.g. Fish Distribution)
- ↓ Direct Human Impacts (e.g., Fishing, Tourism)
- ↓ Induced Human Impacts (e.g., Socioeconomic)

The following chart indicates possible climate change impacts related to coastal areas and fisheries in Canada, from biophysical to fish stock to socioeconomic impacts...

BIOPHYSICAL / FISH IMPACT ⇒	⇒ SOCIOECONOMIC IMPACT
Important salmon stocks from Fraser and southern rivers may decline. In northern BC rivers, salmon productivity may increase.	Distributional impacts: south communities may suffer versus north ones, and capital-intensive fishers may also do relatively well.
Pacific cod abundance likely will be reduced. Exotic species will be introduced into the Pacific area from the south.	Lower profits, new opportunities. Fishers and communities that are adaptable will do well. Multi-species licensing policy crucial.
Changes to salinity of the Bras d'Or lakes may impact Cape Breton's oyster culture industry.	Highly local impacts on fisheries, aquaculture imply the need to avoid 'one-size-fits-all' policies, to encourage local management..
Environmental changes could lead to increased catchability for lobster, scallops and other Atlantic invertebrates.	Higher profits. Management changes (e.g., decreased trap limits, capacity limits) will be needed to avoid over-exploitation.
Some Arctic species (e.g., sea otter, warmer water fish) could move into new territories.	Distributional impacts: some lose, some gain, unless licensing allows larger fishing zones.
Cumberland Sound turbot fishery prosecuted from ice surface, and so is vulnerable to changes in ice thickness and distribution.	Investment in new fishing methods may be needed or markets may be lost; some fishers may need to shift to other fisheries.
Storm surges and coastal erosion will affect wetlands (and thus fish habitat).	Loss of habitat on coast could have relatively negative impact on coastal small-boat fishers.

#5. Networking: The OMRN

OCEAN MANAGEMENT RESEARCH NETWORK

- An inclusive Canadian network involving researchers and research users across the country dealing with human uses of the ocean & management of such uses
- Coastal planning and management is a key component
- For more information or to join the OMRN:

www.omrn.ca



Some References

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