

# Climate Change and Fishing Communities: Interactions with Environmental Conservation, Sustainable Livelihoods and Food Security



Convenors:

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Reduction, FAO; <sup>3</sup>Fisheries and Aquaculture Department, FAO

# Small-Scale Fisheries Guidelines

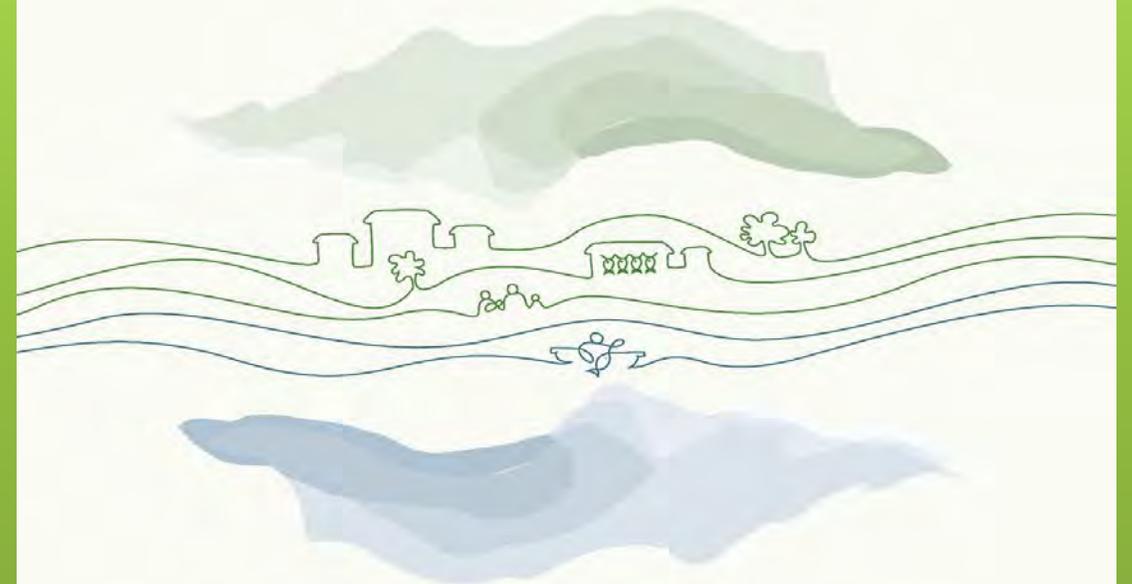
Takes a broad systems approach to include fishing communities, and their stewardship activities, as well as other responses to climate change and environmental threats. There is groundbreaking integration of fisheries with broader issues, within the community, social, economic and governance systems.



Food and Agriculture  
Organization of the  
United Nations

## Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries

in the Context of Food Security  
and Poverty Eradication







# Community Conservation Research Network

**Successful community environmental stewardship,  
sustainable livelihoods, and government engagement.**

**[www.CommunityConservation.net](http://www.CommunityConservation.net)**

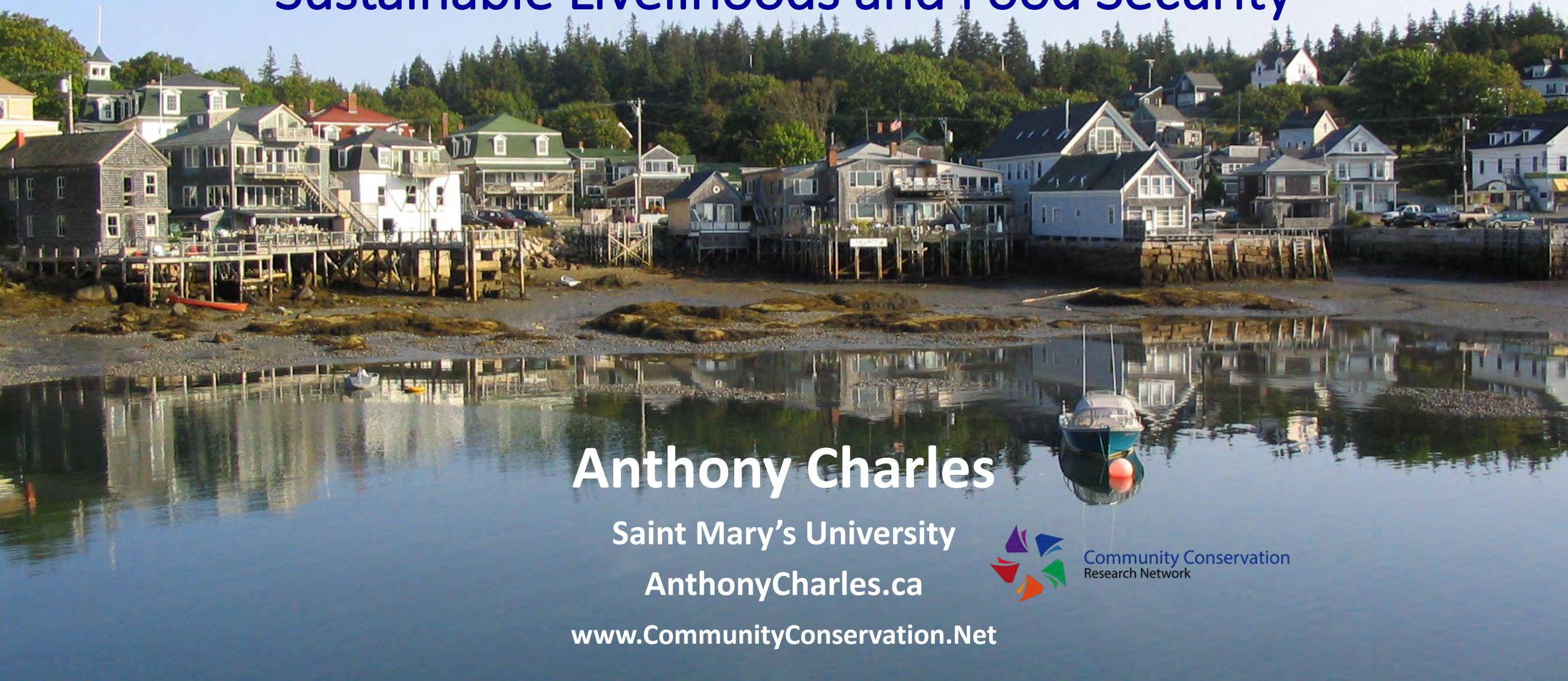
**Facebook.com/CommunityConservationResearchNet**

**Twitter: @CCRN\_News**

<b>Workshop 5</b>	
9:00	<b>Workshop Opening and Introductions</b>
	<b>Introductory Presentations</b>
9:15	<b>Anthony Charles</b> A community focus: How local communities are dealing with climate change and environmental threats to build sustainable livelihoods and food security
9:30	<b>Daniela Kalikoski, Lena Westlund &amp; Jessica Sanders</b> An FAO perspective on Climate Change and Small-Scale Fishing Communities from a Poverty and Food Security Lens
	<b>Invited Presentations</b>
9:45	<b>Mohammad Mahmudul Islam (Invited)</b> Creating an enabling environment to support disaster risk reduction in the context of the Small-Scale Fisheries Guidelines. Lessons from Bangladesh
10:00	<b>Jake Rice (Invited)</b> Communities, climate change and adaptation strategies - Variability and viability
10:15	<b>Discussion Session #1</b> Topic: "Insights and Priorities for Linking Climate Change with Environmental Conservation, Sustainable Livelihoods and Food Security: A Fishing Communities Perspective". This session will invite workshop participants to contribute their analysis of the broad issues concerning interactions of climate change with livelihood sustainability, food security and environmental conservation, within coastal fishing communities around the world.
10:45	<i>Coffee/Tea Break</i>
	<b>Oral Presentations</b>
11:00	<b>Maria Rebecca Alviar Campos</b> Indigenous fishers in the Philippines: Adaptation to climate change
11:15	<b>Sheku Sei</b> Assessment of Yawri Bay marine protected area vulnerability to climate change in Sierra Leone
11:30	<b>Devendraraj Madhanagopal</b> Factors influencing the climate change adaptation efforts: Discussions from the case of coastal Tamil Nadu, India
11:45	<b>Maria Gasalla</b> Social vulnerability to climate change of fishing communities across the South Brazil Bight
12:00	<b>Lunch</b>

13:30	<b>Discussion Session #2</b> Topic: "A Fishing Community Focus on Climate Change and Conservation Responses in Relation to Sustainable Livelihoods and Food Security". This session will build on the experience presented in the morning by inviting workshop participants to contribute their own experiences with coastal fishing communities, focused on the interactions of climate change with livelihood sustainability, food security and environmental conservation.
14:30	<b>Workshop Phase 2: Interactions of Poverty and Climate Change</b> Phase 2 of the workshop will focus on a participatory process to generate ideas, insights and priority directions relating to the interaction of climate change with poverty. This will be discussed in the context of coastal communities, as well as Small Island Developing States (SIDS). The discussion will provide input into a process being carried out by the Food and Agriculture Organization of the United Nations to explore desired pathways to progress on linking poverty reduction and climate change responses, including development, humanitarian, disaster risk reduction and climate adaptation perspectives.
	<b>Introductory Presentation</b>
	<b>Anthony Charles (Saint Mary's University) and Daniela Kalikoski (Food and Agriculture Organization of the UN)</b> Nexus of Poverty and Climate Change in the Context of Coastal Communities and Small Island Developing States (SIDS)
14:50	<b>Discussion Session #3</b> Each participant will be invited to share their perspectives. Small group discussions will take place as appropriate. The goal will be to generate recommendations for effective approaches to linking climate responses and poverty reduction.
15:30	<i>Coffee/Tea Break</i>
16:00	<b>Discussion continues</b>
17:30	<b>W5 Ends</b>

# A Community Focus: How Coastal Communities are dealing with Climate Change and Environmental Threats to Build Sustainable Livelihoods and Food Security



**Anthony Charles**

Saint Mary's University

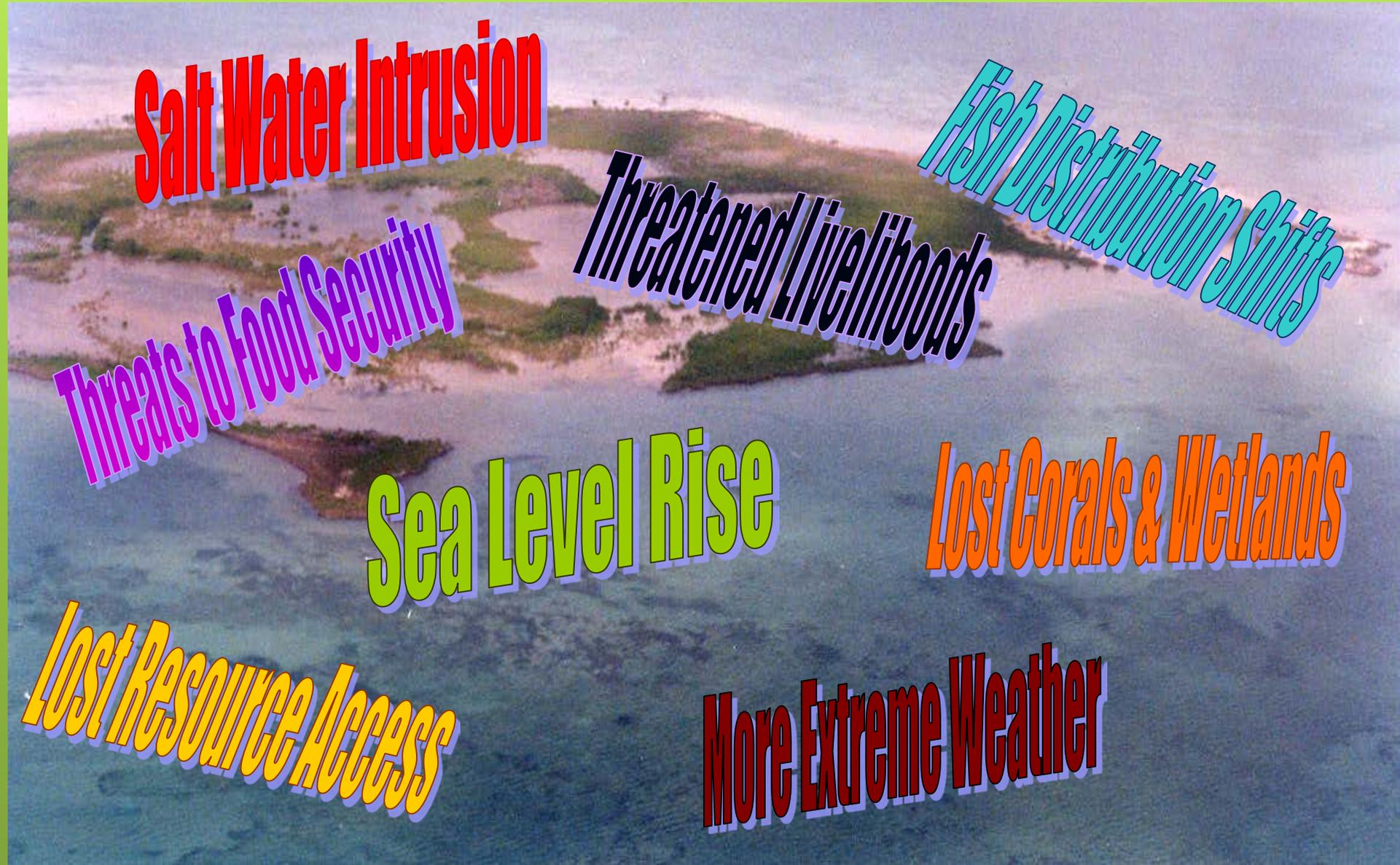
[AnthonyCharles.ca](http://AnthonyCharles.ca)

[www.CommunityConservation.Net](http://www.CommunityConservation.Net)



Community Conservation  
Research Network

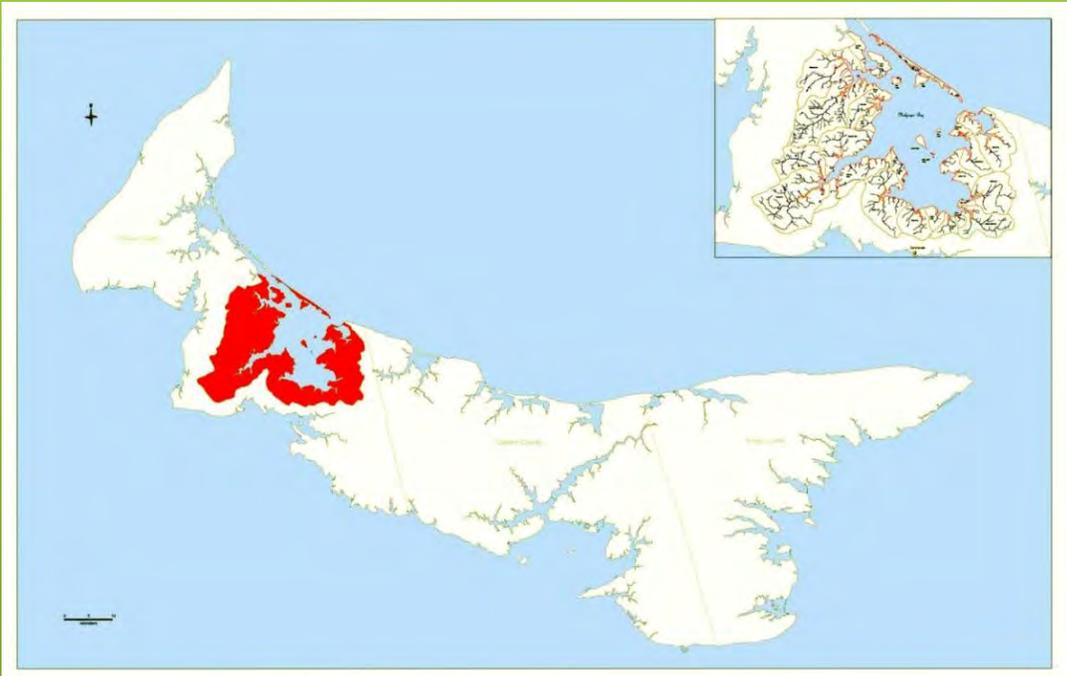
# Climate Change Impacts Fishing Communities



# Climate Change Impacts

- Direct impacts on human coastal uses (e.g., fishing, tourism)
- Induced impacts on society (e.g. health, community cohesion)
- Interaction with other global change processes:
  - Demand Shifts; Globalization; Technological Change; Urbanization; and Evolving Governance Frameworks
- Impacts vary by economic sector & location (distributional effects)
- Impacts vary by spatial scale (local to international)







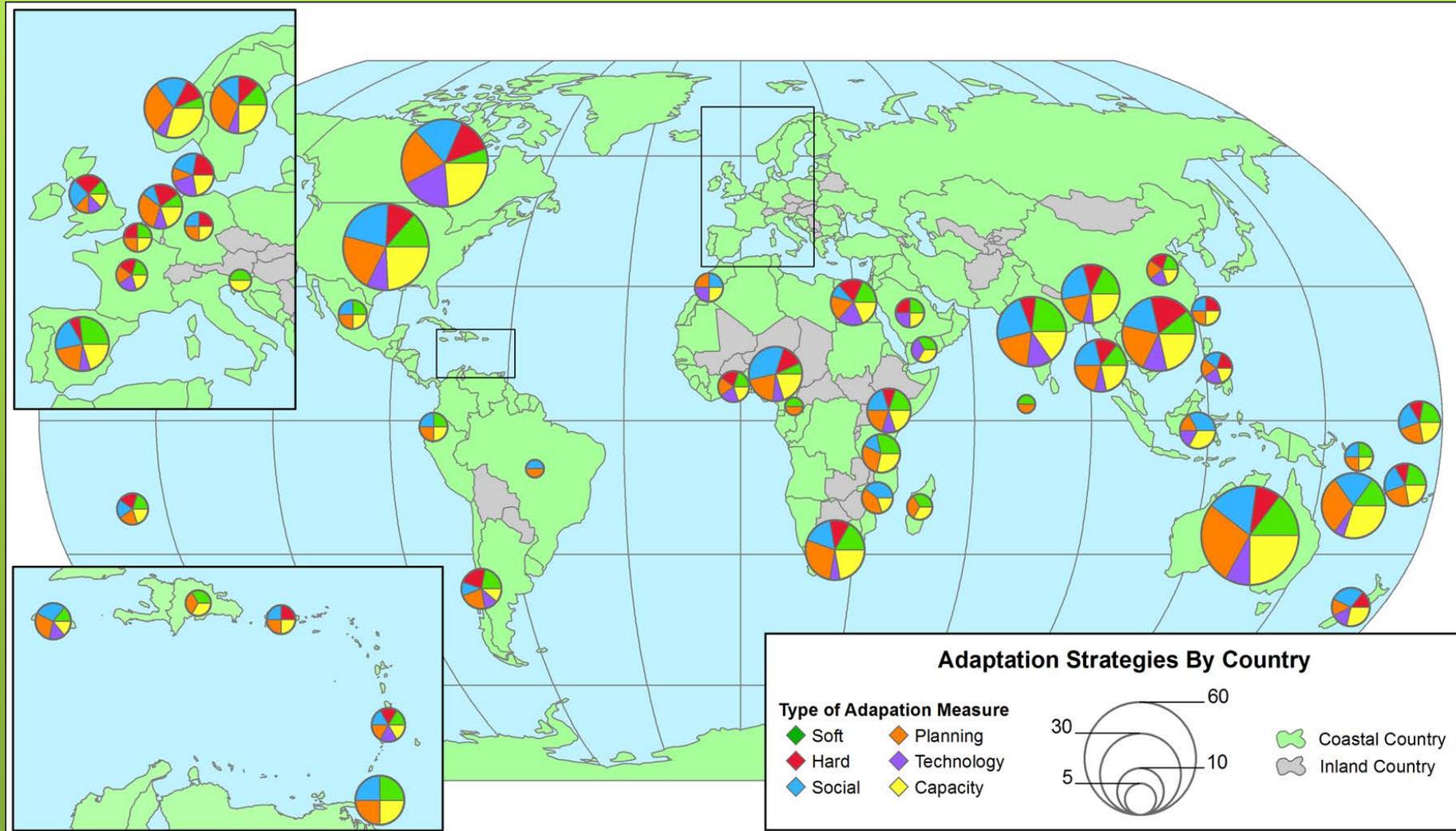


# Adaptation Examples: Nova Scotia, Canada

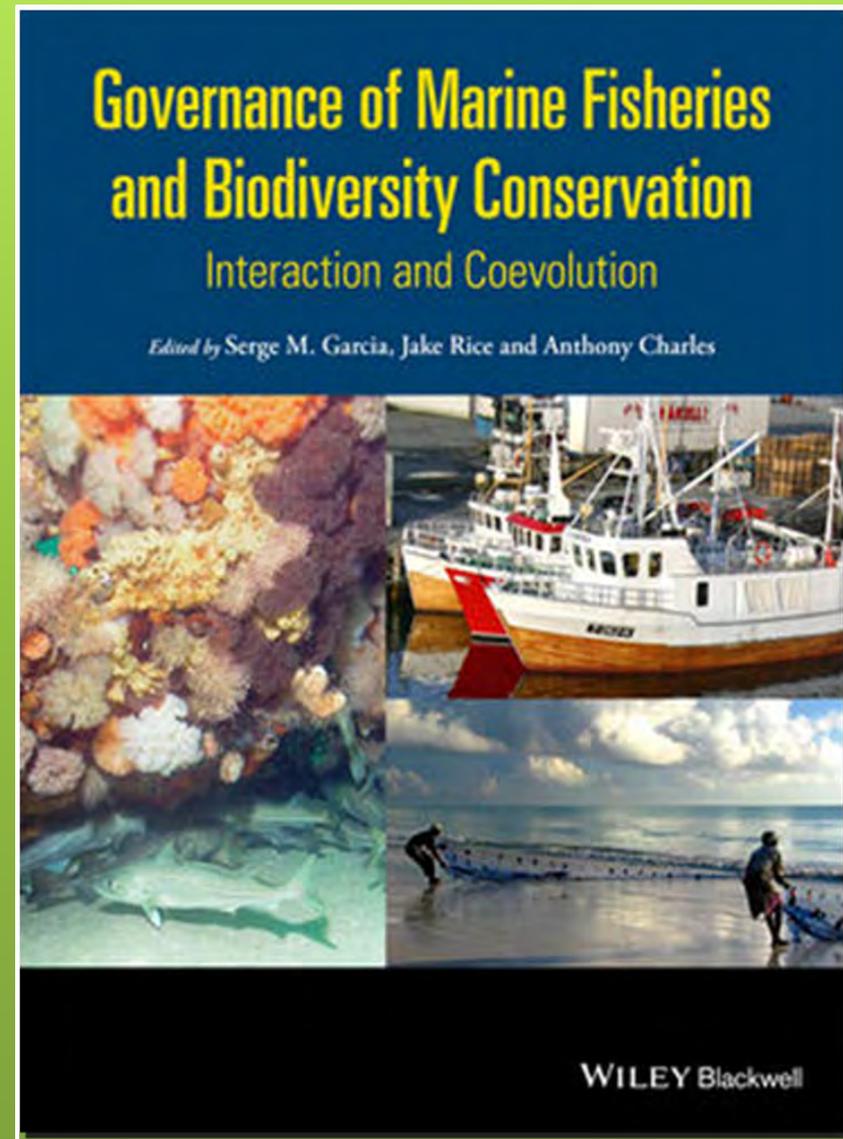
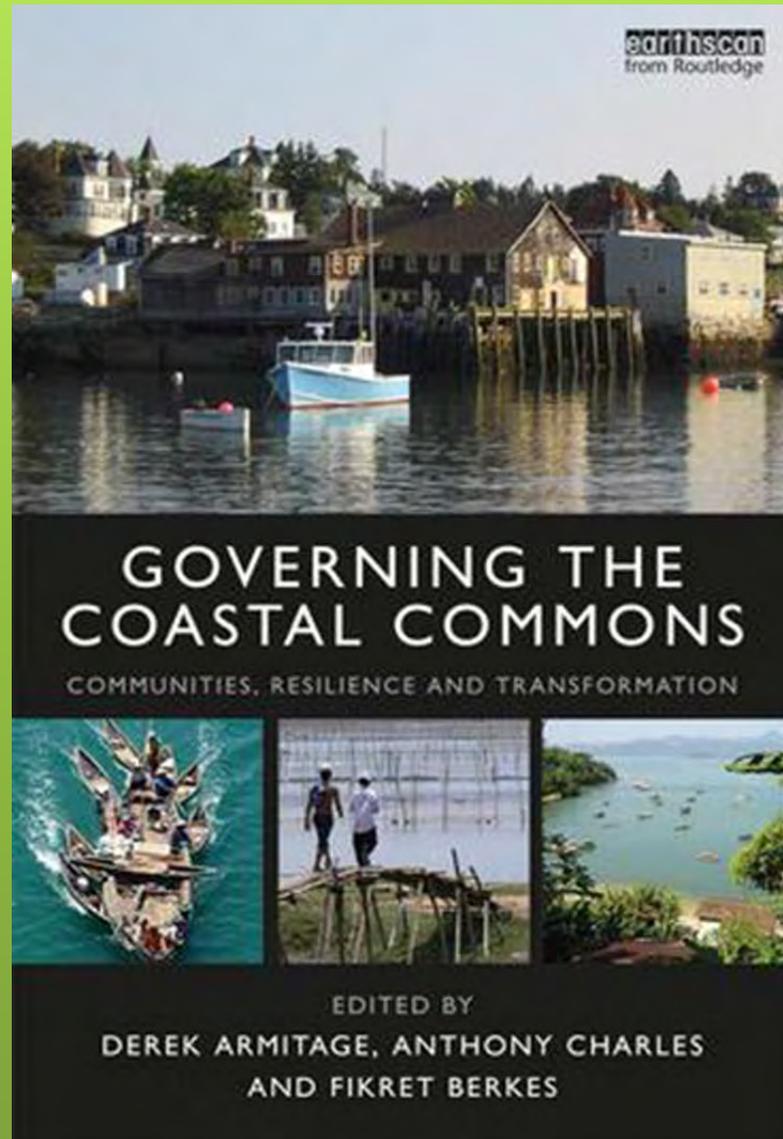
<b>BIOPHYSICAL IMPACTS</b>	<b>⇒ SOCIOECONOMIC IMPACTS</b>
Increased frequency of major storm events (already more hurricanes) is bringing extensive coastal damage.	Local NGO working with insurance sector on need for greater adaptive response, more proactive zoning.
Downtown of Halifax predicted to be partly underwater in 50 years, due to sea level rise.	Municipal government changing its planning procedure to avoid new development in 'risky' locations.
Changes to salinity of the Bras d'Or lakes may have negative impacts on the oyster aquaculture industry.	Highly local impacts on fisheries, aquaculture imply a need for more flexibility and local management.
Environment change may increase catchability of many invertebrates (e.g. lobster) off Nova Scotia.	Management changes (decreased trap limits, capacity limits) will be needed to avoid over-exploitation.

# Managing Climate Adaptation

(Ahmed Khan, Derek Armitage, Anthony Charles)



# Environmental Threats Impact Fishing Communities





Credit: Nova Scotia Archives



Source: Millennium Ecosystem Assessment

# Cod Collapse & Stewardship

Coastal communities and citizens play a key role in conservation of the ocean.

I saw first-hand that stewardship imperative 25 years ago, after Canada's cod fishery collapse. On an advisory council of the federal government, I heard from coastal people concerned for the future of their communities, as well as their livelihoods.

The cod stocks that collapsed were off the coast from their community, and the future of the community depended on the future of the ocean, so conservation mattered.

*Thursday* **Perspective**  
THE DAILY NEWS, THURSDAY, MARCH 23, 1996

By TONY CHARLES  
Special to The Daily News



**WHEN FISHERMEN AROUND** Nova Scotia started occupying DFO offices recently, I told my university students that the protesters were focused on opposing licence fee increases. But I was wrong. The protest was really against Department of Fisheries and Oceans policy that would have eventually killed off the small-scale handline fishery, prevented many of the "little guys" in the fishery from passing on their fishing licences to their children, and penalized those fishermen who had the least impact on the fish stocks.

Fisheries Minister Fred Mitlin, in his credit, ended up agreeing with much of what the protesters were saying. I like to think the minister realized that sometimes, protests are justified, and sometimes, proposals from outside DFO are worthwhile. This was one of those cases.

Message: There are not enough fish in the ocean, and there never will be, to please everyone. Hard decisions are needed about how the available fish are shared. How the fish are shared is a crucial matter, not just to the fishermen, but also to coastal communities, and yet, to all of us in the province.

Think about locusts, something crucial in Nova Scotia's economy. Tourists like to visit the small communities dotting our coastline. Those communities are there to serve inshore fishermen — people just like the protesters. So an inshore fishery that's good for coastal communities also helps the whole economy, and that's good for all of us. So maybe we should try to figure out which "fishery of the future" will be best for coastal communities. Here are a couple of choices:

■ **The Vacuum Cleaner Vision:** Everyone agrees there is too much catching power in the fishery. There have to be cuts. But how to make those cuts? Those with vacuum cleaner vision want to cut as many people from the fishery as possible. Get rid of the smallest fishermen, like handliners, so the remaining big players can suck up the available fish.

The vacuum cleaner vision is pushed in two ways. One of these is through deliberate actions aimed to change the shape of the fishery. A perfect example of this was the policy that the minister has just over-turned, which would have sent the handline fishery to extinction.

The second approach is indirect, let the magic of the marketplace decide who fishes and who leaves the fishery. This can be done by pushing so-called "individual transferable quotas" (ITQs).

These ITQs give the right to specific amounts of fish ("quota") to individual fishermen and companies, who can then buy up quota from others (whether above-board or under the table). Of course, only those with the cash tend to do the buying. So in pretty much every case of ITQs around the world, a few big players have ended up controlling most of the fishing. This has happened notably in New Zealand, which is often touted as a model of the ITQ approach.

Closer to home, ITQs were pushed on the dragger fleet in Nova Scotia, and not surprisingly the quota there has now come under the control of a handful of companies. There are few independent fishermen left. This fact is widely known inside the fishery, but not exactly well-publicized by DFO. (Homework for today: try to find DFO documentation of this. . .) So no wonder the handliners are concerned: they, and many others, can see what would happen to their fishery and their communities if ITQs was out.

■ **The Sustainable Communities Vision:** Perhaps there are no alternatives! Even if the vacuum cleaner vision is imperfect, perhaps we have to face facts: the fishery must become more efficient. Ah, but "efficiency" does not mean the fewest jobs per fish caught, an approach guaranteed to devastate coastal communities. In fact, an "efficient" fishery is one that gives the most benefits to the coastal economy for every fish caught. So we need to ask: what fishery strategy is best for the coastal economy? (Homework for today: Figure out who in government is looking at this big picture.)

Message: The fishery is the engine of the coastal economy. We all have a stake in making sure the engine is performing well and serving our interests, whether or not we actually catch or process fish.

The new minister has indicated an interest in hearing some fresh ideas about the fishery of the future. It might be worth recalling one of the freshest ideas, voiced by the people of Canada a few years back. Threatened with the extinction of their community, Casco suggested that instead of allocating fish quotas to companies, which can easily abandon the community, the quotas might be given instead to the communities themselves.

Community quotas! The idea is to assign shares of the fish quota permanently to suitable community or regional bodies (perhaps one per county), which then allocate the quotas to maximize local benefits. Probably the local fishermen would catch it. But perhaps outsiders could be hired to do so, or the quotas could be "rented" to harvesters for a fee, which could be used to build a local community centre. And so on. Let the community decide. Radical. (Homework for today: Read DFO's study of community quotas. Trick question: There is none. It hasn't fit their game plan. DFO prefers to deal only with "the industry," not with coastal communities. If the idea had been treated seriously, we would have, by now, a plan worked out for local-level management of ground-out fish quotas. But it's not too late.)

Message: It's time for DFO to begin talking not only with the fishing industry, but also with coastal communities, which have a big stake in the fishery of the future.

■ **Wanted: Tough Political Decisions:** Fundamental to the protests over the past weeks is a conflict over visions of what the fishery could be. The fact is that it cannot be all things to all people. Someone needs to decide what kind of fishery is best for Canada: one that protects the resource and makes a small number of players wealthy, or one that protects the resource and sustains coastal communities economically and socially.

At the moment, DFO is stuck in an in-between state, where the division of the fish is misguidedly treated as sacred, at least by the powerful players in the fishery. They figure they've built up a pretty nice share of the catch, so the status quo is just fine, thank you.

Message: The status quo system of allocating catch quotas rewards those who have killed the most fish. The more you caught in recent years, as the stocks plunged, the greater the share of the fish you can claim for the future. Interesting conservation logic, that.

It would take a courageous fisheries minister indeed to build a new fishery focused on nurturing Atlantic Canada's coastal economy, the cornerstone of which is the region's coastal communities. This might involve the minister saying to large processors: "Congratulations! Your company is making nice profits without local fish. The coastal communities will be best served if fish quotas are allocated to the inshore fishery. That is the right thing to do, and that is what we are doing." It might also mean reallocating fish among those in the inshore. Who can best catch what kind of fish, to give most benefits to the most coastal communities? Shouldn't that be a key question to look at?

■ **News flash!** Fishing communities can have a future! The idea that the small inshore fishery is on an inevitable downward spiral might fit some people's ideology, but don't believe for a moment that it has to be that way. Cuts are needed, yes, but with the right decisions, coastal communities can prosper. Will someone, with the power to make the hard decisions, help to make this a reality?

Tony Charles teaches in the department of finance and management science at Saint Mary's University.

## There is a Future in fish



## Community Conservation Research Network



CCRN links local communities, conservation and sustainable livelihoods to address environmental and economic challenges, and find best practices of governance.

The CCRN is a partnership of indigenous, community, university, government and NGOs based at Saint Mary's University in Halifax.

The CCRN is using an SES framework to compare and synthesize research worldwide... community experiences in conservation that benefits the well-being of local residents.

**How do communities protect their environment and sustain their local economy at the same time? How can governments help local communities?**



Mainstreaming climate change in the **Coquimbo Region, Chile**



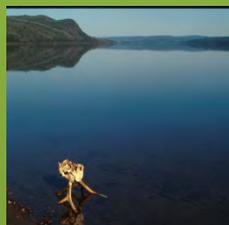
Why do communities conserve? Lessons from Samudram Women's Federation in **Odisha, India**



Recognising rights and integrating local knowledge into an estuary management plan in the **Olifants Estuary: South Africa**



Aboriginal fishing rights, livelihoods, and resource conservation. Nuu-chah-nulth Tribal Council, **Vancouver Island, Canada**



Developing a community-based Innu Nation environmental policy in **Natuashish, Labrador, Canada**



Strengthening the capacity for ecosystem change in coastal communities: the spiny lobster fishery of **Punta Allen, Quintana Roo, Mexico**

## Resource Centre

The CCRN provides a global learning and resource platform on community-based conservation and broadly, the relationships between Community, Conservation and Livelihoods. Please take some time to browse our ever-growing resources which include an interactive Communities in Action map, Community Stories from around the world, Publications on a wide range of environmental topics, Webinars, Videos, Radio clips, etc.



### Community Stories

Stories that showcase a fresh perspective & insightful approach to community conservation & sustainable livelihoods, within a local environmental, cultural & political context.

[BROWSE COMMUNITY STORIES](#)



### Webinars

The Community Conservation Research Network's 10 part webinar series is an in-depth exploration of the themes central to the CCRN: communities, conservation and livelihoods.

[BROWSE WEBINAR VIDEOS](#)



### Communities in Action

Contribute to our growing, global database and share the efforts of a local community with this unique, knowledge-sharing network and interactive map.

[EXPLORE OR CONTRIBUTE](#)



### Community Conservation Guidebooks

View our community conservation guidebooks. These resources focus on Governance and Social-Ecological Systems respectively. View these frameworks in PDF or interactive format.

[SOCIAL ECOLOGICAL SYSTEMS GUIDEBOOK](#)

[GOVERNANCE GUIDEBOOK](#)



### Videos

The following videos and short documentaries are produced by researchers and organizations of many forms, all conveying important insights and experiences on the linkages of Communities, Conservation and Livelihoods.

[VIEW CCRN VIDEOS](#)



### Governing the Coastal Commons

An examination of how coastal communities adapt to environmental change, approaches to governing the coastal commons, emphasizing a social-ecological systems perspective, and the role of resilience and transformation.

[READ BOOKLET](#)

# Communities in Action

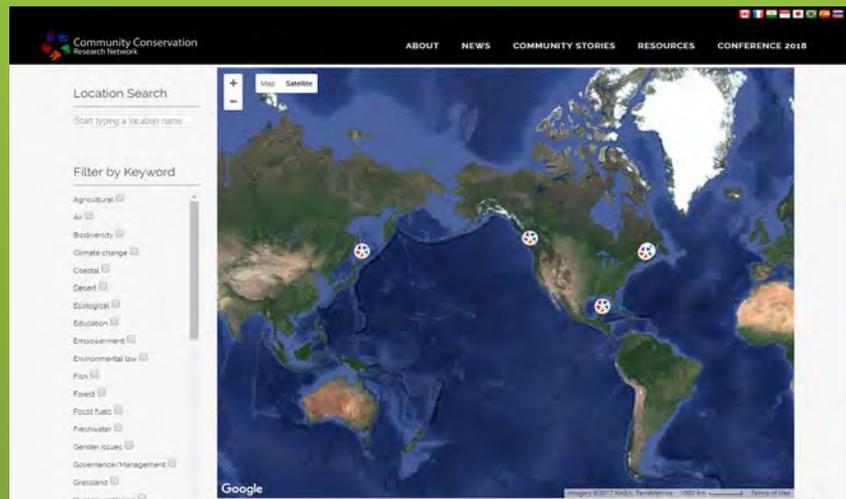
## A World of Communities, Conservation & Livelihoods

Around the world, local communities are working hard to keep their environment healthy and their economy and livelihoods sustainable.

### What is “Communities in Action”?

An online initiative to showcase these experiences of local communities working to protect their environment and their livelihoods.

An interactive map highlighting the global extent of community conservation.

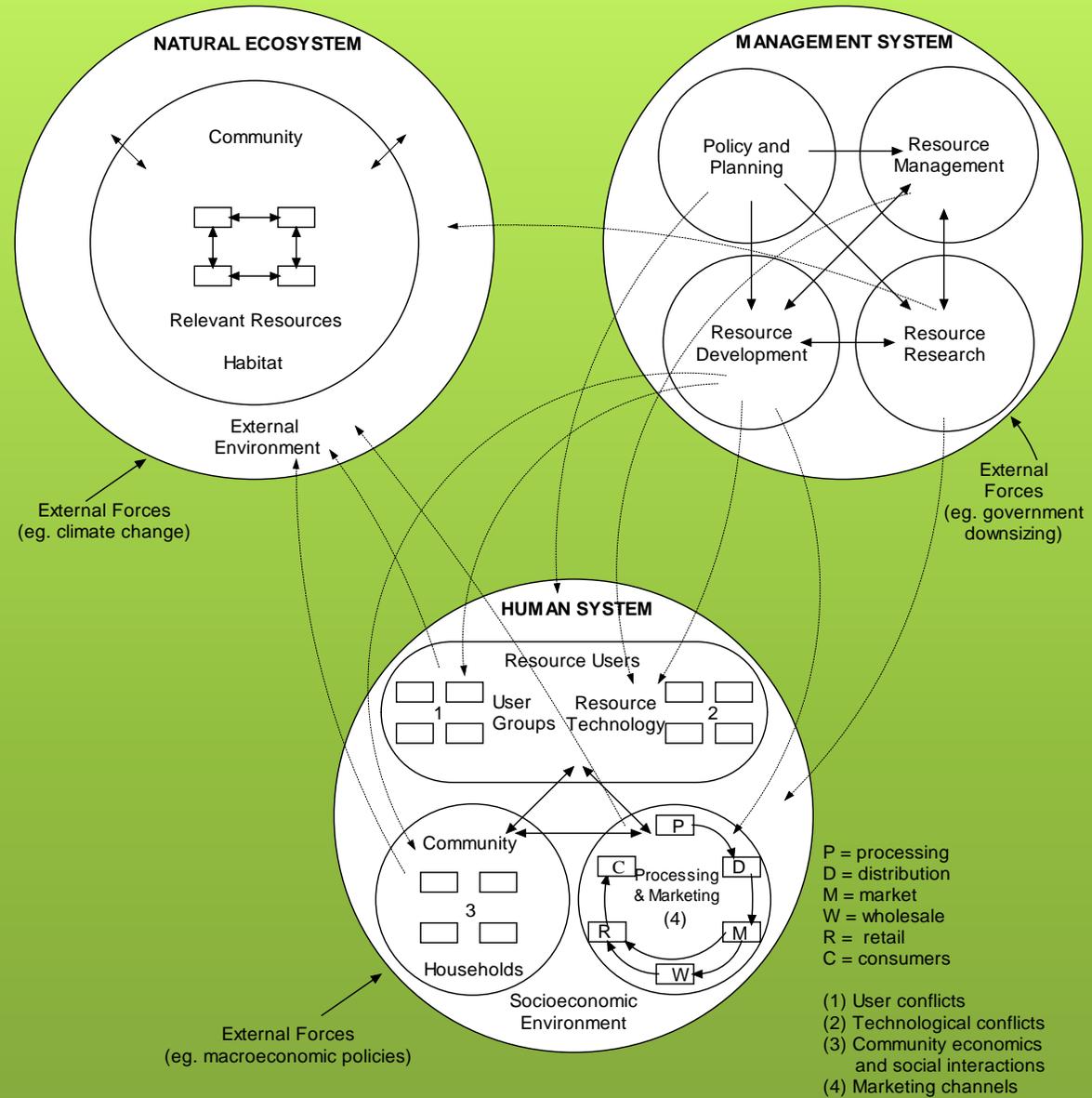


To submit a community story to  
*Communities in Action*, go to:

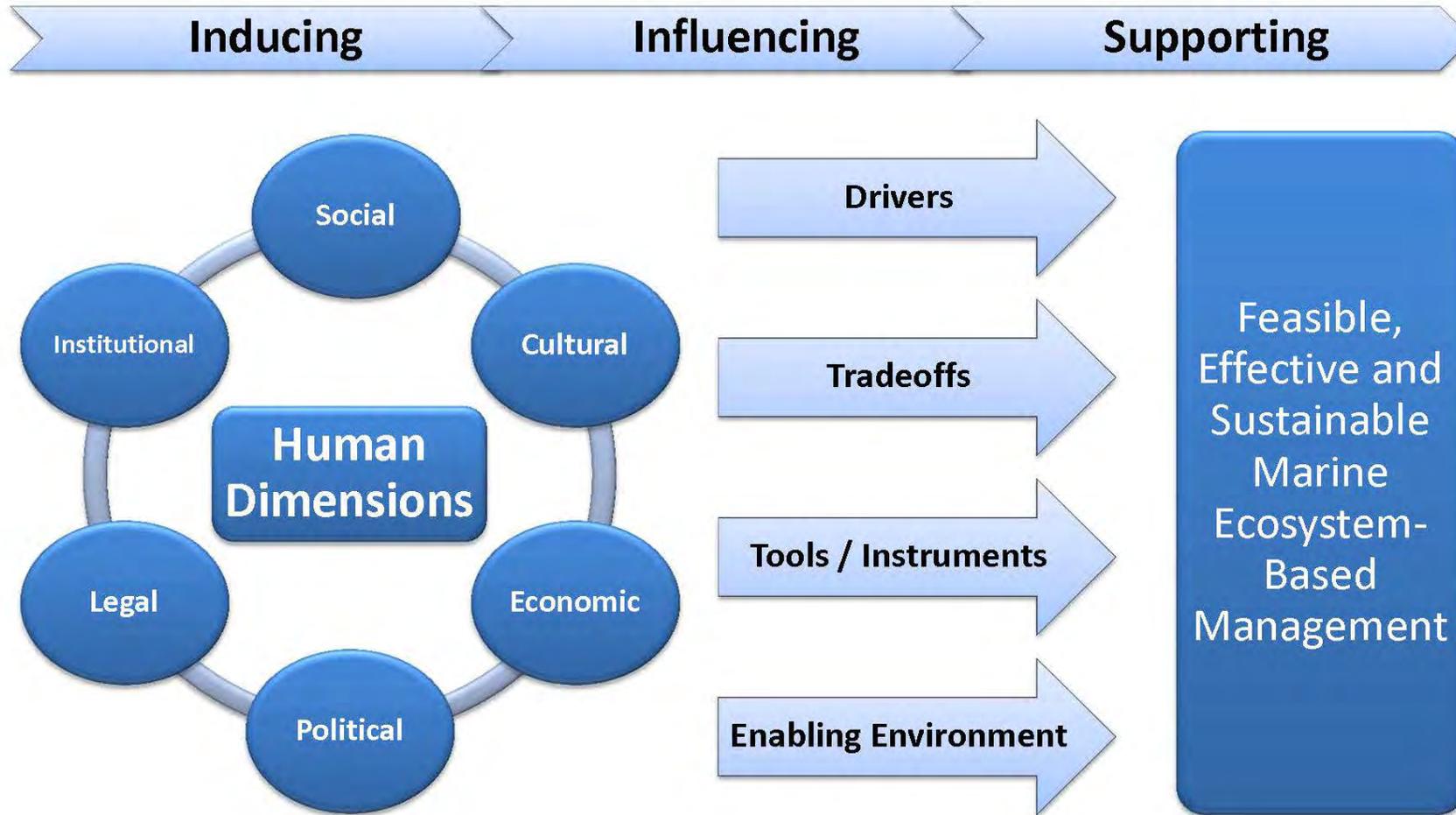
[www.CommunityConservation.net](http://www.CommunityConservation.net)

# Policy Recommendations Responding to Climate Change & Environmental Threats

- Achieving the full adaptation and stewardship potential of local communities requires greater policy attention & 'mainstreaming'.
- Government policy must better consider effects on communities arising from high-level conservation and adaptation work.
- Scientific and management agencies must adapt institutionally to new realities, e.g. align programs and resources to the local-level.
- Seek opportunities to "scale-up" from initiatives of communities to large-scale management, and "scale down" to help local efforts.



# The Role of Human Dimensions in EBM Implementation



Charles, A. 2014. Human dimensions in marine ecosystem-based management. Marine ecosystem-based management. The sea. Volume 16. (M.J. Fogarty & J.J. McCarthy, editors) Harvard University Press. 568p.



# SUSTAINABLE DEVELOPMENT GOALS

**1** NO POVERTY

**2** ZERO HUNGER

**3** GOOD HEALTH AND WELL-BEING

**4** QUALITY EDUCATION

**5** GENDER EQUALITY

**6** CLEAN WATER AND SANITATION

**7** AFFORDABLE AND CLEAN ENERGY

**8** DECENT WORK AND ECONOMIC GROWTH

**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE

**10** REDUCED INEQUALITIES

**11** SUSTAINABLE CITIES AND COMMUNITIES

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

**13** CLIMATE ACTION

**14** LIFE BELOW WATER

**15** LIFE ON LAND

**16** PEACE, JUSTICE AND STRONG INSTITUTIONS

**17** PARTNERSHIPS FOR THE GOALS

**SUSTAINABLE DEVELOPMENT GOALS**