

Program & Abstracts

Rebuilding Collapsed Fisheries and Threatened
Communities - International Symposium



Opening Greetings from Minister of Fisheries:
Darryl King, and Mayor of Norris Point:
Howard Neil

SYMPOSIUM ORGANIZER: BARB NEIS



Thank you very much Minister King and Mayor Neil. It's now my turn to welcome you all to the international symposium, *Rebuilding Collapsed Fisheries and Threatened Communities*. My name is Barbara Neis and I am the Principal Investigator for the Community-University Research for Recovery Alliance which is the main organizer for this event.

Before I open the Symposium, I would like to take this opportunity to thank all of you for coming and to thank our sponsors. Funds to support the Symposium have been provided by the Social Sciences and Humanities Research Council of Canada through its funding of the Community-University Research for Recovery Alliance and its Public Outreach program. Many of you have received funding from your organizations to attend as well and I want to acknowledge those contributions including from the Department of Fisheries and Oceans, the Department of Fisheries and Aquaculture, multiple universities, and other organizations.

I also want to take this opportunity to thank the Voice of Bonne Bay Community Radio Station volunteers for the tremendous technical support they are providing to the Symposium and to remind you that presentations and discussions are being recorded in some cases for live broadcast on the VOBB community radio station and on the web and in other cases for broadcasting later, as well as for source material for a report we will generate from the Symposium and post to our CURRA website. The Bonne Bay Marine Station is also an important partner in our event.

Finally, in terms of housekeeping, I would like to point out to you the emergency exits and to tell you that we will be taking photos during the event for use in reports and the final version of the program from the symposium and for posting on our CURRA website. Also related to the program, most sessions will be held either in this building or in the Lion's Club immediately

WELCOME TO CURRA'S INTERNATIONAL SYMPOSIUM

behind the building. One session is scheduled for the Senior's club which is actually attached to the Lion's Club. There are two supper sessions where pizza and some other munchies will be available free of charge but for which we need you to register in advance with Sandy Culihall and Janet. These sessions are on Tuesday night. One takes place at the Bonne Bay Marine Station, which is just a bit further down the road on the harbor. The other will take place at the Voice of Bonne Bay facilities at the Cottage Hospital, which is up the road and just opposite the turn-off to Neddy's Harbour.

The *Rebuilding Collapsed Fisheries and Threatened Communities International Symposium* is designed to mark the 20th anniversary of the collapse of several groundfish stocks in Eastern Canada; the related closure, starting in July 1992, of multiple groundfish fisheries and related layoffs of up to 40,000 people in Eastern Canada. These stock collapses have become almost emblematic globally of the vulnerability of our oceans and fisheries. They are not unique but many documentaries and presentations on global fisheries open by referencing them. It therefore seemed appropriate and indeed important for us to mark this 20th anniversary and to use it to host a serious discussion about collapsed fisheries and threatened communities focusing not so much on why they happen but on the particular challenges they pose and ways to address them. In the case of our own groundfish stocks, despite a broad array of interventions including prolonged moratoria, stock recovery has been relatively weak and spotty. Despite extensive public, industry and community-level investment in adjustment programs, a license buy-back program, stewardship programs and multiple task forces, the industry as a whole and the communities that have historically depended on fisheries remain vulnerable. I don't think that anyone really understood, when the moratoria were announced in the early 1990s, how long, challenging and contested the rebuilding process would be.

The Newfoundland situation is not unique. The past several decades have witnessed devastating stock collapses and both delayed and limited rebuilding success in many parts of the world. More are likely to happen. Collapses are affecting both marine ecosystems and fishery dependent regions. It is time to take stock of the lessons learned from the Eastern Canadian and other fishery collapses. There are no simple panaceas for successful rebuilding- I think that is clear. It is also clear that stock collapses are something to be avoided at all costs. However, why is rebuilding so challenging? What is the relationship between fishery collapses and short and long-term issues such as food security, livelihoods, employment, and industrial and community resilience? How can we avoid situations where those who may have contributed least to collapses end up paying the most for rebuilding and indeed may no longer be in a position where they can benefit from the necessary sacrifices?

The *Rebuilding Collapsed Fisheries and Threatened Communities International Symposium* is an international, multi-stakeholder event designed to help us learn from each other and to generate ideas for moving forward on rebuilding here and in other parts of the world. We have researchers from multiple disciplines and from different regions of the world, as well as representatives from industry, government and fishery communities here in Newfoundland and some other parts of Canada to help with this work.

Our overarching objective over the next few days will be to take a problem-solving approach to defining and addressing rebuilding challenges. The problems that need solving are both urgent

WELCOME TO CURRA'S INTERNATIONAL SYMPOSIUM

and complex. With climate change, ocean acidification and coastal and offshore development, they are only going to get worse.

This is a unique opportunity and I encourage you to embrace it. In this hotwired world, we are all pulled in many directions at once. I have an artist friend who once said to me "Be here now". He meant that I should, as artists must do, focus on the here and now instead of on what I am going to do next and what is happening elsewhere. There is wifi in this building. It might work, so you will have every opportunity to be distracted. However, I for one am going to do all I can to be here, with you now, focused on this challenge. Time is short. I recently reminded a group of researchers that one of today's fishing vessels can take out a local population of fish while we eat lunch. Furthermore, as illustrated by the relatively recent and devastating Deep Horizon blow-out in the Gulf of Mexico, decisions made over a very short period of time and by a few people have the potential, in some cases, to dramatically alter and seriously harm an entire ecosystem. We need to be vigilant, informed, adaptive and engaged if we are going to sustain our oceans and coastal communities into the future.

What we actually achieve over the next few days is up to all of us. I look forward to working with and to learning from all of you.

TABLE OF CONTENTS

PRE-SYMPOSIUM EVENTS	1
Fishing for the Future Film Festival	1
Featured Visual Artists	2
Program at a Glance.....	4
Keynote speakers	7
Sunday 30 th September	
PRE-SYMPOSIUM WORKSHOPS	17
Workshop 1: Mapping Governance Solutions for Rebuilding	17
Workshop 2: Is there a place for youth in fisheries communities?.....	17
Workshop 3: Intangible Cultural Heritage Session	18
Monday 1 st October	
REBUILDING AND SUSTAINING FISH STOCKS.....	19
➤ Morning sessions	20
Session A1: From single stocks to fisheries ecosystems (pt. 1)	20
Session A2: The role of closed areas in fish stock rebuilding	23
➤ Afternoon Sessions	27
Session A3: A decade in recovery of marine species at risk	27
Session A4: From single stocks to fisheries ecosystems (pt. 2)	28
Session A5: Local ecological knowledge and the rebuilding of marine social-ecological systems.....	32
Session A6: Ecological science informing fishers.....	37
➤ Monday Evening: Symposium Films	41

TABLE OF CONTENTS

Tuesday 2nd October:

REBUILDING FISHING INDUSTRIES	43
➤ Morning sessions	44
Session B1: The role of social power, knowledge & institutions in rebuilding collapsed fisheries	44
Session B2: Youth living and working in fishing communities	47
➤ Afternoon Sessions	50
Session B3: Looking back and looking ahead: international perspectives on rebuilding marine social-ecological systems	50
Session B4: The social-ecology of small pelagic fisheries along the west coast of NL.....	55
Session B5: Aquaculture benefits & challenges (pt. 1)	59
Session B6: Aquaculture benefits of & challenges (pt. 2).....	63
➤ Evening Sessions	67
Session B7: Local and regional strategies for rebuilding fisheries institutions and well-being.....	67
Session B8: Job networking: mentoring graduate researchers for an evolving job market.....	70
Session B9: Local radio as a tool for community capacity building and social cohesion in times of change.....	71
➤ Tuesday Evening: Basics of Filmmaking Workshop.....	73

Wednesday 3rd October:

REBUILDING FISHING COMMUNITIES	74
➤ Morning sessions	75
Session C1: Between oceans and plates: opportunities and challenges in market oriented strategies	75
Session C2: A fishery for the future	79
➤ Afternoon Sessions	81
Session C3: Community food security and fisheries	81
Session C4: Fisheries, coasts and communities.....	83

TABLE OF CONTENTS

Session C5: Labour markets and livelihoods in threatened fishing communities	85
Session C6: Fisheries-tourism synergies: realizing the potential	88
➤ Wednesday Evening: Politicians Panel & Banquet	91
Thursday 4th October:	
MOVING FORWARD	92
➤ Morning sessions	93
Session D1: Future Rebuilding: Challenges, Resources and Opportunities:	93
➤ Afternoon Sessions	94
Evaluation and Symposium Closing	94
 VOICE OF BONNE BAY	 95
BONNE BAY MARINE STATION	96
SYMPOSIUM EVALUATION FORM	97
SPONSORS	99

PRE-SYMPOSIUM EVENTS



Fishing
FOR THE Future
FILM FESTIVAL

September 28 - 30, 2012

Bonne Bay Marine Station in Norris Point, Newfoundland.

The Fishing for the Future Film Festival 2012 marks the 20th anniversary of the closure of Newfoundland and Labrador's northern cod fishery and showcases film and video work on maritime communities, oceans, marine fisheries and aquaculture in Canada and around the world. Tickets will be available for purchase at the Bonne Bay Marine Station. For advance reservation, call (709) 458-3014. (Tickets: \$7 advance, \$10 at the door)

<http://www.fishingforthefuturefilmfestival.ca/>



September 28 th (7:30pm)			September 29 th (2pm)			September 30 th (2pm)		
Film	Director	Runtime	Film	Director	Runtime	Film	Director	Runtime
<i>Taking Stock</i>	Nigel Markham	47 min	<i>My Ancestors were Rogues & Murderers</i>	Anne Troake	58 min	<i>Weather The Storm: The Fight to Stay Local in the Global Fishery</i>	Charles Menzies & Jennifer Rashleigh	36 min
<i>Crossing Time</i>	Jerry McIntosh	4 min						
<i>The Children of Fogo</i>	Colin Low	18 min	<i>Phantoms of the French Shore</i>	Barbara Doran & Jerry McIntosh	45 min			
<i>The White Ship</i>	Hector Lemieux	15 min						
<i>A Harbour Symphony</i>	Barbara Doran	7 min	<i>Vive La Rose</i>	Bruce Alcock	6 min	<i>Cry Sea</i>	Cafi Mohamud & Luca Cusani	55 min
<i>Life Beneath The Waves</i>	Census of Marine Life	5 min						

Featured Visual Artists



Pam Hall is an interdisciplinary artist and PhD candidate whose work has explored the inshore fisheries of Newfoundland for almost 25 years. Fishing with Eli Tucker's inshore crew out of Quidi Vidi from 1988-1992, she witnessed deep and specific ways of knowing the world that were local, lived and living- and that inspired her work as an artist, a learner, and a teacher. Visual art that emerged from that experience is represented through series like the *Tools of the Trade*, *The Shedding of Skins*, the *Inshore Artifacts* and *Things I learned from Eli Tucker*.

Her current research and creation practice investigates the role of visual arts as a way to produce, share and democratize knowledge - to expand how we think about what knowledge IS and

who is 'invited' to participate in its production. She is especially interested in ideas about "the local" and the *location* of knowledge, so is working to create an "Encyclopedia of Local Knowledge" with more than 80 multi-generational collaborators on the west coast of Newfoundland. In a moment of environmental and social crisis in many coastal communities once reliant on the fisheries, she is working to mobilize a diverse range of local voices and knowledges, to include them in meaningful dialogues about future-building and to demonstrate the generative and dialogical contributions that art might make towards a restorative sustainability of place. For more information on Hall's work visit www.pamhall.ca.

What Louise knows about Lobster Pots



The lobster pot has two 'doors' or openings- they are called HEADS and are funnel-shaped netting through which the lobster enters the trap. There is an interior funnel of netting through which the lobster crawls into the PARLOUR- and from which they cannot get out. The bait is skewered on a sharp stick or peg called a SKIVER (sometimes a metal spike) but must be secured so it does not float up off the bait stick. It is secured with a SKIVER BUTTON. The SKIVER LINE secures the skiver in place and runs from the top to the bottom of the trap on the inside. This line also secures the leather or rubber skiver button. Some people call the skiver a *skiffer* or even a *skipper*.

Featured Visual Artists



Fish Plants 2006-2012

Pierre N. LeBlanc: The genesis of this work was, in part, my desire to work within the confines of a particular photographic tradition.

The New Topographers was a loosely collected group of photographers who worked with the landscape asking big questions around where the artist becomes silent and the subject begins its own dialogue, in short: *objectivity*.

Industrial landscapes and architectures have always been attractive as representations of a view of contemporary society, not as a post-apocalypse but rather as a “status report”.

It is timely to be looking at the fish plant as a physical and social structure, changes in fishery management and activity have altered the

sequence the landscape has changed. This work aims at looking at the fish plant within a rational photographic practice; not as a nostalgic document but rather as a state of affairs. What do we learn when we observe?



PROGRAM AT A GLANCE

Pre-symposium Workshops & Events

Sunday, September 30th, 2012

Time	Program Content	Organizers	Location
9:00am - 1:00pm	Mapping Governance Solutions for Rebuilding Workshop	Ratana Chuenpagdee & Barb Neis	Bonne Bay Marine Station (BBMS)
10:00am - 12:00pm	Is There a Place for Youth in Fisheries Communities? Workshop	Nicole Power	BBMS
1:00pm - 4:00pm	Intangible Cultural Heritage Workshop	Anita Best	Cottage Hospital
2:00pm - 4:00pm	Fishing for the Future Film Festival: Cry Sea, Weather the Storm		BBMS
5:30pm - 7:30pm	Registration & Orientation for Volunteers		Town Hall
8:00pm - 10:30pm	Fishing for the Future Film Festival: Pop Flips out, Cod: Renewing a Bountiful Catch, A Sea Change		BBMS

Short Program: CURRA Symposium

Monday, October 1st, 2012

Time	Program Content	Speakers	Location
7:30am - 8:30am	Continental Breakfast and Registration		Town Hall
8:30am - 9:00am	Opening and Welcome	Minister of Fisheries: Darryl King, Mayor of Norris Point: Howard Neil & Barb Neis	Town Hall
9:00am - 9:30am	Keynote Address 1: The Booms, Busts and Challenges of Low Diversity Ecological and Social Systems	Robert Steneck	
9:30am - 10:00am	Keynote Address 2: Sustaining the Biological Resources of our Oceans in Response to Challenges posed by Climate Change, Fisheries and Aquaculture	Ian Fleming	
10:00am - 10:30am	Coffee Break		Town Hall

Concurrent Sessions:

10:30am- 12:00pm	Session A1: From Single Stocks to Fisheries Ecosystems (pt. 1)	Organizer: G. Rose	Town Hall
10:30am- 12:00pm	Session A2: The Use of Closed Areas to Help Rebuild Depleted Fish Stocks	Organizer: J. Lubar	Lion's Club

12:00pm - 1:00pm	Lunch		Town Hall
------------------	-------	--	-----------

Concurrent Sessions:

1:00pm- 2:30pm	Session A3: A Decade in Recovery of Marine Species at Risk: Lessons Learned	Organizer: K. Blanchard	Lion's Club
1:00pm- 2:30pm	Session A4: From Single Stocks to Fisheries Ecosystems (pt. 2)	Organizer: G. Rose	Town Hall

2:30pm - 3:00pm	Coffee Break		Town Hall
-----------------	--------------	--	-----------

Concurrent Sessions:

3:00pm - 4:30pm	Session A5: Local Ecological Knowledge and the Rebuilding of Marine Social-ecological Systems	Organizer: G. Murray	Town Hall
3:00pm - 4:30pm	Session A6: Ecological Science Informing Fisheries	Organizer: C. Campbell	Lion's Club

PROGRAM AT A GLANCE

Time	Program Content	Speakers	Location
4:45pm - 5:15pm	Synthesis	Carolyn Lavers, Sharmane Allen	Town Hall
5:15pm – 7:30pm	Supper/ Free Time		Local Restaurants
7:30pm -10:00pm	Symposium Films: Taking Stock, Chilika Bank\$, A Coastal Partnership		Town Hall
Tuesday, October 2nd, 2012			
7:30am – 9:00am	Continental Breakfast and Registration		Town Hall
9:00am - 9:30am	Keynote Address 3: Co-creating a Path for Community Food Security: Is it possible?	Patty Williams	Town Hall
9:30am - 10:00am	Keynote Address 4: Good Governance Makes Us Happy?	Ratana Chuenpagdee	
10:00am - 10:30am	Coffee Break		Town Hall
Concurrent Sessions:			
10:30am – 12:00pm	Session B1: Social Power, Knowledge and Institutions in the Rebuilding of Collapsed Fisheries	Organizer: B. Neis & A. Khan	Town Hall
10:30am – 12:00pm	Session B2: Youth Living and Working in Fisheries Communities	Organizer: N. Power	Lion's Club
12:00pm - 1:00pm	Lunch		Town Hall
Concurrent Sessions:			
1:00pm – 2:30pm	Session B3: Looking Back and Looking Ahead:	Organizer: P. Nayak	Town Hall
1:00pm – 2:30pm	Session B4: The Social-ecology of the Small Pelagic Fisheries Along the West Coast of Newfoundland	Organizer: B. Paterson	Lion's Club
1:00pm – 2:30pm	Session B5: Aquaculture Benefits and Challenges (pt. 1)	Organizer: P. Gagnon	Senior's Club
2:30pm – 3:00pm	Coffee Break		Town Hall
Concurrent Sessions:			
3:00pm – 4:30pm	Session B6: Aquaculture Benefits and Challenges (pt. 2)	Organizer: P. Gagnon	Senior's Club
3:00pm – 4:30pm	Session B7: Local and Regional Strategies for Rebuilding Fisheries Management Institutions and Well-being	Organizer: E. Pinkerton	Town Hall
4:45pm - 5:15pm	Synthesis	Carolyn Lavers, Sharmane Allen	Town Hall
Concurrent Supper Sessions:			
6:00pm – 7:30pm	Session B8: Job Networking: Mentoring Graduate Researchers for an Evolving Labour Market	Organizer: A. Khan	BBMS
6:00pm – 7:30pm	Session B9: Local Radio as a Tool for Community Capacity Building and Social Cohesion	Organizer: I. Emke	Cottage Hospital
7:00pm	CURRA Advisory Board Meeting		Sugar Hill Inn
8:00pm – 10:00pm	Workshop: Basics of Filmmaking	Derek Norman	BBMS

PROGRAM AT A GLANCE

Time	Program Content	Speakers	Location
Wednesday, October 3rd, 2012			
7:30am – 9:00am	Continental Breakfast and Registration		Town Hall
9:00am – 9:30am	Keynote Address 5: Rebuilding the Fisheries: the Fogo Island Experience	Bonnie McCay & Bernadette Dwyer	Town Hall
9:30am – 10:00am	Keynote Address 6: A Holistic Approach to Rebuilding Fisheries	George Rose & Zita Cobb	
10:00am – 10:30am	Coffee Break		Town Hall
Concurrent Sessions:			
10:30am – 12:00pm	Session C1: Between Oceans and Plates: Opportunities and Challenges in Market Oriented Strategies	Organizer: P. Foley	Lion's Club
10:30am – 12:00pm	Session C2: A Fishery for the Future?:	Organizers: K. Vodden	Town Hall
12:00pm – 1:00pm	Lunch		Town Hall
Concurrent Sessions:			
1:00pm - 2:30pm	Session C3: Community Food Security and Fisheries	Organizer: K. Lowitt	Lion's Club
1:00pm - 2:30pm	Session C4: Fisheries, Coasts and Communities:	Organizer: A. Charles	Town Hall
2:30pm – 3:00pm	Coffee Break		Town Hall
Concurrent Sessions:			
3:00pm – 4:30pm	Session C5: Labour Markets and Livelihoods in Threatened Fishing Communities	Organizer: P. Sinclair	Lion's Club
3:00pm – 4:30pm	Session C6: Fisheries-tourism Synergies: Realizing the Potential	Organizer: K. Carter	Town Hall
4:45pm - 5:15pm	Synthesis	Carolyn Lavers, Sharmane Allen & Bruce Gilbert	Town Hall
5:15pm – 7:15pm	Free Time		
7:00pm - 10:00pm	Banquet & Politician's Panel	Chris Mitchelmore, Yvonne Jones & Government Rep.	Ocean View Hotel, Rocky Harbour
Thursday, October 4th, 2012			
7:30am – 9:00am	Continental Breakfast and Registration		Town Hall
9:00am - 9:30am	Keynote address 7: Reflections on Sustainable Fisheries Communities -- A Youth Lens	Nicole Power	Town Hall
9:30am - 10:00am	Keynote Address 8: Research for Rebuilding	Rob Stephenson	
10:00am – 10:30am	Coffee Break		Town Hall
Plenary:			
10:30am – 11:45am	Session D1: Future Rebuilding: Challenges, Resources and Opportunities	Organizer: B. Neis	Town Hall
11:45am - 1:30pm	Extended working lunch (Small Group Discussion)		Town Hall
1:30pm -2:30pm	Feedback and Discussion		Town Hall
2:30pm – 3:15pm	Evaluation and Symposium Closing	Doug House &	Town Hall

PROGRAM AT A GLANCE

		Rosemary Ommer	
--	--	----------------	--

KEYNOTE SPEAKERS



Robert S. Steneck
Professor of Oceanography, Marine Biology and Marine Policy
University of Maine
School of Marine Sciences
Darling Marine Center
Walpole, Maine, USA

Bob Steneck is a marine ecologist whose laboratories are coral reefs in the Caribbean and Indopacific oceans and kelp forests in North America. There, he has studied sea urchins, fish, corals and lobsters as well as historical ecology, global climate change and the science of managing marine resources. Currently, his research focuses on how complex biological and social systems interact. Specifically, he is focusing on the ecology and management of marine ecosystems in tropical, temperate and subarctic ecosystems. He studies what drives the recruitment of marine organisms, especially the relative demographic importance of larval connectivity versus the receptivity of the habitats into which larvae recruit. He is interested in factors that affect the resilience of complex biological and social systems.

Bob has written more than 130 peer-reviewed scientific publications. He received the research award from the International Lobster Congress; he is a Fellow of the American Association for the Advancement of Science and was selected as a Pew Fellow in Marine Conservation. His research has been highlighted in Newsweek, The New York Times, The New Yorker, Atlantic Monthly and National Public Radio, and in books such as *The Secret Life of Lobsters* and *The View from Lazy Point: A Natural Year in an Unnatural World*. He earned a bachelor's degree in biology/geology at Baldwin-Wallace College, a master's degree in botany and plant pathology at the University of Maine and a Ph.D. degree in earth and planetary sciences at the Johns Hopkins University.

KEYNOTE ADDRESS TITLE: THE BOOMS, BUSTS AND CHALLENGES OF LOW DIVERSITY ECOLOGICAL AND SOCIAL SYSTEMS

Low diversity ecosystems and social systems can change suddenly and surprisingly. These systems may be highly productive and an important source of employment but often the risks associated with lucrative monocultures are under-estimated. I will illustrate this with the Maine lobster fishery. Over the past century, economic and political drivers affecting this social-ecological system have changed. The baseline biodiversity in the western North Atlantic is low and initially fishing focused on a few species of high economic value. However, as fishing capacity escalated and economic markets diversified most fish stocks underwent a landings “boom” prior to their “bust”. The American lobster an exception but its record landings offer no protection from catastrophic decline. Considering the health of the entire ecosystem including the social system that depends on it will require a new and more circumspect approach to ecosystem-based management. Meetings such as this one are a good place to compare notes on what has worked and how we avoid the “gilded trap” of lucrative monocultures.

KEYNOTE SPEAKERS



Ian Fleming
Professor of Biology
Memorial University of Newfoundland
Ocean Science Centre
St. John's, NL

Ian Fleming is a Professor in the Department of Ocean Sciences of Memorial University and its former Director (2004-2009). His research integrates perspectives from ecology and evolution with fishery and conservation biology. He has worked extensively on the management and conservation of wild fish populations, including the interactions between aquaculture and wild fish. Ian has published widely and has served in a number of capacities related to fisheries research and policy, including review panels for the Royal Society of Canada, the Natural Sciences and Engineering Research Council of Canada, the US National Academies of Science, the Organisation for Economic Co-operation and Development, Fisheries and Oceans Canada, the Sustainable Ecosystems Institute, the Center for Independent Experts, NOAA Fisheries and the World Wildlife Fund. He has previously held academic/research positions at the Norwegian Institute for Nature Research (1991-2001) and Oregon State University (2001-04), and continues to hold adjunct status at both institutes.

KEYNOTE ADDRESS TITLE: SUSTAINING THE BIOLOGICAL RESOURCES OF OUR OCEANS IN RESPONSE TO CHALLENGES POSED BY CLIMATE CHANGE, FISHERIES AND AQUACULTURE.

Our oceans are vital biological, geochemical and physical entities that support human health and societal well-being. Reductions in the biological diversity of our oceans are likely to impair their capacity to provide a plethora of ecosystem services that contribute to the resilience of marine ecosystems and to the well-being of humankind (e.g. food, oxygen, recreation, carbon sequestration, culture). Here, Dr. Fleming reports on the recently released findings of the Royal Society of Canada Expert Panel (2012) that explored significant challenges faced in efforts to sustain the biological resources of our oceans in light of climate change, fisheries and aquaculture. The panel was tasked with assessing the state of Canadian marine biodiversity and looking for ways to sustain it, as well as assessing Canada's effectiveness in providing healthy, safe and prosperous oceans for the benefit of Canadians today and in the future. What was found was a threatened marine environment, where our biological resources are at risk. Among the three factors examined, human-induced climate change represents the greatest challenge primarily because its effects on marine biodiversity will not be readily reversed. The simplest and best strategy to deal with climate change is to protect existing diversity and to rebuild depleted populations and species to restore natural diversity. The panel found, across all three subjects it focused upon, not a lack of knowledge or lack of sound policy, but a consistent, disheartening lack of action on well-established knowledge and best-practice and policies, some of which have been around for years.

KEYNOTE SPEAKERS



Patty Williams
Associate Professor and Canada
Research Chair in Food
Security and Policy Change
Department of Applied Human
Nutrition and Director, Participatory
Action Research and Training Center
on Food Security

Patty Williams is a Canada Research Chair in Food Security and Policy Change and the founding director of the newly established Participatory Action Research and Training Centre on Food Security at Mount Saint Vincent University in Halifax, Nova Scotia. She is a founding member of the Nova Scotia Food Security Network. Her research focuses on the use of participatory research processes to engage multiple inter-sectoral partners in the issue of food security, and capacity building processes for social and policy change.

KEYNOTE ADDRESS TITLE: FOOD SECURITY

Over a decade of participatory action research on food security in the province of Nova Scotia, supported by strong partnerships across the country, has served to facilitate meaningful engagement of partners from diverse backgrounds to critically consider and address determinants of community food security. Partnerships and tools and processes for research, knowledge mobilization and policy development on food security have contributed to a strong food movement in the province. Drawing upon the experience in Nova Scotia and national work, this keynote will highlight some current opportunities, challenges and tensions in efforts to build community food security at multiple levels within and across key sectors including the fisheries sector.



Ratana Chuenpagdee
Canada Research Chair in Natural
Resource Sustainability and
Community Development
Department of Geography
Memorial University of Newfoundland
St. John's, NL

Ratana Chuenpagdee is Canada Research Chair in Natural Resource Sustainability and Community Development and Associate Professor at Memorial University of Newfoundland, St. John's, Canada. She conducts interdisciplinary research on topics related to small-scale fisheries, coastal and ocean governance, resource sustainability, community development, integrated coastal management, decision-support tools, and

KEYNOTE SPEAKERS

communicating sciences to policy makers and general public. Ratana is currently leading a major global research partnership initiative, *Too Big to Ignore*, which aims at elevating the profile of small-scale fisheries and rectifying their marginalization in national and international policies through the development of global information system, comparative case studies, and building of transdisciplinary research and governance capacity at all levels.

KEYNOTE ADDRESS TITLE: GOOD GOVERNANCE MAKES US HAPPY? REFLECTIONS FROM FISHERIES

According to the recent United Nations World Happiness Report, ‘good governance’ is one of the criteria determining how countries rank on a happiness scale. Such emphasis is an invitation to examine what constitutes good governance and what it transpires, when concerning contested societal issues like fisheries. For many coastal communities, fishing is indeed a happy life. Fisheries policies and decisions, however, do not always result in happy outcomes. Examples of these are found in Newfoundland where traditional fishing livelihoods have been uprooted with the cod moratorium in 1990s, the long struggles in rebuilding, and the general disagreement about next steps. Drawing from research on fisheries governance in Newfoundland and elsewhere, the paper highlights key features and factors that contribute to making governance good for fisheries and making fishing a happy way to live.



Bonnie McCay
Professor
Department of Human Ecology
Rutgers University
New Brunswick, NJ

Bonnie McCay is Board of Governors Distinguished Service Professor at Rutgers University, New Brunswick, New Jersey, in the Department of Human Ecology of the School of Environmental and Biological Sciences. Her graduate training was in environmental anthropology at Columbia University (PhD 1976), and her research and teaching have focused on challenges and policies for managing common pool resources, particularly fisheries, with particular attention to intersections of ecology, community, and social institutions of science, law and property, with increased attention to climate change. She has done field research in Newfoundland and Nova Scotia, Canada, in the Middle Atlantic region of the U.S., and in Baja California, Mexico, with funding from the U.S. National Science Foundation, the Sea Grant College Program, and the New Jersey Agricultural Experiment Station. Her books include “The Question of the Commons,” “Oyster Wars and the Public Trust,” “Enclosing the Commons,” and “Against the Grain.” She was recently elected member of the National Academy of Sciences, is a fellow of the American Association for the Advancement of Science and other professional groups, and serves on the Scientific and Statistical Committee for the Mid-Atlantic Fisheries Management Council as well as numerous editorial boards and scientific advisory groups.

KEYNOTE SPEAKERS



Bernadette Dwyer
Masters in Management of Co-operatives and Credit Unions.
Fisheries Leader,
Tilting, Fogo Island.

Bernadette Dwyer grew up in the central Newfoundland town of Gambo. She began her working career with the Government of Canada in its Unemployment Insurance Commission office in Gander, NL where she worked for five years. In 1976 she married Gerard Dwyer of Tilting, Fogo Island and moved there with him in 1979. Gerard returned to fishing and in 1981 she began working with the Fogo Island Co-operative in its groundfish operation as costing clerk. Later she became Production Costing Manager for the co-op's three plants, as well as Special Projects Manager. Over the years she filled several roles including serving on the Board of Directors for five years, one as secretary and four as president. In 1996, after 25 years of service at the Co-op, she took an extended leave of absence. However, she continued her studies at St. Mary's University (including going to Mondragon, Spain) and graduated in 1997 with a Masters in Management of Co-operatives and Credit Unions (MMCCU). During her career, Bernadette has served on several community, regional, provincial, and federal boards and committees. She attended the High Seas Fisheries Conferences at the United Nations in the early 1990's where she had the opportunity to present to the General Assembly on the impact of high seas fishing on coastal communities. She also attended the Earth Summit's Global Forum in Rio De Janeiro in 1992 and participated in the first Oceans Day sponsored by Canada. Bernadette chaired the panel on the fishery in Newfoundland and Labrador, sponsored by the federal Round Table on the Environment and Economy. Most recently she helped spear-head an effort to create a field study program in Tilting and led "An Island of Vision," an island-wide effort to document the past two decades of the fisheries and fishing-dependent communities of Fogo Island. This last initiative concluded with a week-long community radio broadcast in August, 2012.

TITLE: REBUILDING THE FISHERIES: THE FOGO ISLAND EXPERIENCE

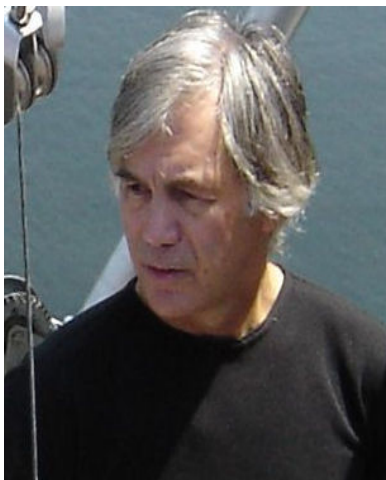
Fogo Island is the largest of Newfoundland's offshore islands and is located on its northeast coast, in the heart of Canadian fishing zone 2J3KL, the central location of northern cod. The eight communities of Fogo Island were among those struck hard by the collapse of the northern cod fishery in 1992. Overnight, in the middle of the fishing season, the fishery was shut down and fishers were ordered to remove their gear from the water. Fishers immediately lost their main source of income; the local fishery co-operative lost 50% of its raw material and 40% of its revenue; and there were major reductions in plant worker employment, significant disruptions to the local economy and an overall feeling of disbelief and despair. Gradually as responses to the fishery collapse and the northern cod closure began to coalesce, the people of Fogo Island and its fishery co-operative began to regroup and carve out a new way forward.

The past twenty years have brought with them many changes – to the fishery, the community, the island economy and its island culture -- not least of which is a 20% decline in population and the continual loss of its youth. It experienced a 35% reduction in the number of

KEYNOTE SPEAKERS

fishers as well as a comparable reduction in the number of plant workers. Nonetheless, Fogo Island still remains an active and viable fishing community, but like other fishing communities, is struggling to keep abreast of and adapt to the ever changing conditions in the fishing industry and its resource while continuing to use its vision and strength to continue to diversify its economy and remain viable. The uniqueness of Fogo Island and the strength and character of its people have not gone unnoticed, and in recent years tourism has become a welcomed part of the island economy. But the fisheries remain the principal source of income for those who stayed and remain the economic and cultural core of the island.

In this keynote address, we use aggregate data to recount the general paths taken by fishers who were heavily dependent on cod and who chose to stay in the fisheries by diversifying and innovating, with a major shift into crab and shrimp, as occurred elsewhere in the region. We then turn to the specific experiences of two fishing operations to illustrate different “rebuilding” strategies: staying small-scale and coastal- and mid-shore, and shifting into the large-scale, near- and offshore fishery. We also recount the general paths that the cooperative took to diversifying its processing capability and seek out markets to meet its production needs, while trying to address the needs of its member/owners – its fishers and plant workers. The result is a highly diverse fishery yjy has proved resilient to changes in resources, regulations, and markets. Resilience --- the capacity to respond adaptively to challenges in the environment --- has been enhanced by island culture, which, even in the Walmart, internet, and credit card era, values frugal living and community action. However, even frugal living may not be enough for small-boat fishers, threatening the diversity of the fleet. We discuss this problem, but also the role of the island-wide fisheries cooperative in these and other matters that threaten the future of the island’s communities. The cooperative is one of several island-wide --- but island specific --- institutions, such as the school system and the recently amalgamated Town of Fogo Island. Having such a local, community-oriented institution for the fisheries, in a setting otherwise dominated by union/buyers/government, is critical to the maintenance of a diverse fishery and hence the future of the island.



George Rose
Professor of Biology
Director of the Centre for Fisheries
Ecosystems Research
Marine Institute
Memorial University of Newfoundland
St. John’s, NL

George Rose is Director of the Centre for Fisheries Ecosystems Research (CFER) at the Marine Institute of Memorial University. He holds a PhD (McGill) and MSc (Laurentian) in biology and a BSc (Agr.) in fisheries and wildlife management from Guelph. Prior to the creation of CFER, Dr. Rose held the NSERC industrial research chair in fisheries conservation at Memorial for 10 years, and has worked for DFO, the U.S. and New Zealand governments, the Ontario Ministry of Natural Resources and CIDA-CUSO in Africa. He has published over 100 scientific papers and books, most on the

KEYNOTE SPEAKERS

North Atlantic fisheries, and is the Editor-in-Chief of the international journal Fisheries Research.



Zita Cobb
President
Shorefast Foundation

Zita Cobb, President, Shorefast Foundation, grew up on Fogo Island and went on to a career as a senior finance professional in the high technology industry. She was the chief financial officer of JDS Fitel and senior vice president of strategy for fiber optics manufacturer JDS Uniphase. In 2001, Cobb left the industry to pursue her personal goals and to dedicate her energies to philanthropic work. She founded the Shorefast Foundation, moved home to Fogo Island (while maintaining a residence in Ottawa), and is now actively involved in projects to contribute to a resilient and vibrant future for Fogo Island and Change Islands.

KEYNOTE ADDRESS TITLE: A HOLISTIC APPROACH TO REBUILDING FISHERIES

Many fisheries around the world produce less than they did historically as a consequence of reduced stocks and ecosystem changes. Such reductions seriously impact fisheries production and fishing community sustainability. Attempts to rebuild fish stocks and fishing communities are fraught with both ecological and human-centred problems. Ecosystems change over time, both from anthropogenic and natural causes, making historical norms problematic targets. Single species management targets are often meaningless without consideration of allied ecosystem changes. The example of cod rebuilding in the absence of capelin and an abundance of seals will be highlighted. Moreover, human values change, influencing markets for seafood and economic returns. In addition, human population expansion has increased competition for limited resources in many fisheries. The necessity of conserving fisheries and fishing communities in many regions of the world, and the desirability of doing so in others, will be emphasized. We will argue, however, that fisheries alone cannot support expanding human coastal communities; that limits in fish harvest and community expansion have been reached or surpassed. We advocate a more holistic approach, wherein conservation not only of fish but of fishing communities and cultures can lead to additional industries via tourism that enhance socio-economic benefits and assist conservation. Examples from Newfoundland and East Africa will be used.

KEYNOTE SPEAKERS



Nicole Power
Associate Professor
Department of Sociology
Memorial University of Newfoundland.

Nicole Power researches mainly in the areas of gender, work, health and safety, fisheries, and youth. Much of her research has been affiliated with large, multidisciplinary, mixed methods SSHRC or CIHR funded projects and has engaged the wider community through research partnerships. She is the lead on the Rural Youth and Recovery component of the CURRA project, and with her colleagues developed a mixed methods research design to investigate young people's experiences and understandings of work and recreation in rural communities, as well as their connections to place and intentions to stay, leave or return. This work builds on an earlier pilot project examining the occupational health and safety of employed youth in rural NL, funded by Memorial University's SafetyNet Centre for Occupational Health and Safety Research, and the Atlantic Rural Centre at Dalhousie University. Currently, she is researching the employment-related geographical mobility of young apprentices and high school students in NL.

KEYNOTE ADDRESS TITLE: REFLECTIONS ON SUSTAINABLE FISHERIES COMMUNITIES -- A YOUTH LENS

Since the early 1990s, fisheries dependent communities along the coast of Newfoundland have experienced a number of challenges including collapsed fisheries and moratoria, outmigration and an aging population and labour force. Drawing on the CURRA Rural Youth and Recovery research, this presentation focuses on the lives of young people in fisheries communities, in particular young people's relationship to fisheries, youth employment, and young people's decisions to stay or leave. Young people described ambivalent connections to their fisheries communities. On the one hand, participants described their communities as in decline, and lacking opportunities for meaningful employment. At the same time, many of the participants drew nostalgically on collective stories about the fishery of the past and expressed strong emotional connections to their fishery heritage and its aesthetics. Young people's conflicted and ambivalent connections to place and their experiences living in fisheries communities provide insight into the long-term and generational impacts of prolonged moratoria and industry downsizing, and suggest possibilities for rebuilding sustainable communities.

KEYNOTE SPEAKERS



Robert L. Stephenson
Research Scientist
Department of Fisheries and Oceans
Professor
St. Andrews Biological Station
University of New Brunswick

Robert L. Stephenson has been a research scientist with the Canadian Department of Fisheries and Oceans (DFO) St. Andrews Biological Station since 1981, and is currently Visiting Research Professor at the University of New Brunswick. He is Principal Investigator of the Canadian Fisheries Research Network – an NSERC-funded network that is linking academics, industry and government in collaborative fisheries research across Canada.

Stephenson has worked extensively on the ecology, assessment, and management of Atlantic herring, and more broadly on issues related to fisheries resource evaluation and Fisheries Management Science. Current research interests include fisheries ecology and management, development of integrated coastal zone management, implementation of the ecosystem approach (particularly in fisheries and aquaculture), and development of policies and strategies for sustainability of marine activities.

Dr. Stephenson holds a B.Sc. from Trent University (Peterborough, Ont.), and a Ph.D. from the University of Canterbury (Christchurch, N.Z.). From 2005-2009 he was Director of the St. Andrews Biological Station (St. Andrews, New Brunswick). Dr. Stephenson has been an active contributor to fisheries science internationally, including roles as chair of Resource Management and Pelagic Fish Committees of the International Council for Exploration of the Sea (ICES). He has been an Honorary Research Associate of the Dept of Oceanography, Dalhousie University, and in 1999-2000 was visiting Research Professor and the Finnish Game and Fisheries Research Institute (Helsinki, Finland).

KEYNOTE ADDRESS TITLE: RESEARCH FOR REBUILDING

Rebuilding fisheries and communities requires new and different information, tools and approaches. This presentation examines key research needs based on the experience to date of the NSERC Canadian Fisheries Research Network and the discussions of the CURRA Rebuilding Symposium. The NSERC Canadian Fisheries Research Network is a unique collaboration among Canada's academic researchers, fishing industry and government. The vision of this network is to undertake collaborative research around strategic questions of management that will contribute to a sustainable fishing industry. Through this collaboration the Network is reshaping fisheries research in Canada and is training much of the next generation of fisheries researchers and managers in collaborative approaches. While the lessons of the Network are still emerging, there are a number of clear issues and apparent trends. The management landscape is changing toward a more holistic, participatory system with a greater spectrum of objectives reflecting a broader international perspective of sustainability. Increasingly, the considerations of management require information on ecological, economic,

KEYNOTE SPEAKERS

social and institutional aspects of the system and there is the need for interdisciplinary approaches. These are reflected in more complex domestic management plans, increasing pressure to obtain and maintain 'social license' (through market certification, for example) and evaluation of cumulative impacts through regional 'ecosystem' evaluations. The broader perspective requires new and different information, much of which must come from the fishing industry and from associated communities. Canada currently has a shortfall in research capacity, and it is clear that there is ongoing need for increased collaboration and capacity-building so that all participants can contribute effectively.

Workshop 1:

"Mapping Governance Solutions for Rebuilding: An Interactive Dialogue"

Organized by Ratana Chuenpagdee.
9:00am - 1:00pm, Bonne Bay Marine Station

This half-day workshop is organized to enable interactive discussion about practical and innovative governance solutions for rebuilding fisheries and fishing communities.

Broadly speaking, governance refers to mechanisms, processes and institutions through which public and private sectors articulate their interests, exercise their rights, meet their obligations and mediate their differences in order to make decisions affecting society. The workshop will begin with two short introductory presentations, one on governance and another on rebuilding. Participants will then be invited to share their experiences in the fisheries contexts that they are familiar with. We will focus the discussion on what we can learn from these experiences about the governance issues associated with rebuilding and identify what it will take to rebuild fisheries and fishing communities. One possible output of the workshop will be a list of factors and conditions that may foster or inhibit fisheries from rebuilding, and suggestions about possible solutions to address them.

Workshop 2:

**"Is there a place for youth in fisheries communities?
A multiple perspectives discussion"**

Organized by Nicole Power.
10:00am - 12:00pm, Bonne Bay Marine Station

Youth outmigration and an aging labour force in the fishing industry have been identified as challenges facing fisheries communities. This workshop session will bring together stakeholder organisations, researchers and youth to discuss the place of young people in fisheries communities and to consider multi-and inter-generational strategies for rebuilding fisheries communities. The session will

PRE-SYMPOSIUM WORKSHOPS

combine short presentations and a roundtable discussion with the goal of producing a short list of recommendations. Stakeholder organisations may include representatives of the Youth Retention and Attraction Strategy, Community Youth Network, FFAW, Professional Fish Harvester Certification Board, Food Security Network, Western School District, and municipalities.

Workshop 3: **"An Intangible Cultural Heritage Session"**

Organized by Anita Best.
1:00pm - 4:00 pm, The Julia Ann Walsh Centre

Dale Jarvis, Provincial Intangible Cultural Heritage Officer will talk about ICH, what it is and how you can keep track of it in your community. Local folks will be on hand to show their ICH products. Dale will also help us to understand the logistics of planning an Oral History Project, really useful information before you dash out with your VCR or audio recorder to record Aunt Dot or Uncle Harry.

**OCTOBER 1 - REBUILDING AND
SUSTAINING FISH STOCKS**

OCTOBER 1- MORNING SESSIONS

Session A1: From Single Stocks to Fisheries Ecosystems: Towards a Holistic Approach to Rebuilding Fisheries

Organizer: George Rose, Centre for Fisheries Ecosystems Research, Marine Institute, Memorial University of Newfoundland

Session Description:

This double session (A1 and A4) will consist of a total of 8 fifteen minute presentations followed by a discussion open to all participants. The theme of the session is advances made in thinking and practice of rebuilding fisheries during the past decades - leading towards a more holistic approach. From an ecological standpoint, after the collapse of the once great NL cod and other stocks, rebuilding forecasts made on assumptions of single stock models failed to capture the rates or levels of rebuilding, with early suggestions of ecosystem-level effects largely dismissed. Since then, it has become apparent that ecosystem-level impacts on growth, reproduction and mortality largely dominate rebuilding schedules. It has also been evident that fish stocks may be rebuilt but fisheries economies may still not be able to sustain the levels of income or employment desired in rural communities. This double session will bring together the ecological and fisheries limitations that impact rebuilding, and offer some solutions that involve linking communities with fisheries and with additional and complementary industries such as tourism. The presentations will begin with an overview and description of changing rebuilding outlooks, largely from the NL perspective, followed by several specific topics covering and linking ecological, fisheries management and community approaches both in NL and internationally. Topics will be introduced in a conceptual presentation followed by a demonstrative case study.

Presenters:

Jonathan A. D. Fisher
Jonathan L.W. Ruppert
Genevieve D'Avignon, Victoria Neville and Kyle Krumsick
Kate Barley

OCTOBER 1- MORNING SESSIONS

Ecosystem Considerations: Can Fish Stocks Rebuild?

- Jonathan A. D. Fisher, Centre for Fisheries Ecosystems Research, Marine Institute, Memorial University of Newfoundland

Due to the unanticipated, slow recovery of multiple overfished stocks, scientific analyses of fishery stock rebuilding has expanded from questions of how fast recovery is expected to occur to include questions of whether and under what conditions recovery may eventually take place. Associated with this shift towards a more holistic focus, issues that were once considered peripheral to stock assessments (e.g., oceanographic variability, habitats, species interactions, trade-offs in the size of different stocks) are now considered central to understanding, modeling, and predicting stock rebuilding. Research on these topics has clearly demonstrated the need to consider not only individual stocks but also the context in which recovery is expected to take place. Analogous to complex social and economic systems, fisheries ecologists are also now evaluating and linking a suite of candidate indicators of ecosystem status. Using examples of recent ecosystem indicator and stock changes within the Newfoundland-Labrador region and the wider Northwest Atlantic, I will illustrate the importance of taking a wider view of marine ecosystem components and the challenges associated with forecasting rebuilding in a dynamic, open ocean environment. Ecosystem approaches provide additional information to inform communities, scientists, and managers tasked with implementing and evaluating fishery recovery plans.

Ecological Communities, Climate Change and Rebuilding NGSL Fisheries

- Jonathan L.W. Ruppert, Department of Ecology and Evolutionary Biology, University of Toronto, Toronto, Ontario
- Marie-Josée Fortin, Department of Ecology and Evolutionary Biology, University of Toronto, Toronto, Ontario
- George A. Rose, Fisheries Conservation Chair at the Marine Institute, Memorial University, St. John's, Newfoundland and Labrador
- Rodolphe Devillers, Department of Geography, Memorial University, St. John's, Newfoundland and Labrador

Declines in Atlantic cod in the Northern Gulf of St. Lawrence (NGSL) hit their climax in the early 1990s. Tasked with rebuilding the stock, managers recommended fisheries closures and lower allowable catches of cod. While fisheries had a role to play in the collapse of cod stocks, other background factors were initially overlooked, including changes in environmental conditions and food web dynamics. The NGSL experienced environmental conditions that transitioned from a cooler, less saline period (early 1990s) to a warmer, more saline period (late 1990s/early 2000s). These changes delayed the recovery of cod and contributed to cascade effects in abundance in other species within the marine community. This suggests that the environmental changes likely contributed to changes in the food web within the NGSL. Given

OCTOBER 1- MORNING SESSIONS

that temperatures will increase in the NGSL due to climate change, this case study can provide a window into how ecological communities may change in the future. The NGSL is a good example of how changes in climatic conditions and interactions within ecological communities can feedback to inhibit stock recovery.

Rebuilding a Depleted Population: Insights from Stock Structure and Feeding Behavior

- Genevieve D'Avignon, Victoria Neville and Kyle Krumsick, Centre for Fisheries Ecosystems Research, Marine Institute, Memorial University of Newfoundland

Effective fisheries management for Atlantic Cod (*Gadus morhua*) depends on knowledge of species life history, in addition to considerations at the population scale. Migration patterns and feeding behaviors vary among populations and are dynamic. A key component in attempting to rebuild a population is the understanding of how food availability and feeding behavior influence productivity. Through a combination of diet and stable isotope analysis, we will discuss how feeding behavior may relate to variability in population recovery and the condition or well-being of the cod. Knowledge of stock structure dynamics is also fundamental. We will show how studies of the elemental and isotopic composition of cod otoliths can be used to create a spatial and temporal habitat index depicting the environmental and oceanographic conditions in which a cod lives. Such knowledge can provide insights into connectivity among spawning groups. In this presentation we will discuss how changes in diet and stock structure may impact rebuilding and recovery strategies.

Closed areas in ecosystem based fisheries management: The global experience

- Kate Barley, Centre for Fisheries Ecosystems Research, Marine Institute, Memorial University of Newfoundland

Globally, closed areas have many different designs and goals. There is a need for evidence on the effectiveness of fishery closures, both as a fishery management measure and as a marine conservation tool. In a consultation, fish harvesters in Canada asked, what is happening internationally? Are there examples where fishers have been directly involved in fisheries closures? In this presentation, case studies and a synthesis of the literature will be used to investigate the global experience. In addition, field survey data based on local knowledge of closed areas in southern Labrador and in Tanzania, East Africa, will be discussed. In brief, there are positive examples worldwide of stakeholders working together successfully. This talk will discuss the results and knowledge gained so far and will also address the following questions: which countries have successful examples of fish harvester involvement in closed areas? What can Canada learn from this?

OCTOBER 1- MORNING SESSIONS

Session A2: The Use of Closed Areas to help Rebuild Depleted Fish Stocks

Organizer: John Lubar, Area Director, Fisheries and Oceans Canada, Cornerbrook, Newfoundland

Session Description:

This session will examine the use of fisheries closures in specific areas to help rebuild depleted fish populations. The session will begin with an overview of the topic with brief mention of examples of the use of fisheries closures in various places around the world. The introduction will be followed by presentations of four case studies:

- The Gilbert Bay Marine Protected Area established in 2005 to protect a unique population of Atlantic Cod (*Gadus morhua*) and its habitat.
- Protected area strategies proposed to help rebuild a distinct population of Acadian Redfish (*Sebastes fasciatus*) in the fjord basins of Bonne Bay.
- The process followed in an attempt to initiate a voluntary closure of the inshore Snow crab (*Chionoecetes opilio*) fishery in the Bay of Islands.
- Lessons on Exclusive Fishing Zones (EFZ's) from the artisanal fishery in Northern Chocó, Colombia

Presenters:

John Lubar
Corey Morris
Kim Olsen
Robert Hooper
Viviana Ramirez

OCTOBER 1- MORNING SESSIONS

Introduction and Overview of Issues Involved in the Use of Closed Areas

- John Lubar, Area Director, Fisheries and Oceans Canada, Cornerbrook, NL

Stakeholder Consultations, MPA Science and Regulations: Conservation through Local Input and Adaptive Management Can Work

- Corey J. Morris, Science Branch, Fisheries and Oceans Canada, St. John's NL
- Dr. John Greene, Retired Professor, Memorial University

The Gilbert Bay MPA was established in 2005 under Canada's Oceans Act to protect a unique population of Atlantic cod and its habitat. Here we discuss the interplay between stakeholder inputs, MPA science monitoring and management policy that will determine whether long term MPA goals and objectives are met. More than 35 consultations have been conducted with MPA stakeholders during the seven years before and after MPA establishment. Management issues discussed during consultation include boundary locations, time requirements of research and management decisions, changes in the cod population, effects of harvesting strategies on the population (fishing location, season, quotas), and whether the MPA is succeeding in meeting its objectives. Ongoing ecological research is providing new information while monitoring the fish population. Research indicates that a significant number of Gilbert Bay cod move outside the MPA boundaries for up to several months during summer, and that some of these are caught during legal fishing activities. This fishing mortality mainly affects the number of large fish (spawners) in the population. Research indicated that this adverse effect on the population could be reduced by changing the location of fishing activities and /or when it occurs, in areas adjacent to the MPA. MPA boundary change is not supported by stakeholders. Therefore other conservation measures are needed to protect the Gilbert Bay cod population and to enable it to rebuild. Consultations with local harvesters indicate that 'off shore' Atlantic cod are available in the area in September after most Gilbert Bay cod have returned to the MPA. Hence, a potential adaptive management solution to the current over exploitation of mature Gilbert Bay cod may be achieved through a delayed opening of the Atlantic cod fishery in areas adjacent to the MPA. Population monitoring indicates that current MPA regulations do not adequately protect the Atlantic cod population in Gilbert Bay. Adaptive management through the timely integration of Oceans Act and Fisheries Act regulations in consultation with harvesters could improve MPA conservation efforts in Gilbert Bay.

Drivers and obstacles for voluntary fishery closures in western Newfoundland

- Kim Olson, Memorial University of NL

Fisheries closures are employed globally as a tool to protect fish stocks, a keystone resource for many coastal communities. They take many different shapes and forms, and include voluntary

OCTOBER 1- MORNING SESSIONS

closures whereby fish harvesters initiate the closure of a particular fishing area, species or gear. These closures are unique as they reach beyond the goals of marine conservation and extend to include increased stakeholder participation in fisheries governance. In this research we argue that knowledge about how a closure is conceived, discussed and communicated, as well as the state of the fisheries system prior to its implementation, are as important as the outcomes and help explain why they succeed or fail. This awareness can better determine the role of voluntary closures in marine conservation and the factors that generate support or opposition for the conservation measure. Drawing from a case study in western Newfoundland, we examine this pre-implementation process of voluntary snow closure discussions in the Bay of Islands inshore snow crab (*Chionoecetes opilio*) fishery.

Survival of a unique, disjunct population of Acadian redfish (*Sebastes fasciatus*) in Bonne Bay, Newfoundland

- Dr. Robert Hooper, Bonne Bay Marine Station, Memorial University of NL

A population of Acadian redfish, locally known as 'brim', living within Bonne Bay's fjord basins has recently been found to be genetically distinct from all other populations of this species. Until the 1970's the species formed vast schools within Bonne Bay. Bottom trawling during the late 1970's and 1980's drastically reduced the population. Subsequent mortality is associated with gillnet fishery by-catch. There has been no population recovery since that time; there should be concern of extinction of this stock. Protected area strategies necessary to sustain this population are discussed.

Can Exclusive Fishing Zones sustain artisanal fisheries? Lessons from the artisanal fishery in Northern Chocó, Colombia

- Viviana Ramirez, Dept of Environmental Science, Memorial University of NL

Exclusive Fishing Zones (EFZs) are a type of closure often used to address conflicts between fishing sectors by granting fishing rights to one of the sectors. Little is known about the relationship between the history of the fisheries in conflict, the design and effectiveness of EFZs and how EFZs can help sustain artisanal fisheries. This research explores this relationship by drawing upon career-history interviews with artisanal fishers from two communities located within an EFZ in the Colombian northern Pacific coast. Results show that the industrial sector is composed by shrimpers and tuna purse seiners and both have occurred since the 1950s in northern waters. The commercial artisanal fishery developed after 1970s and the conflicts with the industrial sector after 1990s. The EFZ design seems to be effective at mitigating conflicts between artisanal fishers and shrimpers but not between the former and seiners or when including all the artisanal fishing grounds. In order to sustain local fish stocks, the EFZ must be effective at restricting effort and harmful gears such as artisanal beach seines and gillnets; industrial trawl nets and purse seines. Lack of enforcement and a poor relationship between

OCTOBER 1- MORNING SESSIONS

stakeholders are among the main factors that jeopardize the effectiveness and continuation of the EFZ.

OCTOBER 1- AFTERNOON SESSIONS

Session A3: A Decade in Recovery of Marine Species at Risk: Lessons Learned

Organizer: Kathleen Blanchard, Ph.D., Intervale Associates

Session Description:

The recovery of marine species at risk requires the collaborative efforts of government, fishing industry, other ocean users, and the general public. Since harvesters interact with listed species most directly, their actions have the potential to contribute significantly to the species' recovery. The implementation of a recovery strategy for three species of wolffish (Family *Anarhichadidae*) as called for under Canada's *Species at Risk Act* (SARA) had tangible effects on harvesters in Newfoundland and Labrador, the majority of which interact with wolffish at sea. Harvesters complied with the new regulations calling for live release of wolffish, while the industry as a whole supported marine species recovery. The first few years took considerable adjusting and not everyone agreed with the listings.

What lessons can be drawn from the first decade under SARA? What evidence exists, for any listed species, that the approach to recovery is working? How did the new regulations affect the fishing industry and harvesters specifically? What improvements if any are being made to improve collaboration in data gathering, species assessments, recovery strategies, and consultation in general? What recommendations can be made for the future? Participants will be asked to respond to these and other questions and to offer specific recommendations for moving forward in a collaborative manner in the recovery of marine species at risk.

The panel will consist of active harvesters, industry leaders, a species at risk scientist, and a former MUN graduate student in the CURRA whose research focused on the *Species at Risk Act* and wolffish. The moderator heads up a CURRA community partner ngo and has led a variety of stewardship projects over 30 years.

Presenters:

Jason Spingle, Staff Representative, Fish, Food, and Allied Workers (FFAW)

Jennifer Dawe, MSc., Government of Newfoundland and Labrador

Catherine Hood, Ph.D., Marine Research Scientist

Loomis Way, FFAW Executive Board Member, Inshore Division (Northern Peninsula & Lab.)

Tony Doyle, FFAW Executive Board Member, Inshore Division, (Avalon Peninsula)

OCTOBER 1- AFTERNOON SESSIONS

Session A4: From Single Stocks to Fisheries Ecosystems: Towards an Holistic Approach to Rebuilding Fisheries

Organizer: George Rose, Centre for Fisheries Ecosystems Research, Marine Institute, Memorial University of Newfoundland

Session Description:

This session will consist of 8 fifteen minute presentations followed by a discussion open to all participants. The theme of the session is the advances made in thinking and practice of rebuilding fisheries during the past decades - leading towards a more holistic approach. From an ecological standpoint, after the collapse of the once great NL cod and other stocks, rebuilding forecasts made on assumptions of single stock models failed to capture the rates or levels of rebuilding, with early suggestions of ecosystem-level effects largely dismissed. Since then, it has become apparent that ecosystem-level impacts on growth, reproduction and mortality largely dominate rebuilding schedules. It has also been evident that fish stocks may be rebuilt but fisheries economies may still not be able to sustain the levels of income or employment desired in rural communities. This session would attempt to bring together the ecological and fisheries limitations that impact rebuilding, and offer some solutions that involve linking communities with fisheries and with additional and complementary industries such as tourism. The presentations will begin with an overview and description of changing rebuilding outlooks, largely from the NL perspective, followed by several specific topics covering and linking ecological, fisheries management and community approaches both in NL and internationally. Topics will be introduced in a conceptual presentation followed by a demonstrative case study.

Presenters:

Anthony Charles
Lorena Gola
Amin Abdalla
Darrell Mallowney

OCTOBER 1- AFTERNOON SESSIONS

Towards holistic approaches for successful governance of fishery systems: Incentives and barriers

- Anthony Charles, Professor, Management Science / Environmental Science, Saint Mary's University

The collapse of the Atlantic Canadian cod fishery twenty years ago was certainly one of the drivers for a rethinking of fisheries management on a global basis. Immediately following the collapse, fishers and researchers alike recognized the many shortcomings of past practice, including the lack of transparent participation in decision making by fishery stakeholders, the lack of holistic 'systems thinking' to better understand and incorporate relevant aspects of ecosystem and human dynamics, and the lack of a precautionary approach, with adaptive management, to embrace the inherent uncertainty of the fishery. A realization of the need for change led to the popularization and implementation (to varying extents) of the ecosystem approach and of co-management in many fisheries worldwide. There has also been a shift in the language of management in fisheries, with a growing emphasis on the terminology of 'governance' in discussing decision-making approaches – this emphasizes the need to adopt broadly-accepted norms of 'good governance', and notably that of participatory governance. This presentation draws on these trends in fisheries, with a focus on the ingredients, and determinants, of successful governance, the manner by which holistic systems approaches can help to achieve that success, the barriers that are typically encountered, and the incentive arrangements that may assist in rebuilding fisheries and coping with change processes

The Economic Consequences of Regime Shifts in Marine Ecosystems

- Lorena Gola and Martin Quaas, Department of Economics, Christian Albrechts University of Kiel, Wilhelm-Seelig-Platz 1, 24118 Kiel, Germany.

Many natural systems are characterized by limited resilience and the possibility of regime shifts as a consequence of exogenous shocks (Scheffer, 2011) Examples include populations with a minimum population size below which extinction is inevitable (e.g., Gould, 1972; Berck, 1979; Bulte and van Kooten, 2000), and ecological systems with complex interactions between the various components of the system such as shallow lakes and semi-arid rangelands (e.g., Mäler et al., 2003; Anderies et al., 2002).

By 1992, the Canadian cod populations collapsed and a moratorium on fishing was declared, which remains in place until today. Ecologists suspect that the marine ecosystem at the Canadian east coast has shifted towards a new regime, where cod stocks remain at a low level while other species biomass levels, especially cod prey, including forage fishes, shrimp and large crustaceans remain high (Worm and Myers, 2003; Rice, 2002; Bundy, 2001; Bundy and Fanning, 2005). Meanwhile, the economic importance of lobster, snow crab, shrimp, capelin, halibut and other fisheries increased and represent currently the most valuable fisheries in Atlantic Canada (Schrack, 2005).

OCTOBER 1- AFTERNOON SESSIONS

In this paper, we take a new look at this issue and investigate the economic consequences of regime shifts in marine ecosystems. We study (a) the implications for efficiency, i.e. the aggregate economic benefits derived from using the ecosystem with and without a regime shift, and (b) the distributional implications of a regime shift, i.e. the distribution of benefits for different stakeholder groups from using the ecosystem with and without a regime shift. We do this by means of a simple ecological-economic model of three fisheries that features several locally stable steady states, thus enabling to analyze possible regime shifts. Instabilities occur due to both ecological interactions and the non-linearity of the harvesting technology. We find that, in terms of the aggregate present value of incomes, the shift the North West Atlantic ecosystem resulted in a net loss for the Newfoundland region. The net welfare loss may have been even larger, given the distributional effects on different groups of fishermen.

Linking Tourism and Fisheries in Coastal Tanzania

- Amin Abdallah, Centre for Fisheries Ecosystems Research, Marine Institute, Memorial University of Newfoundland.

Many coastal communities around the world whose livelihoods depend mostly on fisheries are facing economic hardship caused by declining fish catches as a result of destructive fishing techniques and /or overfishing and climate change. This has increased poverty in many coastal communities all over the world and especially in Tanzania. The economic hardship on coastal communities caused by declining fish catches and marine habitat degradation has led to an emerging economic restructuring in which tourism plays an important role to complement income lost from fisheries. This link between tourism and fisheries in coastal Tanzania has created a condition on which tourism, fisheries and marine conservation can coexist and benefit from each other. This paper presents challenges and opportunities of linking tourism and fisheries on rebuilding coral reef fishery in coastal Tanzania.

Harvester stewardship and co-management approaches to rebuilding fisheries

- Darrell Mallowney, Department of Fisheries and Oceans; Centre for Fisheries Ecosystems Research, Marine Institute, Memorial University of Newfoundland
- Monty Way, Fish and Food Allied Workers

This talk will focus on various management measures that have been applied in the Newfoundland and Labrador Snow Crab fishery to rebuild the stock in depleted and over-exploited areas. Specifically, we will examine various types of spatial and temporal closures and evaluate their effectiveness in protecting and rebuilding the stock. The various closures incorporate different levels of harvester involvement. These range from little input into implementing season opening and closing dates, which have generally become earlier in recent years, to active involvement in designing and implementing trawling and gill-netting closure

OCTOBER 1- AFTERNOON SESSIONS

zones in some offshore areas and a soft-shelled protocol to close small fishing grids each year, to full involvement and a leadership role in implementing a voluntary fishing moratorium in Bonne Bay during 2009-2010. Each of these closures has exhibited various levels of success in achieving objectives. This qualitative evaluation will assess the degree to which harvester involvement has contributed to the successes and failures of each.

OCTOBER 1- AFTERNOON SESSIONS

Session A5: Local Ecological Knowledge and the Rebuilding of Marine Social-Ecological Systems: Opportunities and Challenges

Organizer: Grant Murray, Institute for Coastal Research, Vancouver Island University

Session Description:

An increasing body of scholars has suggested that rebuilding degraded marine social-ecological systems will require mobilizing diverse kinds of knowledge. This panel will draw on research and perspectives from both coasts of Canada, the United States, Ireland, and Namibia to discuss the relationships of Local Ecological Knowledge (LEK) to the complex challenges of rebuilding these systems. Consistent with the idea of social-ecological systems, we view knowledge holders as embedded in fisheries systems that include not only the biophysical and ecological environment in which fishing takes place, but also such things as fisheries governance, households, communities, processing practices, markets, and other social structures and processes (Murray et al., 2006). In this sense, LEK is neither clearly bounded nor defined and is fundamentally dynamic, and evolves as these elements in these complex networks change. LEK is also situated, and is mediated by one's position and practices within complex fisheries systems.

The emphasis of this panel will be on the opportunities and challenges attendant to meaningfully incorporating LEK - broadly defined - into fisheries governance. In discussions of opportunities we develop the notion of LEK as a form of human/social capital and consider ways that this capital can be usefully mobilized in rebuilding efforts. Examples include, but are not limited to, situations where LEK has been used to complement fisheries science in historical reconstruction work in Canada, in improving fisheries science and management in Ireland and Namibia, and in understanding the impacts of regulatory change in the United States. Some of the presenters will highlight some of the challenges attendant to this effort, including methodological issues, epistemological differences, power imbalances, and the ways that dominant values and worldviews shape the goals of fisheries governance and mediates whose knowledge (and what knowledge) enters into decision-making processes.

This panel engages with the main objectives of the Symposium through the focus on the role of LEK in developing strategies for sustainable rebuilding of damaged social-ecological systems and the sharing of experiences with effectively meeting the science and governance challenges of stock rebuilding. Our proposed structure includes a mix of presentations, videos, and question and answer panel discussion with audience members. Our panelists (including 2 students) will provide a range of international examples will not only stimulate discussion, but also help to illuminate some of the general patterns and principles emerging from the specific research examples.

OCTOBER 1- AFTERNOON SESSIONS

Presenters:

Edward Hind
Cristina Soto
Barbara Paterson
Grant Murray

Translating fishers' knowledge into human capital: a way for fisheries managers to down-size industrial fleets and enables sustainable stewardship

- Edward Hind, PhD, National University of Ireland, Galway

Ireland's inshore and coastal fisheries are little different to many worldwide, in that their management (supported by traditional fisheries science) is struggling to ensure their ecological, socioeconomic and cultural sustainability. This presentation begins to show how the knowledge of fishers could be mobilised to simultaneously tackle the threats to sustainability in each of these areas. Through conducting interviews with captains of vessels from the Galway and Aran fishery on Ireland's west coast, we found that each fisher has a unique and never before recorded knowledge of marine biology, fish markets and offshore and onshore fishing operations. Much of this knowledge could and should be input straight into existing fisheries management as a useful and even essential support to existing science, which is known to sometimes be uncertain or lacking. However, we also discovered dimensions of knowledge that would not be easily integrated into existing management frameworks. This knowledge was that of fishers' strategies and their own ideas for fisheries management. In fisheries where it was assumed by some scientists and managers that fishers were intent on maximising their fishing effort we actually found that over half of our interviewees were looking to downscale their operations. Their reasons for wanting to decrease fishing effort ranged from wanting to increase profits to wanting to spend more time at home in their local communities. Yet, in many cases market and policy inefficiencies were raising barriers to their ability to actually 'trade-down'. They had a number of ideas (not yet suggested by fisheries managers) for facilitating this downscaling, but unfortunately there was no formal avenue through which they could express these. Undoubtedly fishers in Newfoundland possess the same dimensions of knowledge and human capital. If managers listened with more care to fishers in Ireland and Newfoundland it is likely they could better satisfy all stakeholders, using fishers' knowledge to inform management that promotes sustainability for both fish populations and coastal communities.

Creating new strategies through frame analysis and Fishers Social Knowledge

- Cristina Soto, Coast and Culture Consulting

OCTOBER 1- AFTERNOON SESSIONS

In my PhD (Soto 2006), I characterized Fishers' Knowledge as a body of knowledge, practice and beliefs that pertains to a socio-ecological system, adapting Fikret Berkes' definition into three nested components or levels of Fishers' Knowledge: Level 1, the innermost circle is knowledge of the non-human ecosystem and humans' interaction with it (e.g. fish behaviour, spawning locations, fishing methods or processing). Level 2 is knowledge of social institutions within resource management systems (rules and arrangements); policy impacts (actual or potential); and fishers' or others' probable behaviour. Level 3 is knowledge in the form of beliefs, guiding principles, values or worldview. Analysis of 32 papers from two conferences on FK provided evidence of a range of socio-cultural barriers to using FK in fisheries management (Soto 2006). All three kinds of FK were underutilized in fisheries management and the existence or potential value of Level 2 and 3 FK was generally not recognized. Furthermore, in many of the literature cases analyzed, FK offered insights to management and valuable information that was missing. In this paper, I use the lenses, analytical tools, key results and barriers identified to inquire about two inter-related issues: the status of FK compared to a decade ago and the importance of examining paradigms and "frames" (ways of seeing). The following sources were scanned and are briefly discussed:

1. Key examples of recent fisheries (biological) scientific literature
2. Recent discussions of fishers' knowledge including the contributions of my fellow panel members
3. Frames or worldviews that is influential in society and in fisheries management
4. The conference and its themes including the workshop on governance (September 30)

FK still seems to be marginalized compared to a decade ago. Barriers and related frames remain largely in place and attest to the strength of paradigms, particularly the belief that Science is the only valid way of knowing. Finally, I encourage analysis and discussion of paradigms, frames and values among the workshop participants in order to make them visible or conscious. Ideally better solutions and informed choices will follow. For example, what frames are appropriate if our aim is healthy ecosystems that prioritize human and ecological well-being on a range of spatial and temporal scales?

Local ecological knowledge of Namibian hake harvesters: Different ways of knowing for an ecosystem approach to fisheries management

- Barbara Paterson, University of Cape Town and Robin Rigby Postdoctoral Fellow, Community-University Research for Recovery Alliance.

The failure of conventional fisheries science to ensure sustainable management of the world's fisheries has led to a move towards an Ecosystem Approach to Fisheries (EAF) (FAO 2003, Cochrane et al 2004). In Southern Africa a regional EAF project was launched in 2004, under the auspices of the Benguela Current Large Marine Ecosystem Programme (www.bclme.org;

OCTOBER 1- AFTERNOON SESSIONS

Cochrane et al 2004). It has become clear that the sole reliance of traditional fisheries management on scientific knowledge is problematic and that we need to explore different ways of knowing the marine environment and local ways of thinking about a changing ecosystem. Thus increasing attention is being given by researchers to fishers' local ecological knowledge (LEK)(e.g. Neis 1999, Neis & Felt 2000, McCay et al 2006, Haggan et al 2007, Daw 2008, Murray et al 2008a, Murray et al 2008b). It seems obvious that an EAF, which aims to consider the complex social and ecological interactions that make up fisheries, would benefit from the inclusion of fishers' LEK. One of the most important fisheries in the northern Benguela is the Namibian fishery targeting both shallow water hake (*Merluccius Capensis*) and deep water hake (*Merluccius Paradoxus*). In spite of conservative management aimed at rebuilding stocks that were severely depleted by distant water fleets before political independence in 1990, the Namibian hake stocks have failed to recover. This paper presents results from semi-structured interviews that were conducted with Namibian hake trawl and hake long line fishers during the 2009 and 2010 fishing seasons. The results indicate that LEK of Namibian hake fishers can provide information at small spatial and temporal scales that may augment the current scientific knowledge that is heavily biased towards survey data and mathematical modeling.

The complex processes that link the marine environment to the resources are not well understood, making it difficult to provide relevant oceanographic information to fisheries management (Bartholomae & van der Plas 2007). Also there is a need for better understanding of hake behaviour, e.g. the migration and distribution of hake in the water column to improve the precision of abundance estimates (Iilende et al 2001). Hake harvesters monitor sea surface and bottom temperature, water quality, currents and weather and have detailed knowledge about the behaviour and habitat of hakes. Shallow water and deep water hakes, although being two separate species, are currently assessed as one Namibian stock. Harvesters, however, differentiate three different types of shallow water hakes, which they associate with different fishing areas. Furthermore fishers describe several innovations that have taken place over the past 20 years and which are of relevance to the assessment of fishing efficiency and effort. Through collaboration between scientists and fishers this information has potential to improve the current knowledge on the northern Benguela system and may be useful to increase the accuracy of survey estimates and stock assessments. This paper highlights several current gaps in the scientific knowledge base on the northern Benguela system and the Namibian Hake stocks and discusses how LEK may address some of these gaps. The difficulties of integrating LEK into existing time series and the danger of reducing harvesters to data providers for scientists are recognized. Instead the paper argues that there is a need for Namibian fisheries scientists and resource managers to engage in dialogue with local hake harvesters take cognizance of the wealth of LEK that is available and develop an inquiring and open-minded attitude to broaden our knowledge for an EAF.

Knowledge as Capital? Contestations of Globalization and the Role of Localized Fisher's Knowledge in the Hake Trawl Sector Walvis Bay, Namibia

OCTOBER 1- AFTERNOON SESSIONS

- Kelsey Draper, PhD student, University of Cape Town

This paper explores perceptions of capital, particularly the negotiation of specific relationships in the trawl sector of the hake fishery in Walvis Bay, Namibia. Here, in the lucrative industrial fishery, I explore the complexity of social-ecological processes that link commodities, labour, production, markets, and knowledge that are often important drivers for management initiatives. The relationships between state regulations and public nature point to a specific engagement in which nature is divided, distributed, and given ownership. This relationship is governed by the state and in this context fisheries management structures that require compliance through rules and regulations. Knowledge emerges as a site of contestation, as something that is commodified within the industry where economics are interwoven with science, the state, markets, and in social relationships. At the scale of operations in the hake trawl fishery where vessels are equipped with similarly pronounced technologies, how are networks of capital mediated? From my ethnographic research with one trawling vessel, the complexities of capital(s) begin to materialize in the dynamics of the fishing operations as a whole and are present in the different components such as the company that holds the fishing rights and quota allocations, the vessels, gear, and technologies, and also in the relationships and roles of the crewmembers and skippers and their specialized knowledge of the marine ecosystem and fish behaviour. Rather than perceiving nature and local fishers' knowledge as a commodity, something that can be produced, given value, and exchanged, this paper seeks to challenge the notion of capital and what it could mean for utilizing this knowledge for strategies in management.

Looking backwards to see our way forward: LEK and historical reconstruction

- Grant Murray, Institute for Coastal Research, Vancouver Island University

There have been increasing calls for a shift towards more holistic approaches to fisheries management, as reflected in the growing literature on ecosystem-based approaches and marine social-ecological system dynamics. As part of this shift, increasing emphasis has been placed on finding ways to meaningfully and appropriately include fishers and their knowledge in fisheries management. This presentation presents results from research work in western Newfoundland, the American state of New Jersey, and Mozambique to highlight how historical approaches emphasizing local ecological knowledge provide one way to help design and promote holistic approaches to fisheries management. The presentation begins with a short description of the methods employed in the three case studies, and then moves on to provide specific examples of how LEK helps paint a more holistic picture of marine social-ecological system dynamics. Examples are grouped into three major categories: 1) illuminating the importance of scale in adaptive responses to change; 2) supplying information in 'data-poor' situations, and 3) understanding the social (broadly defined) responses to and drivers of change. The presentation concludes with a discussion of the opportunities and challenge associated with historical approaches emphasizing LEK, as well as implications for management.

OCTOBER 1- AFTERNOON SESSIONS

Session A6: Ecological Science Informing Fisheries – Studies from the Coastal Ecosystems of Western Newfoundland

Organizer: Christine Campbell, Environmental Science, Grenfell Campus, Memorial University of Newfoundland

Session Description:

Natural sciences and social sciences are often seen as separate and non-overlapping. However, sustainability of human communities is based on the functioning of natural ecosystems. This is particularly true for fishing communities and the marine environment. Rebuilding of fisheries in Newfoundland and Labrador will require an understanding of the ecology, not only of the targeted commercial fish species, but of the components that make up the entire food web in which the fish live. These components extend from free-floating planktonic organisms, bottom-dwelling organisms in soft sediments, to larger predatory fish. Current research suggests that the biological productivity of bays and fjords in western Newfoundland could contribute to the ecological functioning of the larger marine ecosystem. Some bays and fjords could potentially serve as nursery grounds or critical habitat for juvenile fish, while other systems may have less of an impact on regional fish abundance. This session proposes to look at ecological research undertaken on some of the bays and fjords and associated inflowing streams in western Newfoundland.

Presenters:

Jason Spingle,
Arnault Le Bris
Joe Wroblewski
Darroch Whitaker, David Côté, and Dan Kehler
Erin Stevens, Ryan Melanson, Vanessa Hussey, and Christine Campbell.

OCTOBER 1- AFTERNOON SESSIONS

A new way forward – Collaborative science in NL Fisheries

- Jason Spingle, FFAW/CAW, Corner Brook, NL.

The impact of the cod moratorium resulted in significant debate as to the overall scientific process for commercial fisheries throughout Canada. In addition to the absence of the important fisheries-dependent data that were severely limited and in many cases no longer available, discussions expanded surrounding the collection, processing and even the interpretation of the data, specifically the involvement of those most dependent on the resource – harvesters and their communities. The Cod Sentinel Program was developed and engaged professional commercial fish harvesters and their organizations in the formal process of collecting catch and effort and various biological data on cod and other ground-fish for the purpose of implementation into the formal scientific assessment of various stocks. Since the inception of this program in the mid-1990's, the Fish, Food and Allied Workers Union (FFAW), representing all inshore harvesters in NL has since promoted many other initiatives that have greatly expanded to include almost all commercial fish species and in addition to the federal government (Department of Fisheries and Oceans) numerous other partnerships including the provincial government NL and MUN. The FFAW continue to promote collaborative science and work toward achieving the desired goal of full shared-stewardship.

Bays and fjords as critical habitats for the Atlantic cod stock in the northern Gulf of St. Lawrence

- Arnault Le Bris, Ph.D. student, Department of Biology, Memorial University of Newfoundland, St. John's, NL.

Once the second largest cod stock in the northwest Atlantic Ocean, the northern Gulf of St. Lawrence stock experienced a loss of 90% of its former peak biomass. Accompanying this decline, the stock has contracted in range to the west coast of Newfoundland, underscoring the need to identify and protect habitats critical to the dynamics of the stock. Bays and glacially carved fjords in western Newfoundland are important habitats in the life-cycle of Atlantic cod. Spring spawning has long been documented in St. George's Bay. More recently the Bonne Bay fjord has been recognized as a nursery ground as well as a spawning ground for summer spawning cod. Genetic analyses did not find differentiation between Bonne Bay cod and Gulf cod. Young of the year cod occupied a wide variety of near shore habitats within Bonne Bay, including eelgrass beds and kelp beds. The recovery of the Gulf cod stock would require a significant increase of its abundance as well as the return to its former full habitat range. Protecting bays and fjords habitats currently occupied by spawners and juveniles may help rebuild of the northern Gulf of St. Lawrence cod stock.

OCTOBER 1- AFTERNOON SESSIONS

Bonne Bay as habitat during the life cycle of finfish species fished commercially and/or recreationally in the Gulf, in the bay or in freshwaters of Gros Morne National Park

- Joseph Wroblewski, Ocean Sciences Centre, Memorial University of Newfoundland, St. John's, NL.

Bonne Bay has become a focus for stewardship efforts by adjacent coastal communities because the bay supports local lobster and snow crab fisheries, recreational fishing for sea-run brook trout and Atlantic cod, pleasure boating and ecotourism. Fish fauna surveys of the bay conducted annually for the past decade have discovered that the bay is also a breeding ground, nursery ground and/or feeding ground for species which are harvested commercially in the Gulf of St. Lawrence. Several members of the Bonne Bay fish fauna are year-round residents of the bay (e.g. redfish and winter flounder). Some fish are anadromous or catadromous transients (e.g. Atlantic salmon and American eel). Some are Gulf species which migrate into the bay to spawn and then leave (e.g. capelin and sandlance). Other species are present in the bay only during the juvenile stage, i.e. Gulf species which use Bonne Bay as a nursery ground (e.g. silver hake and white hake). Others are Gulf species which seasonally visit the bay to feed (e.g. Atlantic herring and Atlantic mackerel). The diversity of fishes found in Bonne Bay is related to the wide range of habitats in the bay available to support marine life. Stewardship of the waters of Bonne Bay will help rebuild fish stocks which use Bonne Bay as a breeding ground, nursery ground, and/or feeding ground.

Mitigating anthropogenic fragmentation of streams in Atlantic Canada's National Parks

- Darroch Whitaker, Parks Canada, Western Newfoundland and Labrador Field Unit, Rocky Harbour, NL
- David Côté, Parks Canada, Eastern Newfoundland Field Unit, Glovertown, NL
- Dan Kehler, Parks Canada, Atlantic Service Centre, 1869 Upper Water Street, Halifax, NS

Since European settlement of the New World the connectivity of freshwater ecosystems has become increasingly altered. Fragmentation associated with dams and culverts is a pervasive stressor that impedes movement of fish and other aquatic organisms and may result in population declines, reduced genetic diversity, demographic instability and impaired recolonization after disturbance. Impacts can be particularly severe where a species' life cycle involves upstream migrations from marine environments, as is the case with Atlantic salmon, rainbow smelt, gaspereau, American eel, and sea run populations of brook trout. However non-anadromous organisms also rely on within-river movements to access feeding grounds, spawning areas and refuges from predators and environmental extremes. As watersheds become increasingly fragmented their ability to support viable populations of fish and other organisms decreases.

OCTOBER 1- AFTERNOON SESSIONS

Although aquatic fragmentation is a serious issue, it is one of the rare ecological problems that is tractable and can be mitigated in a short time frame. Barriers can be removed or remediated to once again allow aquatic life to freely pass through the system, and in many cases a relatively small investment will yield a significant improvement in ecosystem health. Parks Canada and its academic partners have developed an index of ecosystem connectivity (Côté et al. 2009) that enables measurement of cumulative impacts of barriers and allows for cost-benefit prioritization of restoration efforts. This index is being applied in five National Parks in Atlantic Canada to guide investment in remediation of barriers to fish passage. This initiative is illustrated with examples from Gros Morne National Park, where one-time investments of <\$5,000 per culvert allowed remediation of several poorly installed culverts, re-opening large areas of coastal watersheds to access by anadromous fish.

A biological assessment of St. Paul's Inlet in a regional context

- Erin Stevens, Department of Biology, Memorial University of Newfoundland, St. John's, NL
- Ryan Melanson, Vanessa Hussey, and Christine Campbell, Environmental Science, Grenfell Campus-MUN, Corner Brook, NL

St. Paul's Inlet is a fjord-type estuary on Newfoundland's west coast. In order to assess its contribution to the coastal ecosystem of western Newfoundland, the inlet and outer bay was sampled from 2009-2011 for zooplankton, near shore fish and intertidal invertebrates. Within the Inlet, zooplankton species composition was primarily marine cyclopoida and calanoida, with some brackish-water cladocerans. Zooplankton density was not high, possibly as a result of limited nutrient levels in the watershed. Cluster analysis indicated that St. Paul's zooplankton fauna was only about 10% similar to that of Lake Melville in Labrador, another regional estuarine system. Using 10 m beach seine, minnow traps and multi-paneled gill nets, a total of 1,451 fish were caught comprising 15 species and representing nine families. In terms of regional fish fauna, the St. Paul's Inlet sites clustered with freshwater-influenced sites from Bonne Bay (western Newfoundland), and were distinct from the more marine sites of Trinity Bay (eastern Newfoundland) and Gilbert Bay (Labrador). Preliminary analysis of the intertidal invertebrate fauna of St. Paul's Bay suggests a moderately high diversity of organisms. Although estuarine and tidal inlet environments are often regions that are of high importance to ecosystem productivity, St. Paul's Inlet does not appear to be a highly productive or diverse system, compared with St. Paul's Bay.

SYMPOSIUM FILMS

Director: Nigel Markham

Year: 1994

Origin: NL

Agency: National Film Board of Canada

Runtime: 47 minutes



It was a way of life. It was the backbone of a society. And then the cod fishery off the east coast of Newfoundland collapsed.

Taking Stock traces the history leading up to the crisis and the calling of a moratorium of the northwest Atlantic cod fishery. It presents the key players in this complex and tragic story, focusing on those who are now trying to come to grips with an uncertain future. How did the calamity happen? What signals did we ignore? Did we choose the right model in setting up an industry? Ultimately, Taking Stock holds a message for the Canadian as well as the global community: In trying to attain economic success, we must recognize that there are limits to how far we can exploit nature's delicate ecosystems.

Director: Akanksha Joshi

Year: 2008

Origin: India

Runtime: 58 minutes



Chilika Bank\$' traces 40 years of ecological changes in Asia's largest brackish water lake. Situated in the state of Orissa, Chilika is a vast lake spread over three districts in the state. In the lake almost 50 rivers & rivulets merge with the water from the Bay of Bengal, making it a rare mixture of saline & fresh water. Chilika has a unique bio-diversity with many endangered species of flora & marine fauna. The film traces the changes in the lake since the export of the Prawns began in the 1970s. The gradual changes in the society, its values and relation with the lake. The film is told from the perspective of a banyan tree on the shores of Chilika who is a witness to these changes.

SYMPOSIUM FILMS

Director: Sara Blood
Year: 2012
Origin: NS
Agency: Coastal CURA
Runtime: 21 minutes



Across the Canadian Maritimes there are many unpublicized stories of coastal community heroes, groups of people working together to protect the health of their fisheries, watersheds, and community heritage.

From the beginning, some of the uniqueness of the Coastal CURA project has come from the variety of media that CURA partners have used to assess, discuss and address the challenges of managing coastal resources and spaces in the Maritimes. Community members' place-based knowledge and experience, so diverse in form and content, came to be reflected in a variety of manners, from research publications and the development of management plans, to others that defied the traditional academic format, such as learning circles, skills workshops, and *film*.

A Coastal Partnership is a documentary that focuses on two First Nations and two fishery associations: Lennox Island First Nation in Prince Edward Island and Bear River First Nation in Nova Scotia; the inshore fishery of southwest New Brunswick, and the independent clambers in Digby-Annapolis, Nova Scotia. Linked together through the Coastal CURA, members from these communities have been working with academics to identify what they need to become more involved in coastal management decisions.

This film, a Coastal CURA capstone project, was produced as a collective effort, not only to share the perspectives of the four coastal communities but also to be used as a reflective tool for coastal community residents in general (both within the Canadian Maritimes and beyond). Moreover, the film contains success stories and important lessons about the role of local values, the realities of sharing space and access to resources, and the process of increasing local participation in coastal management.

**OCTOBER 2 - REBUILDING
FISHING INDUSTRIES**

OCTOBER 2 – MORNING SESSIONS

Session B1: The Role of Social Power, Knowledge and Institutions in the Rebuilding of Collapsed Fisheries

Organizer: Barb Neis, Sociology, Memorial University; CURRA Principal Investigator

Session Description:

This session will consist of four presentations addressing the role of power and institutions in fisheries collapses and rebuilding. The session will include four presentations including three on issues and opportunities related to three Newfoundland and Labrador fisheries: northern Gulf of St. Lawrence cod, northern shrimp and Northern Gulf mackerel, herring and capelin fisheries. The fourth presentation will examine the role of commodity substitution in Newfoundland's whitefish processing crisis. Some presentations will use Gaventa's power cube as a heuristic device. Gaventa's power cube conceptualizes power as multiple dimensional and operating at multiple spatial and temporal scales. A power analysis can help us understand some of the reasons for failed management as well as who and what loses and wins and why in different contexts. It can also help us identify 'fields of opportunity' for changing power relations in ways that might promote equitable and sustainable rebuilding.

Presenters:

Charles Mather and Dwan Street
Ahmed Khan and Barb Neis
Barbara Paterson
Reade Davis

OCTOBER 2 – MORNING SESSIONS

Why is power central to rebuilding collapsed fisheries? A pre- and post collapse analysis of Northern Gulf cod fisheries

- Ahmed Khan, , International Ecosystem Management Partnership, United Nations Environment Programme, Institute of Geographic Sciences and Natural Resources Research Beijing
- Barb Neis, Sociology, Memorial University; CURRA Principal Investigator

The Northern Gulf cod presentation by Ahmed Khan and Barbara Neis will draw on findings from key informant interviews, analysis of existing documents and research on this fishery to argue that the spatial and temporal scales of fisheries science and management combined with industry dynamics to enhance the power of one or more sectors relative to the others contributing to the collapse of these stocks by masking problems with overfishing and muting conflict. It will also argue that in the post-collapse era, the legacy of this earlier power dynamic have constrained the options and support for rebuilding.

Surveys and stock assessments for northern shrimp - 'discovering' Atlantic Canada's new shellfish resource

Charles Mather, Chair, Department of Geography Memorial University
Dwan Street, Department of Geography Memorial University

The northern shrimp presentation by Charles Mather and Dwan Street will focus on the allocation of Atlantic Canada's northern shrimp resource between the late 1970s and the present. Northern shrimp, especially in Newfoundland and Labrador, is perhaps best known for the role it has played in providing an alternative to ground fish harvesters affected by the cod moratoria in the early 1990s but it was also very important to some parts of the Northern Gulf fishery in the 1980s. This presentation will examine two key themes in the allocation of the northern shrimp resource. First, it explores the relationship between quota allocation and resource assessment. Contrary to expectation, there is a very complex and uncertain relationship between assessments of resource health and allocation policies. Second, it examines the way in which resource allocation is shaped by the global production networks for shrimp. Mather and Street argue that resource allocation policies must be seen in the context of changes in global markets for shrimp. The two themes allow them to reflect on the potential that Gaventa's power cube offers for an analysis of resource allocation policies.

OCTOBER 2 – MORNING SESSIONS

Power dynamics in the small pelagic fisheries in the Northern Gulf

- Barbara Paterson, Community Research for Recovery Alliance, Memorial University and Marine Research Institute, University of Cape Town

Purse seining along the West coast of Newfoundland takes place in the context of a complex multi-gear multi-species fishery, targeting capelin, herring and mackerel. Three fleets target these species: a fleet of large, company-owned purse seiners and mid-sized 65 foot purse-seine vessels target all three species; small scale harvesters use gillnets, fish traps and hand lines to catch herring and mackerel. This presentation will use elements of Gaventa's power cube to help understand power relations among the different harvester groups. The presentation will look at the fishery as a space for participation and in this sense will examine who has a right to effectively participate and who has a right to define and shape the fishery. Findings are derived from interviews conducted in 2011 with harvesters, representatives of DFO and others. They speak to conflicting ideas about who has a right to fish and whose knowledge should be listened to.

A fish by any other name: examining the role of commodity substitution in Newfoundland's whitefish processing crisis

- Reade Davis, Professor, Department of Anthropology, Memorial University

The industrial production of fillets out of cod and flatfish has been an economic cornerstone of the Newfoundland and Labrador fishery since the Second World War. In the context of resource declines, more commodity substitution, and cheaper manufacturing costs overseas, however, this strategy increasingly appears unsustainable. Newfoundland-produced "whitefish" fillets must now battle for market share with a host of new competitors, including wild Alaskan Pollock and Yellowtail Sole and aquaculture Tilapia and Pangasius, all of which can be processed at lower prices in countries like China and Vietnam. This, in turn, has prompted the closure of several large processing plants across the province. Drawing on ethnographic and historical research, this presentation examines the forces that have contributed to the present crisis being faced by the Newfoundland whitefish processing sector and raises critical questions about how this situation might prompt us to rethink many of the key priorities that have guided federal fisheries policy in the post-War period.

OCTOBER 2 – MORNING SESSIONS

Session B2: Youth Living and Working in Fisheries Communities

Organizer: Nicole Power, Associate Professor, Department of Sociology, Memorial University of Newfoundland

Session Description:

This session will focus on issues that affect young people living and working in fisheries communities. Youth who are living and working in coastal communities negotiate the interactive effects of industrial and environmental restructuring, and they do so in ways that reflect ambivalent and socially-mediated connections to place. Two presentations (Dupré and Norman) will report the findings of the *Rural Youth and Recovery* component of the *Community-University Research for Recovery Alliance* (CURRA) initiative at Memorial University of Newfoundland.

Presenters:

Kathryne Dupré
Siri Gerrard,
Moss Norman

OCTOBER 2 – MORNING SESSIONS

Health, safety and well-being among young workers

- Kathyne Dupré, Associate Professor, Faculty of Business Administration, Memorial University of Newfoundland

Dr. Kathyne Dupré's presentation will report on the results of the Rural Youth and Recovery province-wide survey (conducted with Drs. Nicole Power, Arla Day, and Moss Norman). One hundred and fifty-two young people (between the ages of 16 and 29) took part in the survey.

Youth employment and community experiences in urban and rural Newfoundland and Labrador (NL) were examined, focusing on perceptions of opportunities and challenges, work injuries, psychosocial health, work demands, and lifestyle behaviours. Moreover, experiences with the fishing industry, and the value and relevance placed on fishing were examined. Urban youth reported more access to recreation and jobs; however, they also reported less perceived support from the community and higher levels of stress. Injuries and incivility were related to higher levels of stress and strain, and decreased life satisfaction, while recovery experiences were related to decreased stress and strain, and increased life satisfaction. Community values and perceptions of the fishing industry were associated with stress and incivility. Additionally, the more important youth see fishing as, the less life satisfaction they have; and for those who think fishing is a tough way to earn a living, they are less likely to see job opportunities as available, more likely to see the NL way of life and family values as deteriorating, and less likely to feel like a member of the community. Although these results are geographically unique, the practical implications may be relevant across communities and provide theoretical contributions toward future research.

Experience with the youth quota during the summertime in the North Norwegian coastal fishery: Policies and practices

- Siri Gerrard, Centre of Women and Gender Research, University of Tromsø

Dr. Siri Gerrard will discuss the youth fish quota system in Norway as a strategy for youth employment and recruitment in coastal fisheries villages, an example of intergenerational equity, and as an identity project. The presentation will discuss findings based on high school students' writings about the future, interviews with youth and fishery authorities. The purpose of the youth quota is to give young people an opportunity to fish as a summer job, and to provide an opportunity to enter the fishing industry. However, the youth quota system has met with criticism. The fishery authorities have criticized the misuse of the system as a way for established fish harvesters to get access to more quota, for example, in the case where a father fishes a son's/daughter's quota without the young person being at sea. The quota is also limited to the summer time. The positive aspects is that the outcome in form of money can be good compared to other jobs for young people and also give interesting practices in harvesting.

OCTOBER 2 – MORNING SESSIONS

Finding stability in context of uncertainty: Coastal Newfoundland youths' stories of work, play and sense of community

- Moss Norman, Assistant Professor, Faculty of Kinesiology and Recreation Management, University of Manitoba

Dr. Moss Norman will report on the findings that emerged from the qualitative methods of the *Rural Youth and Recovery* component. The theme of rural “crisis” is a familiar and dominant one in characterizations of coastal Newfoundland. In this presentation, we argue that the prevalence of the crisis story curtails recovery strategies in important ways. With this in mind, we have deliberately set out to carefully listen to the stories of rural youth (12-24 years; n=104) living on the west coast of Newfoundland for alternatives to the story of decline and crisis. Although these alternative stories were not always easily discernible, in this presentation we want to highlight several stories that “push back,” if you will, against the meta-narrative of coastal decline and crisis. In particular, we highlight the strong emotional connections that the youth expressed to both their rural communities and the sea- and landscapes in which these communities are embedded. Moreover, we suggest that fishing-related stories, memories and work-play experiences remained significant to their sense of place, self and community continuity, thus offering a point of stability within a broader context of environmental and employment uncertainty and social change. Finally, we highlight the resourcefulness the rural youth demonstrated in their work and play experiences, in many cases carving out interstitial and non-traditional economies within broader economies of “no work,” “no good jobs” and “nothing to do”. Of course, we want to be careful not to trivialize the massive environmental, economic and social upheavals that have impacted Newfoundland’s fishing communities. Nevertheless, we also want to unearth other, potentially more enabling, stories of the work and play experiences of coastal youth with the idea that these stories, and the place-specific identities that they render available, offer an important point of departure for a strategy of recovery

OCTOBER 2 – AFTERNOON SESSIONS

Session B3: Looking Back and Looking Ahead: International Perspectives on Rebuilding Social-ecological Systems of Fishing Communities and Their Resources

Organizer: Prateep Kumar Nayak, University of Waterloo, Canada

Session Description:

The collapse of fisheries and their impact on fishing communities is a global phenomenon. While the fishery sector as a whole has been affected, the bulk of the impact is felt by small-scale fisheries sector. As these fisheries and the environments that nurture them continue to collapse and degrade, small-scale fishers throughout the world are being dispossessed of their livelihoods, a process driven by the expansion of large-scale fisheries, the growth of aquaculture and protected areas, and the re-allocation of coastal resources to other uses such as urban and industrial areas, and recreation and tourism. While we already know a great deal about these problems, not enough is known about how fishing communities and other stakeholders have been responding to the social-ecological transformations taking place in different parts of the world. We propose a panel session to highlight that the issue is not just rebuilding stock but it is really about rebuilding the whole social-ecological system, meaning the interactions between resources and the people. We stress the importance of understanding how human actions affect biophysical systems and how biophysical factors affect human well-being, and how humans in turn respond to the resulting changes.

The panel draws from ongoing efforts to rebuild small-scale fisheries environments in four distinct geographical and cultural contexts. Our objective is to review the prospects and challenges that are inherent in rebuilding processes and deliberate on what we can learn from these diverse experiences. Using a set of case studies, this interdisciplinary panel will not only highlight the drivers causing major social, economic and ecological impacts on small-scale fisheries environments but also engage in finding new ways of moving forward by learning from the rebuilding experiences of communities around the South Atlantic, the north-east coast of Pacific, North of Indian Ocean in the Bay of Bengal, including countries such as Brazil, Malaysia, Bangladesh and India.

From the coastal wetlands of Malaysia where all natural resources are exclusively managed by the State, we look at a unique experiment of mangrove regeneration through community-based management as an example of successful fisheries rebuilding. The presentation from coastal Bangladesh complements this view by offering various details on a successful participatory governance model that has offered a way to enhancing livelihoods of fishing communities and the fish stocks in Hakaluki *Haor* (wetlands). Two of the Brazil presentations focus on multiple drivers of changes in coastal social-ecological system, their impacts on human-environment relationships and possible strategies for restoration and rebuilding. The case from Paraty on the Southeastern coast analyses examples of industrial fisheries, tourism, protected areas, and more

OCTOBER 2 – AFTERNOON SESSIONS

recently, off-shore oil explorations to suggest strategies for rebuilding of the social-ecological system. The case from Southern Brazil reports on the possible restoration strategies of a rare example of fishing cooperation between fishers and dolphins (*Tursiops truncatus*) in the lagoons of Santo Antônio and Imaruí e Mirim. Chilika lagoon case, Bay of Bengal on Eastern coast of India, reports on the ongoing processes of fishers' disconnection with the lagoon environment. We use this case to review a number of institutional and policy options for restoring human-environment connections. Learning from these diverse cases, we highlight the importance of a social-ecological perspective on fisheries rebuilding.

Presenters:

Harimalu Ragavan
Munjurul Hannan Khan and C. Emdad Haque
Luiz Eduardo Chimelle de Oliveira
Deborah Peterson
Prateep Nayak and Fikret Berkes

OCTOBER 2 – AFTERNOON SESSIONS

Rebuilding fisheries and regenerating mangrove ecosystems: A case of the Setiu Wetlands, Eastern Coast, Malaysia

- Hariramalu Ragavan, United Nations Development Programme, Malaysia

Natural Resources in Malaysia are exclusively managed by the State. Following the December 2004 tsunami tragedy, the Government of Malaysia has adopted mangrove regeneration as a priority environmental policy. Most of the regeneration efforts are undertaken by the government on a large scale, through its Forestry Department, almost exclusively in the west coast of peninsular Malaysia where the livelihood of the communities was most affected. While natural resource management by local community is rare or almost non-existent in Malaysia, I highlight a case study where a partnership between the State Government and UNDP was developed to implement a community-based mangrove regeneration project. This initiative is the first of its kind in the country where the mangrove ecosystem is managed by a local community. Project outputs highlight a number of factors for successful regeneration of mangrove ecosystems by local communities: a) Training and capacity building of local communities for sustaining the growth of mangrove forests through physical and institutional interventions; b) Capacity building of local authorities to support mangrove forest protection; c) Support for mangrove forest replanting and sustainable livelihood activities; and d) Developing a conservation management plan for replanted areas and the surrounding mangrove ecosystem. The State Government is promoting the project area as a potential tourist attraction where all activities are implemented with the involvement of the local communities. Implemented in one of the poorest areas of Malaysia, this approach fits well with the poverty reduction policy pursued by the State Government. The benefits to the community include enhancement of their livelihood activities including fishing, mangrove forest product extraction, and eco-tourism. As part of a new strategy to implement inclusive growth, the government of Malaysia is reviving and promoting the Tagal systems, which has been traditionally practiced in Malaysia for many centuries. The tagal system is a community based conservation of resources such as fishing.

Can participatory governance in fishery management enhance livelihood of fishing community and fishery stock in Hakaluki Haor of Bangladesh?

- Munjurul Hannan Khan, Ministry of Environment and Forests, Bangladesh
- C. Emdad Haque, University of Manitoba, Canada

Fishery resources play a crucial role in providing livelihoods to poor fishers of *Hakaluki haor* area in coastal Bangladesh. Existing top-down, command and control, and revenue oriented governance structures have offered limited or no space for the local fishers to participate in decision-making processes. In contrast, the state management approach has created opportunities for outside investors to capture customary fishery resources and treat these areas as their *de facto* private property. Such shifts have resulted in the over-exploitation of fishery resources and

OCTOBER 2 – AFTERNOON SESSIONS

maximization of profit without consideration for sustainability of the resource and the livelihoods of the fishers who depend on it. Using this case, I examine key elements of a participatory governance approach which was successfully implemented in selected *Jalmohals* (fishery estates) of *Hakaluki haor* as a pilot program. This approach has facilitated opportunities for local poor fishers to be involved in the management and decision-making processes, and play an active role as partners in the process of rebuilding *Hakaluki haor* social-ecological system. I use this case as an example to emphasise that participatory governance involving the resource users can create positive impacts for fishery-based livelihoods as well as fish stocks, as seen in the case of *Hakluki haor* area. I conclude with suggestions for replication of this governance approach in other wetland areas of Bangladesh and elsewhere in the world.

Exploring coastal communities responses to off-shore oil development at different scales in Paraty, Southeastern Brazil

- Luiz Eduardo Chimello de Oliveira, University of Manitoba, Canada

In Paraty, a municipality in Rio de Janeiro state, industrial fisheries, tourism, protected areas, and more recently, off-shore oil are the main drivers of change. This study aims at analyzing the range of responses to off-shore oil development at different levels: community, municipality, and state government. Based on fieldwork conducted from November 2010 to October 2011, I came up with three observations: (1) at community level there is no organized movement to respond to oil development; (2) at municipal level, royalty shares are being discussed, but few precautionary policies and measures have been implemented; and, (3) at state level, the environmental agency is attempting to create another protected area. Of particular interest are fish resources because they are the main stake of Caiçara (mixed-heritage group) livelihoods. On the southeastern coast of Brazil, 29% of stocks targeted by small-scale fisheries have already collapsed and approximately 30% are overexploited. In order to cope with oil development impacts on local social-ecological systems, more linkages are needed between local communities and higher levels of organization, which can be done by NGOs, universities and local associations. Payment for environmental services can be a tool to alleviate fishing pressure while stocks are rebuilt, and subsequently protect from impacts of oil development.

Keeping the drivers at bay: Restoring the long-term human-dolphin fishing cooperation in Southern Brazil

- Debora Peterson, University of Manitoba, Canada

This study focuses on human-dolphin cooperation which takes place in a complex of three lagoons (Santo Antônio, Imaruí e Mirim) in Laguna, Southern Brazil. The human-dolphin fishing cooperation is a long-term relationship between a specific group of artisanal fishers and one species of dolphin, *Tursiops truncatus*. In this cooperation, the dolphins aggregate the

OCTOBER 2 – AFTERNOON SESSIONS

schools and direct them to fishers, who cast their nets in the fish schools. The benefit to the dolphins is that scattered fish are easier to catch than a school in formation. It is known that the fishing efficiency is higher when fishers cooperate with dolphins. The lessons from this event provide a good case for understanding how local communities can deal with social-ecological changes. Here, I analyse some of the key drivers that have impacted this fishing cooperation and explore possibilities of dealing with these impacts. The high number of outsiders taking part in this fishery is emerging as a major impact to this social-ecological system because it threatens fishers' local rules and institutional capacity for cooperation. I conclude that the rebuilding of this cooperative fishery largely depends on government recognition of fishers' local management systems, and the ability to deal with external drivers through developing a system of effective monitoring for the whole region.

Institutional options for rebuilding Chilika Lagoon Human-Environment System, Bay of Bengal, India

- Prateep Kumar Nayak, University of Waterloo, Canada
- Fikret Berkes, University of Manitoba, Canada

This presentation investigates social-ecological change in small-scale fishing communities of Chilika Lagoon, the largest lagoon in India and one of the largest in Asia, on the Bay of Bengal. A Ramsar Site of international importance and an IUCN biodiversity hotspot, Chilika is also known for its large fisher population who engage in customary capture fisheries for their livelihood. However, the Lagoon has undergone tremendous ecological changes, under the influence of regional, national and international drivers, impacting the social, cultural, economic, political and environmental life of the fishers. This has resulted in the disconnection between fishers and their lagoon environment. We examine two major drivers of this human-environment disconnection: (1) the role of aquaculture development in the loss of resource access rights and the decline of local institutions, and (2) the ecological displacement and livelihood loss brought about by the opening of a new “sea mouth” connecting the Lagoon and the Bay of Bengal. I conclude with a review of possible institutional and policy options for restoring human-environment connections and rebuilding Chilika social-ecological system

OCTOBER 2 – AFTERNOON SESSIONS

Session B4: The Social-ecology of the Small Pelagic Fisheries Along the West Coast of Newfoundland

- **Organizer:** Barbara Paterson, Community Research for Recovery Alliance, Memorial University and Marine Research Institute, University of Cape Town

Session Description:

“The mackerel is getting later every year, and there’s not so much every year, even if we’re chasing them further.” (Newfoundland Purse Seine skipper, 12 Sept 2011)

Small pelagic fish stocks on the east coast of Canada have in the past few decades undergone cumulative changes in stock status which have led to a general reduction in most areas. The small pelagic stocks for capelin, herring and mackerel on the west coast of Newfoundland (NAFO Division 4R) are part of a complex multi-species multi-gear fishery. Large (>65ft) company-owned purse-seiners fish in the Northern Gulf including Bonne Bay while smaller (<65 ft) privately owned purse-seine vessels come to Bonne Bay from further up the coast. In addition fixed gear harvesters use stationary mackerel and herring traps.

The interaction between these different fleet sectors, their relationship to the resource and associated ecosystem effects, and the flow of benefits from the fishing operations into the surrounding communities, are not well understood. There is some concern that intensive and coordinated effort focused on particular fishing areas along the coast may be destroying local pelagic fish populations. Since fishery management measures and quota allocations are done on a per target species basis it is not easy to gain an overall picture of this fishery. However, there is a clear tendency toward concentration of purse-seining licenses and quotas in the hands of fewer harvesters while the number of actively participating fixed gear harvesters has declined.

There are grounds for concern about the status of the small pelagic fish stocks of the west coast of Newfoundland: e.g. the total allowable catch for capelin is not science based because there is no abundance survey specifically directed on capelin (DFO 2011); because there is concern about changes in herring stock structure (DFO 2010) and because the productivity of the mackerel stock is declining (TRAC 2010). Their sensitivity to environmental changes makes these fish stocks particularly vulnerable to fishing pressure in a context of scientific uncertainty.

The mackerel fishery has become the driving force in the small pelagic sector. This relatively new trend has been playing out over the last 10 years and is linked to an increased demand for mackerel, a high TAC and the competitive, open access nature of the fishery. As a consequence, on the one hand there is potential for high profits for some harvesters, but increased efficiency and pressure on the mackerel stock on the other.’

OCTOBER 2 – AFTERNOON SESSIONS

Although the small pelagic fisheries have not (yet) collapsed in the traditional biological sense the changes in stock structure and productivity, the decrease in participation by harvesters and the vulnerability of the markets are causes for concern. There is an urgent need for better knowledge about the social-ecological interactions between small pelagic fish populations, fleets, processing and marketing. This session will focus on the small pelagic fisheries of the west coast of Newfoundland but also draw from experiences from South West Nova Scotia and the Bay of Fundy to investigate the role of small pelagic fisheries in threatened communities and work towards developing a knowledge base that supports efficient, equitable and effective decision-making in a context of uncertainty.

Presenters:

Robert L. Stephenson

Barbara Paterson

Barbara Paterson and Grant Murray

OCTOBER 2 – AFTERNOON SESSIONS

Building or rebuilding the South West Nova Scotia herring fishery? A case study from the Bay of Fundy.

- Robert L. Stephenson, DFO St. Andrews Biological Station and University of New Brunswick

The SW Nova Scotia/Bay of Fundy (NS/BOF) herring fishery has a long history and has been at the forefront of several innovative assessment and management developments. While it has been one of the few large herring fisheries to avoid stock collapse, it has had several periods of uncertainty or crisis – and at several times in the past there has been explicit discussion of ‘building’ or ‘rebuilding’ the fishery. This presentation examines some of those developments, as a case study in changing views on building/rebuilding viable, vibrant fisheries. The NS/BOF herring fishery has evolved from a coastal trap fishery using weirs to one in which the majority of the landings are from mobile (purse seine) vessels. It was one of the first to introduce limited entry, a total allowable catch (TAC), and individual vessel quotas (ITQ’s). This fishery has been subject to large changes in market demand with substantial impacts on the financial viability of the fishery. It has also been subject to apparent changes in biological productivity. The number of vessels has changed substantially over time, with a substantial reduction in recent years. Recent decades have seen the development of a more diverse set of biological objectives and increased participation of the fishery in surveys and sampling. A collaborative approach to assessment and management has helped the fishery weather some challenges.

A social-ecological analysis of key issues in the small pelagic fishery of the West Coast of Newfoundland’

- Barbara Paterson, Community Research for Recovery Alliance, Memorial University and Marine Research Institute, University of Cape Town

The purse-seine fishery along the west coast of Newfoundland targets herring, capelin and Atlantic mackerel. The herring in particular shows clear signs of stock status decline, such as a decrease in the abundance of the spring herring component with no indication of recovery. There is concern that intensive effort focused on particular fishing areas along the coast may be contributing to this decline. Since fishery management measures and quota allocations are done on a per target species basis it is not easy to gain an overall picture of this multi-species fishery. As a consequence the social-ecological interactions between small pelagic fish populations, fleets, processing and marketing along the west coast are not well understood. Traditionally herring has been the main target species for this fishery, but in recent years mackerel have become increasingly important. This change is linked to improvements in fish finding technology, improved fish prices for mackerel and different quota regimes for the two fisheries. This paper will present key results from social-ecological research conducted in 2011 with a particular focus on interactions between the herring and mackerel fisheries.

OCTOBER 2 – AFTERNOON SESSIONS

Methodologies for local ecological knowledge research in mobile gear fisheries

- Grant Murray, Institute for Coastal Research, Vancouver Island University
- Barbara Paterson Community Research for Recovery Alliance, Memorial University and Marine Research Institute, University of Cape Town

Integrating the knowledge of fishers into fisheries governance and/or management demands, among other things, the development of new approaches and methods for ‘moving’ that knowledge from the times and places it is created and used (in the act of fishing) to other times and places, including where management decisions are made. Developing moving methods that are efficient, effective and appropriate, however, has been challenging with respect to pelagic fisheries. In this presentation we begin with a discussion of specific methodologies developed primarily for fixed gear fisheries in western Newfoundland, and briefly outline some of the successes and challenges associated with these methods. Next, we move into a deeper discussion of 1) how knowledge is developed in mobile gear/pelagic fisheries; and 2) some of the technical challenges encountered when attempting to ‘move’ that knowledge. Challenges discussed include issues of recall and interview circumstances as well as the dynamic and wide-ranging nature of pelagic fisheries. We conclude the presentation with a discussion of emerging ideas for the development of appropriate methods for moving the knowledge of fishers engaged in pelagic fisheries.

OCTOBER 2 – AFTERNOON SESSIONS

Session B5: Benefits of and Challenges for Aquaculture in Newfoundland and Labrador: From Employment, to Invasive Species, to Cross-agency Coordination of Policies (pt 1.)

Organizer: Patrick Gagnon, Ocean Sciences Centre, Memorial University of Newfoundland

Session Description:

In the last few decades marine ecosystems worldwide have been particularly impacted by natural and anthropogenic disturbances. The collapse of the cod fishery in Newfoundland and Labrador provides a prime example of the pervasive effects that overfishing has had on the economy and social fabric of a region. Aquaculture may represent an alternative to certain types of fisheries. However, the economic activity it creates as well as the direct and indirect impacts it has on marine habitats can offset each other if not done in a way that promotes and respects the interests and obligations of all parties involved.

This session will bring together a panel of stakeholders, scientists, researchers, and workers from federal and provincial governments, academia, and the industry with the overall objective of portraying the benefits of and challenges for aquaculture in Newfoundland and Labrador. How do government, industry, and academia work together to make aquaculture work for the province? What new moneys has the industry of aquaculture injected to this province in the last decade and how is it expected to grow in the next? How does aquaculture affect marine habitats? What are some of the main factors that challenge sustainable aquaculture? These questions and many more will be addressed throughout this 2- to 3-hour session tailored to promote exchanges of ideas and opinions about the role that aquaculture plays in the socio-economic growth of Newfoundland and Labrador.

Presenters:

Brian Meany
Cyr Couturier
Danny Boyce
Mirando Pryor

OCTOBER 2 – AFTERNOON SESSIONS

Newfoundland & Labrador Aquaculture

- Brian Meany, Assistant Deputy Minister-Aquaculture, Fisheries and Oceans Canada

As the human population continues to grow exponentially, so too will the global demand for aquatic animal proteins. Wild fisheries appear to have peaked, suggesting that aquaculture provides the only avenue with which to meet this demand. From humble beginnings, the Newfoundland & Labrador aquaculture industry has grown tremendously over the last ten years. Such growth provides sustainable economic opportunities in rural regions of the province. This presentation will review Newfoundland & Labrador aquaculture from a global context and provide the Department of Fisheries & Aquaculture's perspective on the opportunities and challenges facing further sustainable growth and development of the industry.

Overview of Aquaculture R & D at Memorial University and the Marine Institute with Emphasis on Rural Socioeconomic Development Priorities in Newfoundland and Labrador

- Cyr Couturier, Research Scientist, Marine Institute, Box 4920, St. John's, NL, A1C 5R3

Memorial University has a long history of R & D in support of development and commercial aquaculture commencing in the late 1960s. Much of the early efforts through to the 1990s were very much at the research stage of the Research, Development and Commercialization (RDC) continuum. Beginning in the mid-1990s more effort on the development and commercialization of sustainable aquaculture began with mussel, salmon, scallop, and trout farming and to a large extent carried out by the Marine Institute of Memorial University. Recent research efforts have been primarily focused on alternate species such as cod, clams, and oysters, with some endeavours related to mitigation of invasive species, development of sustainable finfish diets, and aquaponics. The emphasis of R & D efforts for the commercially relevant production sectors of salmonids and shellfish rests on improving sustainable production by reducing interactions with the environment, ameliorating production outcomes and techniques, and developing "green" solutions for mitigating potential impacts. R & D priorities for the industry are set by the industry and the communities in which they exist, and the focus is always on sustainable rural economic development.

Department of Ocean Sciences- Aquaculture R & D

- Danny Boyce

Aquaculture has been an active area of research and development (R&D) at Memorial University (MUN) for nearly four decades, both within the Faculty of Science (FoS) and the Fisheries and Marine Institute (MI). These efforts were/are instrumental to the start-up of salmonid and

OCTOBER 2 – AFTERNOON SESSIONS

shellfish operations in the 1970s, and the continued development of the salmonid industry through the 1980s, 90s and 2000s, as well as ongoing R&D efforts with regards to salmonids, the blue mussel and Atlantic cod. The Ocean Sciences Centre (OSC) is a research-oriented academic unit within the FoS of MUN. The OSC and the Dr. Joe Brown Aquatic Research Building (JBARB) provide scientists with first rate facilities for research and training in cold ocean sciences, as well as quality graduate education. The JBARB was built in 1997 to specifically facilitate R&D efforts and subsequent commercialization of finfish species that would contribute to the expansion of the Newfoundland aquaculture sector. The JBARB was designed to help deal with educational, biological and technical constraints that our industry faces and thus perform pilot-scale testing. This facility has allowed Memorial to deliver cost-effective, industry-relevant R&D for our industry. Aquaculture was seen as a new and innovative way to diversify the economic base of Newfoundland and Labrador. JBARB was designed to bring together academia (scientists, students and technical staff), the private sector and funding agencies to demonstrate partnerships at work. JBARB has a world class staff with experience in Project Management, System Management, Operations, System Designs, Water Quality, Broodstock and Spawning Development, Live Feed, Hatchery, First Feeding, Juvenile On-Growing, Fish Transport and Cage Site Operations. I will highlight the roles that Memorial University and others played in the pathway to commercialization of Atlantic Cod for our industry.

The aquaculture industry in rural Newfoundland and Labrador: A partner in sustainable communities

- Miranda Pryor, Executive Director, Newfoundland Aquaculture Industry Association

Aquaculture now produces over half of the seafood consumed globally. With most of the world's capture fisheries fully exploited and many in decline, it has been estimated that over the next 20 years global aquaculture production will have to grow by 75 percent to keep up with the increasing demand for seafood. Since 2005 the Newfoundland and Labrador aquaculture sector has led the country in terms of sustainable aquaculture growth and has become a significant driver of economies in rural areas of the province. With ample room for expansion and a skilled work force in processing and marine industries Newfoundland and Labrador is well positioned to take advantage of the projected increase in seafood demand and to continue this exciting growth.

The mussel farming sector is an important element of the economy for several rural areas of Newfoundland and Labrador. Aquatic invasive species (AIS) have had a devastating impact on the mussel aquaculture in neighboring Atlantic Canadian jurisdictions and the success and viability of mussel farming in Newfoundland could be seriously threatened by AIS introduction. Although none of the problematic AIS detected in neighboring jurisdictions have been detected on our mussel farms, the discovery of golden star tunicate, violet tunicate and green crab in Newfoundland waters has illustrated our vulnerability and the need for appropriate education and management strategies.

This presentation will highlight recent trends in the growth of the aquaculture industry in

OCTOBER 2 – AFTERNOON SESSIONS

Newfoundland and Labrador, jobs created within the sector and in related industries and the effects that increased aquaculture employment is having on rural communities. It will also look at efforts to decrease the risk of aquatic invasive species invasion and spread in Newfoundland and Labrador.

OCTOBER 2 – AFTERNOON SESSIONS

Session B5: Benefits of and Challenges for Aquaculture in Newfoundland and Labrador: From Employment, to Invasive Species, to Cross-agency Coordination of Policies (pt 2.)

Organizer: Patrick Gagnon, Ocean Sciences Centre, Memorial University of Newfoundland

Session description:

In the last few decades marine ecosystems worldwide have been particularly impacted by natural and anthropogenic disturbances. The collapse of the cod fishery in Newfoundland and Labrador provides a prime example of the pervasive effects that overfishing has had on the economy and social fabric of a region. Aquaculture may represent an alternative to certain types of fisheries. However, the economic activity it creates as well as the direct and indirect impacts it has on marine habitats can offset each other if not done in a way that promotes and respects the interests and obligations of all parties involved.

This session will bring together a panel of stakeholders, scientists, researchers, and workers from federal and provincial governments, academia, and the industry with the overall objective of portraying the benefits of and challenges for aquaculture in Newfoundland and Labrador. How do government, industry, and academia work together to make aquaculture work for the province? What new moneys has the industry of aquaculture injected to this province in the last decade and how is it expected to grow in the next? How does aquaculture affect marine habitats? What are some of the main factors that challenge sustainable aquaculture? These questions and many more will be addressed throughout this 2- to 3-hour session tailored to promote exchanges of ideas and opinions about the role that aquaculture plays in the socio-economic growth of Newfoundland and Labrador.

Presenters:

Gehan Mabrouk
Patrick Gagnon
Jennifer Caines
Sheena Young

OCTOBER 2 – AFTERNOON SESSIONS

Regional DFO Research Initiatives Towards Building a Sustainable Aquaculture Industry

- Gehan Mabrouk, Section Head, Aquaculture, Aquatic Animal Health and Biotechnology, North Atlantic Fisheries Centre, St. John's NL

The continuing expansion and evolution of aquaculture in Newfoundland is a great opportunity for socio-economic growth in coastal communities. The significant benefits to society associated with aquaculture have made aquaculture development a key priority to departments and agencies responsible for regulating the aquaculture industry in Canada. The goal is to develop management strategies and ensure ecosystem-based sustainable development. DFO supports the social, economic, and environmental aspects of sustainable aquaculture development and recognized scientific research as the foundation for making informed decisions and developing public policy. Advances in aquaculture research will be essential to better understand multidisciplinary nature of aquaculture development. Research on environmental interactions, wild\ farmed interactions, aquatic animal health, aquatic invasive species and benthic impacts will be a key in increasing public confidence in aquaculture.

The presentation will explore the opportunities and the challenges that face aquaculture in Newfoundland. It will present the various aquaculture initiatives undertaken by DFO with an emphasis on the ongoing collaborative research projects between government researchers, industry and academia. Finally, it will discuss how this research ties with the goal of achieving sustainable development.

Lessons from recent species introductions to coastal Newfoundland and Labrador

- Patrick Gagnon, Assistant Professor, Department of Ocean Sciences, Ocean Sciences Centre, Memorial University of Newfoundland

Aquatic invasive species (AIS) pose one of the greatest threats to biodiversity and have caused significant damage to indigenous fish species, fisheries, and the aquaculture industry in Canada. This presentation will summarize research at the Department of Ocean Sciences of Memorial University on factors affecting foraging in, and population dynamics of, two invertebrate species introduced recently to inshore habitats in Newfoundland and Labrador, the encrusting bryozoan *Membranipora membranacea*, and the green crab, *Carcinus maenas*. The complex interactions between these species and their changing environment illustrate some of the challenges associated with mitigating their spread. Increasing public awareness about AIS and investing in the development of early detection and rapid response measures is one necessary step to maintaining sustainable fisheries and aquaculture production, and the communities that depend on them.

OCTOBER 2 – AFTERNOON SESSIONS

Aquaculture in Fortune Bay

- Jennifer Caines, Northern Harvest

The last ten years has seen a dramatic turn in the story of Newfoundland aquaculture. Pool's Cove, located in the northwest corner of Fortune Bay has been at the centre of much of this tale. In 2002, the first successful salmon farm in Fortune Bay was started here by North Atlantic Sea Farms, the idea of enterprising aquaculture promoters and a Newfoundland businessman, with the help of two former shellfish farmers. Spyglass Cove, and subsequently Northern Harvest Sea Farms, its eventual and successful evolution, has been supported by the town for a number of reasons, not the least was the mutual respect and consideration of the local wild-capture fishing community. Northern Harvest now operates some 20 sites throughout the Coast of Bays Region in sustainable rotation, and has >120 employees at peak, some of them former fish harvesters, from 12 communities.

The development in Pool's Cove is different from any other in Newfoundland in that an 18-year shellfish aquaculture history previewed the farming of finfish here, so that from the start it was viewed as a 'side-by-side' activity. A strong University and Government scientific research presence for aquaculture development (scallops, cod and salmon) has likely had a positive influence. The common long-term goal; to have a choice to earn a living in rural Newfoundland and Labrador.

Although the road is rough at times, the successful demonstration of aquaculture sustainability in Pool's Cove in parallel with the wild-capture fishery in the area continues to pave the way for developments throughout the entire region. What are the advantages to both types of activities? Several, including positive habitat influences and economic and infrastructure benefits. What are the threats to both? Also varied – they include climate and habitat change, pollution, invasive species, cuts in research spending, negative public perception when led by misinformation or spillover from other regions. Are there continuing challenges in the aquaculture industry in the province? As with other industries, yes, plenty. Can we face them? Yes, definitely If we can work together,

Fishermen's on the water observations of traditional fisheries and aquaculture interactions in south western New Brunswick

- Sheena Young, Fundy North Fishermen's Association

The southwest coast of New Brunswick (SWNB) has a densely stocked finfish aquaculture area that shares marine space with an inshore multi-species fishery. This study interviewed SWNB fishermen and recorded their observations about the environmental impact of finfish aquaculture on their commercial fishery. Fishermen reported significant environmental degradation around aquaculture sites. Within two years of an operation being established, gravid female lobsters as

OCTOBER 2 – AFTERNOON SESSIONS

well as herring avoid the area, scallop and sea urchin shells become brittle, scallop meat and sea urchin roe becomes discolored. The sea lice chemicals have caused lobster, crab and shrimp kills. These concerns suggest that more comprehensive and detailed studies are required to establish the environmental and economic interactions of aquaculture and the stocks on which the fishery rely. The study also points to the need for more effective use of fishermen's knowledge in designing such studies.

OCTOBER 2 – EVENING SESSIONS

Session B7: Local and Regional Strategies for Rebuilding Fisheries Management Institutions and Wellbeing

Organizer: Evelyn Pinkerton, School of Resource and Environmental Management, Simon Fraser University

Session Description:

While working to rebuild or more sustainably manage local small-scale fisheries, a number of organizations representing small rural fishing-dependent communities on the BC coast are concerned about what could be lost if the value and importance of their fisheries to the health and well-being of their communities is not recognized. Many of the communities are aboriginal and therefore at least two conditions are given: (a) they have an aboriginal right to access local stocks, and (b) they are not going to relocate from their communities. Therefore, it is in the interest of governments to favour strategies which allow them to support themselves financially, maintain the physical and emotional health related to traditional livelihoods, and maintain food security. Government's current focus on efficiency and market principles as tools for allocating fishing opportunity run counter to this strategy, so presentations in this panel will explore what is being offered by varying aspects of local and regionally-based alternative strategies. Presentations will be made by the Musgamagw Tsawataineuk Marine Management Society (MTMMS), the Sustainable Marine Fisheries and Communities Alliance (SMFCA), as well as a graduate student and professor from Simon Fraser University's School of Resource and Environmental Management who are working in partnership with these groups.

Presenters:

Percy William
Henry Clifton
Evelyn Pinkerton and Eric Angel
Jahn Petter Johnson

OCTOBER 2 – EVENING SESSIONS

Rebuilding a traditional clam management structure in the Broughton Archipelago of British Columbia

- Percy William, Musgamagw-Dzawadaenuxw Tribal Council,
- Neil Ladell, School of Resource and Environmental Management, Simon Fraser University,
- Midori Nicolson, Land & Marine Resources Director, Dzawadaenuxw First Nation, Musgamagw Territorial Marine Management Society

Within the traditional territories of the Muskamagw Dzawadaenuxw, the Broughton Archipelago has always been the bread basket of the local First Nations, with its complex network of islands interspersed with many historical clam gardens and traditionally managed clam beds. Many changes in modern clam management, including the introduction and inadequate regulation of commercial clam digging, and impacts from industrial pollution, have had drastic effects to the traditional clam management system. In light of these impacts, the First Nations of the Broughton Archipelago are taking strides to reevaluate past traditional access management protocols, in order to move toward implementing a management structure that meets their needs to ensure the stewardship of these valuable shellfish areas for future generations.

Building a First Nations monitoring, compliance and traceability program for BCs northern salmon fisheries

- Henry Clifton, Native Brotherhood of BC, Hartley Bay, BC, Joy Thorkelson, United Fishermen and Allied Workers Union, Prince Rupert, BC, Devlin Fernandes, Ecotrust Canada, Prince Rupert, BC.

We will discuss how a regional alliance of First Nations, local governments and fishermens organizations has been overcoming longstanding conflicts to develop a shared vision and agenda for creating sustainable fisheries on British Columbias north and central coasts. As part of this effort we will describe an innovative training program for fisheries observers launched in 2010. With assistance from Ecotrust Canada, First Nations youth from five north coast communities have been trained and certified as fisheries observers, and have taken on the responsibility for monitoring and biosampling programs in several commercial and First Nations salmon fisheries. By building capacity and economic development opportunities in aboriginal communities, the training program is preparing the ground for First Nations to take a substantial role in the monitoring, compliance and traceability requirements of commercial, recreational and First Nations salmon fisheries in the region.

OCTOBER 2 – EVENING SESSIONS

What insights can the well-being literature offer to communities rebuilding collapsed fisheries or fisheries management institutions?

- Evelyn Pinkerton and Eric Angel, School of Resource and Environmental Management, Simon Fraser University

A sometimes-forgotten aspect of fisheries policy and management is the well-being of adjacent coastal communities, a policy goal identified as key to sustainable development by numerous international bodies. We present a critical review of the literature on the well-being of resource-dependent communities for the purpose of identifying which aspects of this literature offer the most relevant insights for the building and rebuilding dilemmas these communities face.

Empowerment through definition of coastal space

- Jahn Petter Johnsen and Bjørn Hersoug Norwegian college of Fishery Science, University of Tromsø, Norway

The development of national fisheries and marine environmental policies during the last 30 years has changed the relations between coastal communities and the marine resources the inhabitants in the communities traditionally have harvested. Even if the principle of subsidiarity and the ideals for ecosystem based management prescribe that decisions should be taken at the lowest possible management level, the international character of marine harvesting, the international management framework and a continuous flow of ideals and normative guidelines created in international forums turn this principle into an illusion. As we see in Norway for example, when the different ministries and directorates have made decisions to defend what they regard as national interests, the local level is left with minor issues related to area planning in the coastal zone. However, in Norway the new Plan and building act from 2009 has strengthened the municipalities as the responsible authority for local planning. In addition, the application of a new three-dimensional approach to coastal planning may give new opportunities to gain new control over local resources. While coastal planning up to recently was about sharing area between users, we now see that the spatial dimension become more important. The planning processes now start to take into consideration the pelagic and the benthic ecosystem, the water movements and quality and impacts of activities at a larger scale. Through this three-dimensional approach coastal space is created and defined as a complex management object, and as our examples will illustrate, there is considerable power related to the ability to identify and define the properties of the coastal space. Through empirical examples from Norway and Scotland, interpreted inside a sociology of science framework, the paper will describe how ability to define the spatial properties can empower local communities and contribute to local control over natural resources.

OCTOBER 2 – EVENING SESSIONS

Session B8: Job Networking: Mentoring Graduate Researchers for Academia, Policy-making, Industry, Consulting, and NGOs in an Evolving Labour Market

Organizer: Ahmed Khan, , International Ecosystem Management Partnership, United Nations Environment Programme, Institute of Geographic Sciences and Natural Resources Research Beijing

Session Description:

Graduate students can play a pivotal role in research and development. They contribute to scholarly papers, inputs into policy decision-making, in addition to community development initiatives. The aim of this session is to foster discussion on the transition from graduate students, postdoctoral fellows and research assistants to employable specialists with the necessary and required skills for employment opportunities in the public and private sectors including academia and NGOs. A panel of CURRA stakeholders and practitioners will speak to the challenges and opportunities regarding student transition and how to match acquired skills from the CURRA project to the current labor market. The session themes will include but won't be limited to tips on proposal and grant writing, effective social networking, job hunting, project development and management skills, and enterprise development. Through an open discussion, participants will brainstorm graduate opportunities in a changing labor market as well as mentor students to be enterprising in an era of high unemployment and budget cuts. Session participants will include graduate students, university researchers, scientists and managers from both federal and provincial agencies, consultants, community planners, conservation groups, regional development board members, and trade union representatives. The outcome of the session discussions will be compiled by the session organizer in the form of a guide and resource material.

Presenters:

Alain Frechet, former DFO scientist, Mont Joli and CURRA Partner
Kathleen Blanchard, Intervale Associates and CURRA Partner
Bruce Gilbert, Rural Secretariat
Ratana Chuenpagdee, Memorial University
Todd Young
Kim Olson, Rural Secretariat
Kristen Lowitt, Memorial University

OCTOBER 2 – EVENING SESSIONS

Session B9: Local radio as a tool for community capacity building and social cohesion in times of change.

Organizer: Ivan Emke, Associate Professor, Social and Cultural Studies, Grenfell Campus, Memorial University of Newfoundland

Session description:

One of the activities of the CURRA project has been its support and involvement in community radio broadcasts in Newfoundland. A variety of associates of CURRA have participated in these short-term radio events. This session is a chance for a number of them to discuss their own perspectives on the use of community radio in rural Newfoundland. In terms of metaphors, is it a tool, a gathering place, an archive for intangible cultural heritage, a force for cohesion, a wellspring of information, or something entirely different? One central theme of the discussion will be the essential connection between the community and the radio event/station. What have our activities in community radio taught us about this “community-radio” relationship?

Presenters:

Fred Campbell - Ryakuga Grassroots Communications

Dan Murphy - CURRA, Fogo Island radio projects

Pierre LeBlanc - Fine Arts, Grenfell Campus, MUN

Gary Wilton - Voice of Bonne Bay

Gary Noel - Voice of Bonne Bay

Anita Best - Voice of Bonne Bay

Ivan Emke - Social and Cultural Studies, Grenfell Campus, MUN

Local radio as a tool for community capacity building and social cohesion in times of change

- Fred Campbell, Dan Murphy, Pierre LeBlanc, Gary Wilton, Gary Noel and Anita Best, Ivan Emke.

In the midst of the massive economic shifts and social dislocations experienced by post-moratorium coastal communities, how can they engage each other in important conversations about the future in order to build consensus? How do they nurture pride in those very communities which sometimes appear to be in the process of disintegration? How do they democratize information sharing and foster transparent decision making? These are not easy questions to answer. But they are important issues to discuss, on both a practical as well as a general theoretical level. There may be a variety of tools which could be used to assist with these challenges, but this session focusses on one such method - community radio.

In the CURRA project, one of the initiatives was to explore the use of community radio

OCTOBER 2 – EVENING SESSIONS

(accompanied by webcasting) in a number of coastal communities. This built upon work already begun in NL (dating to the MUN Extension Service in the 1960s), and it supported a number of short-term community FM broadcasts of local content, with local participants. The broadcasts would be ways for people to share ideas, initiate conversations, learn about the experience of other communities, celebrate their own culture, marvel at the skills and talent and ideas in their communities, and hear about some of the research being done in their region. The project also hoped to build the passion for more permanent community-based stations. In this session, we'll explore the reasons for engaging community radio, vignettes and findings from some of our short-term broadcasts, and the experience of the establishment of a permanent community FM station in Norris Point - the Voice of Bonne Bay.

The six presenters in the session will touch on a range of observations and conclusions from their practical experience with community radio.

* Fred Campbell (using the metaphor of community radio as a quilting bee) will talk about how this community radio process builds community during the broadcast activity itself and ends up with a product that is widely shared, even among those not physically present when the quilt was put together.

* Dan Murphy will discuss the community radio activities he has been involved with on Fogo Island, where a number of broadcasts have not only been working to knit a set of communities together but also to link Fogo with other parts of NL and with Ireland.

* Pierre LeBlanc will provide some reflections (and images) as a participant in the community broadcast in Cow Head.

* Gary Wilton, Gary Noel and Anita Best will focus on the development of the Voice of Bonne Bay which evolved from a series of short-term FM broadcasts during the annual Trails, Tales and Tunes Festival into a fully licensed community radio station located in Norris Point (but serving the Bonne Bay region). They will offer observations on the challenges (and joys) of the process thus far and their plans for the future of the station.

* Ivan Emke will moderate the session, and contribute a brief overview of the role of radio in community development in several domestic and international contexts, as well as reporting briefly on our CURRA-related community radio events in Burnt Islands, Conche and St. Anthony. In Conche in particular, the role of the webcast and of Facebook was crucial in the success of the event, prompting us to coin the term "netport" to refer to small communities such as this where residents and expatriates are bound together by internet technologies.

Basics of Film-making Workshop

Presenter: Derek
Norman

Bonne Bay Marine
Station

8:00pm – 10:00pm

**OCTOBER 3 - REBUILDING
FISHING COMMUNITIES**

OCTOBER 3 – MORNING SESSIONS

Session C1: Between Oceans and Plates: Exploring the Opportunities and Challenges of Using Market-oriented Strategies in Rebuilding Collapsed Fisheries and Threatened Communities

Organizer: Paul Foley, Assistant Professor, Environmental Policy Institute Grenfell Campus, Memorial University of Newfoundland

Session description:

The increasing use of certification, traceability, labeling and similar ‘ocean to plate’ marketing initiatives in the fisheries sector is reshaping the early 21st century global seafood trade. In addition to the global-oriented Marine Stewardship Council certification and labeling program, governments, non-governmental organizations, and industry groups around the world have collaborated to develop different kinds of national and regional initiatives, such as the Alaska Responsible Fisheries Management Certification program, the Iceland Responsible Fisheries Certification program, the Gulf of Maine Responsibly Harvested Standard, and the Marine Eco-Label Japan certification program. Other organizations and groups in places like New England and Nova Scotia have recently developed Community-Supported Fisheries which seek to provide an alternative means for fish harvesters to directly connect their fresh catch to end-consumers and to receive a fair price for their catch.

Fishery-dependent peoples and communities in Eastern Canada and around the world appear to face a number of fundamental choices in relation to these kinds of ‘ocean to plate’ initiatives: refuse to become involved in such initiatives; become involved in and shape existing initiatives to better serve their needs and interests, or; build their own independent initiatives. This session will explore some of the opportunities and challenges associated with using different types of ‘ocean to plate’ initiatives as strategies for rebuilding collapsed fisheries and threatened communities. Drawing on cases and experiences from Eastern Canada and elsewhere, session participants will identify and assess: opportunities for and barriers to meaningful fishing community involvement in existing programs or in future initiatives; potential costs, risks and benefits of involvement for fishery-dependent peoples and communities and; initiatives with the best principles and criteria for rebuilding collapsed fisheries and for enhancing the long-term viability of fishery-dependent communities. The session will provide the basis for a better understanding of how members of the fishing industry, policy-makers, and citizens can identify and implement effective and equitable ‘ocean to plate’ strategies that can meet interrelated governance, market, livelihood, and conservation challenges of rebuilding collapsed fisheries and threatened communities.

Presenters:

Janice Ryan and Bettina Saier
Mandy Ryan and Sylvia Rumbolt
Paul Foley
Bonnie McCay,

OCTOBER 3 – MORNING SESSIONS

A fisheries improvement project for Newfoundland and Labrador's Atlantic cod fisheries

- Janice Ryan and Bettina Saier, , World Wildlife Fund Canada

WWF works with fish harvesters, fisheries managers, scientists, seafood traders, consumers and potential investors on global and national scales to reform commercial marine fisheries with a goal of long-term sustainability; our aim is to ensure seafood is harvested in ways that sustain and protect the marine environment, the species within it, and people with livelihoods that depend on fisheries. Here in Atlantic Canada, cod fisheries are struggling to meet new market demands because cod stocks are at comparatively low levels. Newfoundland and Labrador's (NL) cod fisheries are competing with well-managed fisheries that are Marine Stewardship Council (MSC)-certified, such as Barents Sea cod. There is an urgent need to improve management and procurement practices of NL cod so the industry can continue selling quality product to major retailers in North America and Europe. WWF-Canada partners with Icewater Seafood's Inc. through a Fisheries Improvement Project (FIP) to secure the long-term sustainability of Atlantic cod in the Newfoundland and Labrador region. Icewater is a ground fish company based in NL; it is North America's largest processor of Atlantic cod. Icewater supplies premium Atlantic cod from NL to companies that are mostly based in Europe, including retailers who have pledged to source only certified sustainable seafood.

The FIP was implemented in January 2011. It is a groundbreaking initiative for Newfoundland and Labrador because it brings together participants from all sectors of the fishing industry, including WWF, Icewater, Ocean Choice International, the Fish, Food and Allied Workers Union and the Department of Fisheries and Aquaculture, NL. The FIP is designed to increase sustainability of fisheries, such as the 3Ps cod fishery, that do not yet meet certification standards of the MSC. The FIP process involves completion of a MSC pre-assessment, which is then used as a basis for developing a framework and a work plan that describe what actions need to be taken for the fishery to meet MSC standards.

The WWF is pleased to have the opportunity of giving a presentation entitled "A Fisheries Improvement Project for Newfoundland and Labrador's Atlantic Cod Fisheries" at the Rebuilding Collapsed Fisheries and Threatened Communities International Symposium sessions. We will give a brief presentation on the FIP, discuss the collaboration methodology used to help move a troubled fishery forward to meeting MSC certification and highlight the main challenges faced and solutions developed to overcome them. We anticipate a high level of interesting discussion around this new collaborative approach for rebuilding fish stocks in Newfoundland and Labrador.

From ocean to plate – Tracing lobsters in LFA 11

- Mandy Ryan and Sylvia Rumbolt, , Fish Food and Allied Workers Union

OCTOBER 3 – MORNING SESSIONS

The Fish, Food and Allied Workers union under the Canadian Council for Professional Fish Harvesters partnered with Ecotrust Canada to launch traceability pilot projects and awareness workshops for lobster fisheries in Newfoundland in 2011. The lobster pilot projects build on a traceability system called Thisfish that Ecotrust Canada developed in partnership with the fishing industry in British Columbia over the past four years. This fish is voluntary, consumer-facing, cost-effective seafood tagging and tracing system that allows consumers to trace each fish back to its source and directly connects seafood producers to consumers. It is designed to allow fish harvesters and fishmongers to market seafood products in a more sophisticated and meaningful way. Two pilot projects were tested one in Harbour Breton and Burgeo, both of which are situated in LFA 11. The projects were based on voluntary participation of harvesters and processors to offer a value to the lobster industry and ultimately to consumers. One harvester from the 2011 pilot project received an e-mail from a consumer who purchased a couple of his lobsters in Corner Brook: “Just had two of your lobsters for supper in Humber Village, and chased you down through the new tags! Great idea! Thank you for doing what you do, and for the delicious lobster we enjoyed tonight! Sue & Ralph.” The harvester was thrilled to have received this comment.

Traceability systems answer a growing demand from consumers who want to know the origins of their seafood. Ultimately the goal of adding value to our seafood products in this way is to improve markets and increase the price per pound to the harvesters for their catches. This session aims to inform how the Newfoundland traceability pilot projects evolved, what was learned, the challenges and the potential for other seafood to be traced back to the harvester level. The Fish, Food and Allied Workers (FFAW/CAW) union represents 15,000 men and women working in the harvesting and processing sectors of the Newfoundland and Labrador fishing industry. In supporting its members the FFAW/CAW is governed by an 18 member Executive Board, including the President, Secretary Treasurer, Vice President Inshore, Vice President Offshore and Vice President Industrial/Retail elected by province-wide mail out ballot as well as two affirmative action positions and a retiree position.

Bringing community development into the global fisheries certification movement

- Paul Foley, Department of Sociology, Memorial University

As in other food sectors, capture fisheries have witnessed the rise of market-oriented environmental governance through the expansion of certification programs and traceability initiatives. In contrast to agriculture and aquaculture sectors, where a wide variety of such programs are in place, in capture fisheries, the Marine Stewardship Council (MSC) is currently the predominant global certification and traceability program. Unlike various agriculture certification programs and the Forest Stewardship Council, which has a separate social category addressing the rights of indigenous peoples, the long-term socioeconomic wellbeing of workers and local communities, and equitable sharing of benefits as one of its three core principles and criteria, the MSC’s sustainability standard does not contain a separate social category. This

OCTOBER 3 – MORNING SESSIONS

presentation will first discuss social and environmental consequences of not evaluating social principles and criteria in the certification of Newfoundland and Labrador's Northern shrimp fishery, the first Canadian fishery to meet the MSC environmental standard for 'sustainable and well-managed' wild capture fisheries. The presentation then discusses some possible community development principles, criteria, and indicators that could be used to evaluate the performance of this fishery and others around the world. If market-oriented standard-setting, certification and traceability programs expect to help rebuild collapsed fisheries *and* threatened communities, then far greater attention needs to be paid to creating innovative principles and criteria of evaluating the short-and long-term links between coastal community development and fisheries conservation.

Community, conservation, and fisheries: Can they ever come together?

- Bonnie J. McCay, Department of Human Ecology, Rutgers University

Research in Baja California Sur, Mexico, among fishing cooperatives with MSC certification for spiny lobster, participation in MSC assessment for American lobsters in Maine, USA, and long-time observation of the fisheries of northeastern Newfoundland are the bases for this talk's discussion of the intersections among place-based communities, global institutions, and marine animals. Clearly, fishing for lobsters or clams rather than highly mobile groundfish like cod makes a difference to the likelihood of community-based conservation, but so does the heritage of experience, property rights and law, and visions of what is possible and politically feasible and the configuration of the people involved in fisheries management and recovery.

OCTOBER 3 – MORNING SESSIONS

Session C2: A Fishery for the Future? Exploring Fisherpeople’s Perspectives through Collaborative Research in Rural Newfoundland and Labrador

Organizers:

- Kelly Vodden, Department of Geography, Memorial University of Newfoundland
- Ratana Chuenpagdee, Department of Geography, Memorial University of Newfoundland
- Nina Mitchelmore, Rural Secretariat

Session description:

This session will present highlights and key themes from two collaborative research projects conducted by researchers from Memorial and Carleton Universities in collaboration with local organizations and fisherpersons on the Great Northern Peninsula (St. Anthony to Port au Choix) and Change Islands. The fishery continues to be the biggest economic driver and employer in both areas. Both projects sought to engage residents directly involved in the industry to document what they see as the future of the fishery in their regions, including challenges facing people whose livelihoods depend on the fishery, opportunities and potential new directions for rebuilding fish stocks, fishing economies and fishing communities. Research methods employed included document review, interviews, focus groups, surveys and community workshop discussions. Some participants remain optimistic that “if managed correctly the fishery could have a very bright future” but many are doubtful that the necessary changes will be made to support an inshore fishery and viable rural fishing communities. Nevertheless community leaders and volunteers are committed to adapt and diversify, conserve traditions, and keep their communities going through local efforts and advocating for policy and management changes. They call for improved representation for rural communities and fisherpersons in decision-making, increased attention to food chain dynamics and revisiting of the Capelin fishery and of the many, seemingly uncoordinated fisheries regulations that leave them feeling “regulated to death”. They call for more flexibility, in fishing seasons for example, to recognize local conditions and support a multi-species fishery, for more emphasis on quality seafood products and small scale, niche products and markets alongside current quantity-focused approaches. Finally, it is recognized that the fishery of the future is likely to involve still fewer despite decades of decline but a careful approach to rationalization is advocated that takes dependency, adjacency and equity considerations into account.

The session format will include two collaborative presentations followed by a moderated discussion.

Paper 1: The Future of the Fishery on the Tip of the Great Northern Peninsula
Presented by: Ratana Chuenpagdee and Nina Mitchelmore with K. Vodden

Paper 2: The Last Generation? Perspectives on the Fishery from Change Islands

OCTOBER 3 – MORNING SESSIONS

Presented by: Ahmed Khan and/or Kelly Vodden and local representative (from Change Islands Town Council and/or Fisheries Committee), with Maureen Woodrow, Derek Smith and Bojan Furst.

Responses to changing market conditions for commercial seal products

- Brent Kuefler, CURRA Ph.D. student and Ph.D. student in Anthropology at Memorial University

The Newfoundland commercial seal hunt has always relied on overseas markets for its viability. However, markets for the products of the Newfoundland commercial seal hunt have changed throughout the 20th and 21st centuries. In the early 20th century demand for seal oil declined as petroleum oils replaced animal based oils for heating, lighting, and industrial processes. In subsequent years, the commercial seal hunt was maintained primarily through the sale of seal pelts. However, beginning in the 1960s demand for seal pelts declined and recently both the European Union and Russian markets have been closed to seal products. This paper will provide an historical overview of changes that have occurred in seal product markets and explore the attempts by government and industry actors to promote seal products and maintain markets for them. This paper will explore the challenges that those involved in the seal industry face in establishing new markets for seal products. In addition to furs and meat, new seal products, such as seal oil capsules, are being marketed and research is being conducted on the viability of using seal heart valves in humans. The success in creating new markets for seal products will depend not only upon creating new products and finding buyers for them, but also in understanding potential markets and meeting their specific needs.

OCTOBER 3 – AFTERNOON SESSIONS

Session C3: Examining fisheries contributions to food security and community food systems

Organizer: Kristen Lowitt, Interdisciplinary Ph.D. Program, Memorial University of Newfoundland

Session description:

This session will provide an introduction to various theoretical approaches to understanding food security followed by four presentations of academic and community-based food security projects involving fisheries.

Barb Neis, Memorial University; Mandy Ryan, FFAW; Katie Temple, CURRA

Fish desert in a midst of plenty: Finding ways to promote local consumption of seafood

The Port aux Basques region is home to a vibrant fishery culture and strong fishing industry, including 180 fish harvesters and two fish processing plants. Further, much of the seafood landed and processed in the province is trucked through the community of Port aux Basques and onto the Marine Atlantic ferry for transport to Canada and international markets. Despite this, residents and institutions, including schools and hospitals, do not have easy access to locally-harvested fish. Drawing on the concept of a food desert, this presentation seeks to understand the factors that are contributing to a fish desert in the region, concluding steps that are being taken to try to change this situation.

Making linkages among sustainable fisheries and sustainable food systems

- Kristen Lowitt, Interdisciplinary Ph.D. Program, Memorial University of Newfoundland

Research in the field of sustainable food systems has provided a critical interrogation of the global food system and emphasized the potential for local food systems to meet social, economic, and environmental goals. However this literature has focused almost entirely on the agri-food system. Drawing on research undertaken in the Bonne Bay region this presentation examines the contributions that fisheries make to community food security, including local diets and livelihoods. It concludes with recommendations for integrating fisheries into broader debates about sustainable food systems.

OCTOBER 3 – AFTERNOON SESSIONS

Rebuilding fisheries beyond Rio 20+: Addressing the food security and livelihood dimension

- Ahmed Khan, International Ecosystem Management Partnership, United Nations Environment Programme

In a post Rio 20+ era world leaders are committing to a green economy as a means of achieving sustainable development. This paper reviews the rebuilding imperative in fisheries from a green economy perspective, and assesses approaches and tools necessary for sustaining small scale fisheries that are paramount to the food security of resource dependent coastal communities. The assessment underscores how ecosystem based management, property rights, cross-sectoral partnerships, eco-investments, and international cooperation can support a green economy agenda across multiple scales for food security.

Bringing sustainable fisheries and local food systems into the classroom

- Margaret McKeon, Western District School Board

This presentation describes the development of a sustainable fisheries project undertaken with three grade 6 classes in the Western District School Board. It shares some of the lessons learned for integrating a consideration of fisheries and food security issues into the school curriculum.

OCTOBER 3 – AFTERNOON SESSIONS

Session C4: Fisheries, Coasts and Communities: Reflections from the Canadian Maritimes and the Coastal CURA

- **Organizer:** Anthony Charles, Professor, Management Science / Environmental Science, Saint Mary's University

Session Description:

This session will examine issues of fishery and fishing community sustainability through the lens of the aboriginal communities, fisher organizations, civil society groups and academic partners engaged over the past six years in the Coastal Community-University Research Alliance (Coastal CURA) across Canada's Maritime provinces. Participants in the Coastal CURA have been involved in a wide range of activities, from stream restoration to recover salmon populations on aboriginal land, to support for independent inshore clam harvesters in Nova Scotia, to initiatives aimed at maintaining traditional fisheries and environmental quality in southwest New Brunswick waters, to community-based multi-stakeholder marine planning in Prince Edward Island. From a Coastal CURA perspective, all of these initiatives also have policy overtones – it is crucial to understand how local efforts toward healthy ecosystems and sustainable livelihoods are supported or undermined by government policy. There are also important lessons for participatory research, community engagement and effective partnerships. The session explores the major environmental, livelihood, and policy challenges currently faced along Maritimes coasts, and describes corresponding research carried out by the Coastal CURA to address these, as well as the related insights emerging from “People in Places”, the international conference held by Coastal CURA in 2011, and from the film, “A Coastal Partnership: Maritime Stories of Integrated Management”. A key message is the importance of taking into account how fisheries, fishers and fishing communities interact with other economic sectors (such as aquaculture, tourism, etc.), with non-fishery government departments and with other coastal stakeholders.

The session will consist of the following components:

1. An introductory presentation will describe the main outcomes and insights from the work of the Coastal CURA, which included practical on-the-ground research, education-oriented projects on historical fishing rights, membership objectives in fishery groups, and other themes, and policy analysis on topics such as aquaculture impacts on fisheries and integrated coastal management (Tony Charles of Saint Mary's University and Melanie Wiber of the University of New Brunswick).
2. Sheena Young and Maria Recchia, of the Fundy North Fishermen's Association will discuss that organization's longstanding interest in research, experience with participatory research, and the role of FNFA as a research partner within Coastal CURA and with others initiatives.

OCTOBER 3 – AFTERNOON SESSIONS

3. Coastal CURA students Courtenay Parlee (University of New Brunswick) and Lisette Wilson (Dalhousie University) will describe their respective research on (a) coastal conflicts in the Annapolis Basin and Southwest New Brunswick, and (b) community perceptions of resilience in coastal social-ecological systems.
4. A final part of the session will include a question period and facilitated discussion involving all participants.

Presenters:

Anthony Charles, Professor, Management Science / Environmental Science, SMU

Melanie Wiber, Director of Graduate Studies, Department of Anthropology, UNB

Sheena Young, Fundy North Fishermen's Association

Courtenay Parlee and Lisette Wilson (Liz Wilson, Marine Affairs Program - Interdisciplinary PhD Program, Dalhousie University, Halifax, NS.)

Maria Recchia, Fundy North Fishermen's Association

OCTOBER 3 – AFTERNOON SESSIONS

Session C5: Labour Markets and Livelihoods in Threatened Fishing Communities

Organizer: Peter Sinclair, Professor Emeritus, Memorial University

Session description:

The ecological and economic collapse of fisheries has important implications for the functioning of local labour markets and the livelihoods that depend on them. This session draws from three research projects and two societies in which various strategies are analysed. Our objective is to review the roots of current issues and see what can be learned about effective strategies for the future.

Although our main focus is on Newfoundland and Labrador, a comparative vision is important. From the radically different setting of coastal India, we will look at how the fishery fits into a local livelihood strategy and how fishers' mobility has affected their connections with their local institutions and environment. These are issues for western Newfoundland as well. We report on the shift from a general surplus of labour to shortage of labour supply for some fishery, service sector and professional jobs. Livelihoods, employment and earnings are linked to the challenge of rebuilding communities. Two of the Newfoundland and Labrador papers look at long-distance commuting and out-migration in relation to labour, which is connected to serious problems in maintaining local institutional structures. Reflecting the project's alliance with local organizations, the session will also include a review of the relevant recent experience in one of the key study areas – economic zone 7, the Red Ochre region of the Great Northern Peninsula.

Presenters:

Prateep Nayak

Martha MacDonald, Peter Sinclair and Deatra Walsh

Sean St. George

OCTOBER 3 – AFTERNOON SESSIONS

Occupational mobility and its implications for human-environment connections in Chilika Lagoon, India

- Prateep Nayak, University of Waterloo

The presentation focuses on key environmental, political, social and economic factors shaping occupational mobility in Chilika Lagoon, Bay of Bengal, India - including (1) fisher's mobility within and outside the fishery sector as part of their overall livelihood adaptation strategy and (2) geographical spread of fishers' occupational mobility that exposes them to a number of externally imposed challenges. Using impacts from sectoral and geographical mobility by fishers as a measure, the paper reviews the status of their linkages with existing fishery institutions and the Lagoon resources across various levels to assess the extent to which fishers have been disconnected from the ongoing institutional processes and the Lagoon environment. The conclusion points to emerging trends and future scenarios regarding occupational mobility in Chilika.

Rebuilding livelihoods in fisheries communities of the west coast of Newfoundland

- Martha MacDonald, Economics Department, Saint Mary's University, Halifax, NS
- Peter Sinclair, Professor Emeritus, Memorial University
- Deatra Walsh, Postdoctoral research fellow, York University

Based on CURRA globalization research, the paper examines changes in employment and livelihoods in fisheries communities on the west coast of Newfoundland. While the initial period after collapse of the ground fishery was focused on dealing with surplus labour in the industry and the communities, more recently there is talk of a shortage of labour. The unfolding story of fisheries employment reflects the interplay of labour demand and labour supply in a changing market. The paper explores the interaction of fisheries policy, industry restructuring, external labour markets and household livelihoods strategies to understand the situation in both harvesting and processing. What alternatives are facing industry participants in the CURRA region? What are the implications of recent industry 'restructuring' initiatives? We focus on both employment and earnings, and relate the issues in the fishery to broader labour-related challenges communities face.

Employment-related geographical mobility in Newfoundland and Labrador: A census-based analysis

- Deatra Walsh, Postdoctoral research fellow, York University

OCTOBER 3 – AFTERNOON SESSIONS

Newfoundland and Labrador is well known for its geographically mobile population. Historically, the province's seafaring society has meant that mobility has always been a normal aspect of local life. Fish harvesters and crew members were away for extended periods of time throughout the fishing season, and then away again in the offseason working in mining and logging work camps across the island. So too has permanent and temporary migration been a normal part of people's lives. Throughout the twentieth century, Newfoundlanders and Labradorians have emigrated en masse to the eastern United States and points West throughout Canada for employment, adventure and love. More recently, distressed local labour markets and their threats to livelihood raise the possibility that people will outmigrate. However, the more likely alternative for those with strong attachments to home and place is long-distance labour mobility. This paper discusses this trend as one example of how individuals can remain in coastal communities despite the instability of local labour markets. and draws upon census data to provide a relevant overview of such forms of mobility in the Placentia Bay area of the Province. The appropriateness of Census as a source of data for examining labour mobility is also discussed.

The labour market and recovery issues in the Red Ochre Region

- Sean St. George, CURRA Executive, ICZM representative

OCTOBER 3 – AFTERNOON SESSIONS

Session C6: Fisheries-tourism synergies: realizing the potential

Organizer: Ken Carter, Director, Partnership Research and Analysis, Rural Secretariat, Newfoundland and Labrador

Session description:

The interdependencies between the fishery and tourism industries are often not acknowledged or documented. In fact despite links in rural areas the two industries have largely developed in isolation from/of each other. This session will be/has been built around several CURRA research projects that have explored potential synergies between fisheries and tourism in the Bonne Bay area, and challenges to more/improved collaboration including/such as the legislative and regulatory requirements related to each industry. The session will also highlight the outcomes of a recent engagement session entitled *Working Better Together: Fisheries and Tourism in Newfoundland and Labrador*, held in June 2012. Despite the barriers to more/better synergy the June session showed that stakeholders are interested in working together and want to see many more of these potential synergies/collaborations realized (e.g. having many more species of seafood available at local markets and restaurants and better fishery experiences for tourists, etc.). There will be two presentations followed by a panel.

Presenters:

Pierre LeBlanc Fine Arts, Grenfell Campus, MUN

John Lubar Department of Fisheries and Oceans

Peter Bull, Outdoor Product Development, Department of Tourism Culture and Recreation

Maria Recchia, Fundy North Fishermen's Association

Mark Lamswood , Executive director, Go Western Newfoundland

Bernadette Dwyer Fisheries Leader, Tilting, Fogo Island

Kristen Lowett, Memorial University of Newfoundland

OCTOBER 3 – AFTERNOON SESSIONS

Exploring opportunities for fisheries-tourism development in the Bonne Bay region of Newfoundland

- Kristen Lowitt

While the fishing sector continues to undergo change, it remains an important part of the social and economic fabric of the Bonne Bay region. At the same time, Gros Morne National Park attracts tourists looking to experience the local sights and tastes of the region and a vibrant fishery is important to tourism. Despite these connections, there is little evidence that the operation of these sectors has been informed by the goal of promoting such synergies. Drawing on participant observation and interviews with fish harvesters and tourism operators undertaken in the region in 2011, this presentation examines the foundations for improved economic opportunities for fish harvesters and tourism operators based on enhanced collaboration among these sectors as well as on increased regional consumption of seafood. The presentation looks at specific opportunities for culinary and experiential tourism. It outlines new forms of collaboration among harvesters, processors, and tourism businesses that could increase the availability of local seafood to the tourism sector and local residents while improving livelihoods for those in the fishing industry. Further, drawing on examples from other places, the potential in the region for various forms of experiential fisheries-tourism products is assessed.

"Plant": metaphors for growth and the fish plant as site for development

- Pierre LeBlanc

Newfoundland is heavily promoted as a cultural destination demonstrating the link between culture and the development of new destinations. The body of work, *Plant*, is comprised of 50 black and white photographs of several western Newfoundland fish plants. This presentation will explore *Plant* in the context of a larger discussion of potential developments in Fisheries Tourism.

As part of an argument that the Fishery (as it has evolved) has had an impact on culture that has remained unexamined, the presentation will explore the cultural impact of the fish plant within the communities that, in large part, exist because of them. In this work, the image is part of a data-set needing to be read and interpreted; essentially using skills of observation and organization rather than a set *scientific method*. The action of the artist is to participate (walk), observe, learn and transmit.

Many of these fish plants are closed and being simply allowed to turn to rubble. The presentation will argue that looking at these sites in terms of sites to be developed could give them a new purpose and engage the community differently. These buildings could house

OCTOBER 3 – AFTERNOON SESSIONS

galleries, museums (ex. Burnt Islands, Broom Point), theaters or any number of private enterprises (Port aux Basques, Woody Point).

Plant seeks to present “beautiful” images in the traditional sense but of subject matter that, more often than not, lies just below the field of view. The photographs explore similarities and differences in structure and functionality but, moreover, record the fish plant’s position in the community as a metaphor for the bittersweet relationship between the Fishery as a business and the Fishery as part of the fabric of a culture.

“These walk-works of imagination (manoeuvres) form a plank in an argument for experiential knowledge which is heteroglossic in nature, and which tests generalized notions of ‘interdisciplinarity’, ‘site-specificity’, ‘performance’, ‘poetry’ and the ‘memorial’ to rework notions of ‘objecthood’ in art.”
Brennan, T., **The Manoeuvre**, Visual Studies, Vol. 25, No. 1, April 2010

OCTOBER 3 – POLITICIAN’S PANEL & BANQUET

Please join us for a banquet and politicians panel with:



NDP Fisheries Critic- Chris Mitchelmore



Liberal MHA - Yvonne Jones

*and TBA guest
at*

**Oceanview Hotel,
Rocky Harbour
7:00pm**

OCTOBER 4 –MOVING FORWARD

OCTOBER 4 – MORNING SESSION

Session D1: Panel Discussion: Future Rebuilding: Challenges, Resources and Opportunities

Organizer: Barb Neis, Sociology, Memorial University; CURRA Principal Investigator

Session Description:

The purpose of this panel discussion is to help position the group for small group discussions on resources, opportunities and challenges for rebuilding – i.e. for moving forward from the symposium. The panel will include reflections on the kind of research needed and the potential role of marine stations in rebuilding (Steneck, Ommer); on the role DFO can play in rebuilding (Lubar); on opportunities and barriers to rebuilding identified by the Fish Food and Allied Workers Union (Decker), from an international perspective (Nayak) and from the perspective of the World Wildlife Fund (Saier) and an expert on policy change in Newfoundland and Labrador (House).

Panel Participants:

Bob Steneck, Professor, University of Maine.
Prateep Nayak, , University of Waterloo
John Lubar, Department of Fisheries and Oceans
Dave Decker, Fish Food and Allied Workers Union
Doug House, CURRA Advisory co-chair
Rosemary Ommer, CURRA Advisory co-chair
Bettina Saier, World Wildlife Fund

OCTOBER 4 – AFTERNOON SESSION

(11:45PM – 1:30PM):

- Extended Working Lunch
- Themed Small Group Discussions

(1:30PM – 2:30PM):

FEEDBACK AND DISCUSSION

(2:30PM – 3:15PM):

EVALUATION AND SYMPOSIUM CLOSING

Speakers: Doug House & Rosemary Ommer

Voice of Bonne Bay

**VOBB 95.9 FM – Community Radio Serving the Bonne Bay
and Gros Morne area**



*A radio station staffed by dedicated volunteers from communities
within Gros Morne National park.*

The Voice of Bonne Bay (VOBB) is a community radio station located in Norris Point, in the middle of Gros Morne National Park, in Newfoundland and Labrador, broadcasting on 95.9 FM and live-streaming on the Internet at www.vobb.org. Staffed by dedicated volunteers, VOBB serves the communities of Bonne Bay (Woody Point, Norris Point, Rocky Harbour, Glenburnie-Birchy Head-Shoal Brook).

During the International Symposium, VOBB volunteers will be on hand to both record and broadcast live the proceedings and discussions. Photographs will also be taken to be used on the VOBB web site. A consent form will be available for your signature. Please notify the CURRA Community Coordinator, Anita Best (abest@mun.ca), if you do not wish to participate in these broadcasts.

Located @ Julia Ann Walsh Heritage Centre, Norris Point

voiceofbonnebay@gmail.com

VOBB 95.9 FM Studio (709) 458-2924

Station Manager/Office (709) 458-3072

Bonne Bay Marine Station



A world-class research and teaching facility, the Bonne Bay Marine Station on Newfoundland's breath-taking west coast is dedicated to expanding knowledge of marine ecology.

Equipped with teaching and research laboratories, library/resource centre, multimedia theatre, aquarium, residence accommodations, and small boats, the station offers students a premiere learning environment and researchers a first-rate facility for marine ecosystem research. Visitors, school and community groups can learn about our latest research while observing marine flora and fauna in the station's aquaria and touch tank.

Officially opened on 6 Sept, 2002, the Bonne Bay Marine Station is operated by Memorial University of Newfoundland and the Gros Morne Co-operating Association



SYMPOSIUM EVALUATION FORM

1. GENERAL INFORMATION

1.1 Affiliation (please check one)

- | | |
|---|--------------------------------------|
| <input type="checkbox"/> Community/Community Based Organization | <input type="checkbox"/> Government |
| <input type="checkbox"/> Academic/University | <input type="checkbox"/> Industry |
| <input type="checkbox"/> Non-Profit/Non-Government | <input type="checkbox"/> Other _____ |

1.2 How did you hear about the symposium (please check one)

- | | |
|--|--|
| <input type="checkbox"/> CURRA website | <input type="checkbox"/> Word of mouth |
| <input type="checkbox"/> Poster | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Email promotion | |

1.3 Please tell us your top three reasons for attending this Symposium:

(i)

(ii)

(iii)

2. SYMPOSIUM CONTENT AND OBJECTIVES

2.1 What sessions and/or parts of the Symposium did you find the most interesting? Why?

2.2 How well did the Symposium contribute to your understanding of why equitable and sustainable rebuilding of collapsed fish stocks and fishery-dependent industries and communities might be difficult?

2.3 How well did the Symposium allow you to explore the longer and shorter term risks collapsed fisheries pose to other fisheries and to the resilience of fish and invertebrate populations, marine ecosystems, fishing industries and communities?

SYMPOSIUM EVALUATION FORM

2.4 Was there enough opportunity to identify policies and strategies for sustainable rebuilding from oceans to plate?

2.5 How, if at all, do you see the presentations/discussions at this Symposium feeding into your future engagement around fisheries?

2.6 Please provide any other comments/suggestions you have regarding the content of the Symposium?

3. SYMPOSIUM LOGISTICS (Please circle your response)

Item	Poor		Good		Excellent	
Pre-symposium Communication	1	2	3	4	5	6
Registration fee and payment process	1	2	3	4	5	6
Guidance at the Symposium	1	2	3	4	5	6
Symposium Facilities	1	2	3	4	5	6
Hospitality	1	2	3	4	5	6
Accommodations	1	2	3	4	5	6
Coffee/refreshment breaks	1	2	3	4	5	6
Festival films	1	2	3	4	5	6
Luncheons	1	2	3	4	5	6
Banquet	1	2	3	4	5	6

Other comments:

Thank you!



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Canada