



4th World Small-Scale Fisheries Congress

4WSFC North America

June 20-22, 2022

St. John's, Canada

Getting IT Right

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CONGRESS PROGRAM

MONDAY, JUNE 20TH – DAY 1

OPENING REMARKS

Monday, June 20th, 09:30 – 10:20

Hosts:

- Paul Foley, Memorial University, Canada
- Evan J. Andrews, Memorial University, Canada
- Ratana Chuenpagdee, Memorial University, Canada

Opening and welcome remarks

- Welcome speeches from St. John's City, FFAW, DFO & MUN

PLENARY SESSION #1 Getting ADAPTATION Right

Monday, June 20th, 10:30 – 12:30 PM

Location: SALON A

Chairs:

- Maria Andree Lopez Gomez, Autonomous University of Barcelona, Spain
- Sarah Harper, University of Victoria / University of British Columbia, Canada

Small-scale fisheries in North America face many challenges yet have to potential to be resilient and adapt to changing social, economic, and ecological conditions. This interactive plenary session will feature several panelists exploring how to 'Get Adaptation Right', with a focus on access and infrastructure considerations, overcoming labour and market challenges, identifying knowledge/data requirements for adaptation planning, and highlighting innovative approaches and tools for responding to change, including examples of policies and programs that exist or are needed for adaptation in SSF. Session participants are invited to engage in dialogue with the panelists for a rich discussion on adaptation in small-scale fisheries, sharing their questions and insights from the places and experiences that they work and live.

- Sonia Strobel, Skipper Otto, Canada
- Rick Williams, Canadian Council of Professional Fish Harvesters, Canada

- Kanae Tokunage, Gulf of Maine Research Institute, USA
- Alida Bundy, Fisheries and Oceans, Canada

LUNCH (12:30-13:45)

PLENARY SESSION #2 Making Connections for Get SMALL Right

Monday, June 20th, 13:45 – 15:45

Location: SALON A

Chair/Moderators:

- Evan J. Andrews, Memorial University, Canada
- Cynthia Grace-McCaskey, East Carolina University, USA
- Katia Frangouides, University of Brest, France

This plenary explores what it means to be ‘small’ in coastal and marine systems, and how we can better understand and support connections to understand diverse interactions in coastal social-ecological systems. Making connections is at the heart of making sense of small-scale fisheries, including their relationships with other aspects of coastal and marine sustainability. The 3rd World Small-Scale Fisheries Congress enriched many discussions about the meaning of ‘small’, drawing attention to relationships among coastal and marine aspects often thought of as too ‘small’ to require broad attention, including rural families, dependent communities, local markets, and local governance. Now, during the 4th World Small-Scale Fisheries Regional Congress, we have an opportunity to exchange knowledge and reflections, and to ask new questions about the meaning of ‘small’ in North American contexts, where small-scale fisheries and these coastal connections are under-recognized. To take advantage of this opportunity, this plenary seeks to foster and enable connections among ideas to enrich and broaden discussion about how to Get Small Right in complex coastal and marine systems. As such, the plenary builds on previous plenaries and sessions, and feeds into discussions about the future. The plenary will feature three presentations from researchers and practitioners, followed by an opportunity to ask questions. Then, guided by key questions, attendees will discuss what they see as key connections for small-scale fisheries in coastal and marine systems.

- Tony Doyle, FFAW-Unifor, Canada
- Dean Bavington, Memorial University, Canada
- Hannah Harrison, University of Guelph, Canada
- Jennifer Ford, Fisheries and Oceans, Canada
- Erin Carruthers, FFAW-Unifor, Canada

BREAK (15:45 – 16:15)

PARALLEL SESSION #1

Time	Session title
16:15 – 17:45	Parallel Session #1
	#1.1: Basic Income #1.2: Getting Fish Harvesting Policy Right #1.3: Getting Adaptation Right (I) – Contributed papers #1.4: Getting Small Right – Contributed papers

**Parallel session #1.1:
Basic Income**

Location: SALON B

Organized by:

- Kristen Lowitt, Queen's University, Canada
- Barb Neis, Memorial University, Canada
- Hannah Harrison, University of Guelph, Canada
- Deatra Walsh, Municipalities Newfoundland and Labrador

Speakers:

- Ryan Lauzon, Chippewas of Nawash Unceded First Nation, Canada
- Sonia Strobel, Skipper Otto Community Supported Fishery, Canada
- Rick Williams, Canadian Council of Professional Fish Harvesters, Canada
- Alyse Stuart, FFAW-Unifor, Canada
- Chalsie Kook-Marche, Mayor, Port au Port West-Aguathuna-Felix Cove
- Barbara Boraks, Coalition Canada

Synopsis:

This session will explore the potential for a basic income to support sustainable livelihoods in the fisheries sector. A basic income provides an income floor so that everyone can meet their basic needs with dignity. Undertaken as part of Coalition Canada's case for basic income series, the session will present an overview of the new case for basic income in the fisheries that is currently being developed. After a short overview of this case, we will hear from a panel of cross-sector fisheries representatives including union, government, and community members from across the country sharing their feedback and reflections on the potential for a basic income in the fisheries sector. A Q&A will take place at the end of the session to consider audience questions and provide opportunities for feedback.

**Parallel session #1.2:
Getting Fish Harvesting Policy Right**

Location: SALON C

Organized by:

- Barry Darby, Changing Course, Canada
- Helen Forsey, Changing Course, Canada

Speakers:

- Barry Darby, Changing Course, Canada
- Helen Forsey, Changing Course, Canada

Synopsis:

Bucking the tide of conventional fishery management, our organization Changing Course advocates an alternative harvesting policy framework that favours small-scale fisheries and is based on science, local knowledge and responsiveness to the ever-changing realities of the ocean. The current dominant approach to fishery management – calculating allowable catches and setting quotas – is flawed by untenable assumptions, and leads to ongoing failures. We propose a paradigm shift in fishery governance, aiming to optimize economic and social benefits while ensuring the sustainability of fish stocks and marine ecosystems. This session will present and discuss the fundamentals of our alternative harvest management approach, based on regulating fishing effort (controlling input) rather than setting quotas (controlling output.) This effort-based system sets rules for certified commercial harvesters – gear and methods, seasons and zones. Ecosystem balance and health are maintained using past knowledge, real-time data and ecosystem feedback in a largely self-adjusting system. For decades, effort-based management has been continuously successful in our lobster fishery, yet management of our other fisheries is still quota-based. The new policy framework that we advocate integrates Western science and modern data technology with the deeper knowledge systems of Indigenous peoples and with lessons learned from our rich history of traditional outport fishing. With such an approach, we humans can play the honourable role of sustainably harvesting the living commons of the ocean. Challenging the status quo – and being challenged in turn – will make this session an integral part of the process of forging better ways to "get fish harvesting policy right."

**Parallel session #1.3:
Getting Adaptation Right (I) – Contributed papers**

Location: SALON D

Contributions from individual papers.

Chair: Prateep Nayak, University of Waterloo, Canada

Speakers	Title
Kanae TOKUNAGA	Understanding the roles of knowledge and learning in climate resilient small-scale fisheries
Sarah HARPER	Bringing perceptions of fairness into the fold in navigating climate change impacts on fisheries systems
Natascia TAMBURELLO	A climate-smart fisheries monitoring framework for guiding adaptation in the small-scale fisheries sector
Ian IVANY	Understanding the past to build resilient futures: Documenting historic deepwater flounder inshore fisheries in Newfoundland
Eider GRANER URTIZBEREA	The decline of European sea bass stocks in Iroise Sea, France: a case study on the adaptation strategies of small-scale liners
Alexandria MAJOR	Activating personal locator beacons: the impact of cold water exposure on hand dexterity for personal locator beacon activation

**Parallel session #1.4:
Getting Small Right – Contributed papers**

Location: Placentia Bay

Chair: Cynthia Grace-McCaskey, East Carolina University, Canada

Contributions from individual papers.

Speakers	Title
Stephan SCHOTT	An inshore fishery model for the Arctic
Tony CHARLES	Understanding small-scale fisheries in Canada
Hillary SMITH	Are targets really SMART-er? Challenging assumptions behind global ocean policies to realize fisheries equity
Juan MARTI	A data-driven social franchise business model for small-scale fisheries

Maria Andree LOPEZ GOMEZ	Getting recruitment and retention of people in small-scale fisheries right
Md. Ruyel MIAH	Vulnerability to the viability of small-scale fisheries: are existing governance approaches and theories well-equipped for the transition?

PARALLEL SESSION #2

Time	Session title
18:00 – 19:30	Parallel Session #2
	#2.1: Canada and Japan comparison: Different but Similar #2.2: Transitioning from vulnerability to viability: Transdisciplinary approaches to getting small-scale fisheries governance right #2.3: Getting Governance Right (I) – Contributed papers #2.4: Getting Conservation Right – Contributed papers

Parallel session #2.1: Girls who Fish Canada and Japan: Apart but Together

Location: SALON B

Organized by:

- Yinji Li, Tokai University, Japan
- Kimberly Orren, Fishing for Success, Canada

Speakers:

- Jennifer Brenton, Memorial University / Girls Who Fish Canada
- Megan Meadus, The Guided Spirit / Girls Who Fish Canada
- Jasmine Paul, commercial fish harvester / Girls Who Fish & Fishing for Success
- Yinji Li, Tokai University, Japan
- Kimberly Orren, Fishing for Success, Canada

Synopsis:

The Canadian 'Girls Who Fish' program, which has been successfully run by Fishing For Success, a non-profit organization from Petty Harbour, Newfoundland & Labrador. Their year-round programming for youth, women, and immigrants encourages visitors to form their own bonds with nature, through purposeful and practical experiences of fishing, gathering, gardening, etc. The non-profit places a great emphasis on the community, and youth to make decisions about their future, the way they want to live, and perhaps make a living. Girls Who Fish Japan is a program inspired by the

Canadian 'Girls Who Fish' that started in October 2021 bringing girls and women to fisheries in Japan. Coordinated by TBTI Japan Research Network, the program members from eight to eighty years old gather together once a month at the Mochimune fishing community in Shizuoka and experience hands-on learning about the fisheries and fishing communities. In this session, Girls Who Fish members and coordinators will get together to present and discuss the commonalities and differences in gender and women in fisheries in both countries, why this program, what progress has been made, and the way forward. After two presentations about Girls Who Fish Canada and Japan, a moderated discussion and an open discussion will follow.

**Parallel session #2.2:
Transitioning from Vulnerability to Viability:
Transdisciplinary Approaches to Getting Small-Scale Fisheries Governance Right**

Location: SALON C

Organized by:

- Prateep Kumar Nayak, University of Waterloo, Canada

Roundtable / Panel Speakers:

- Jessica Blythe, Brock University, Canada
- Ana Carolina Esteves Dias, University of Waterloo, Canada
- Ratana Chuenpagdee, Memorial University/TBTI, Canada
- Derek Armitage, University of Waterloo, Canada

Graduate Student Discussants:

- Natasha Serrao, University of Waterloo, Canada
- Bhabishya Khaniya, University of Waterloo, Canada
- Ruyel Miah, PhD Student, University of Waterloo, Canada

Synopsis:

Strongly anchored in local communities, small-scale fisheries reflect a way of life, and they provide critical contributions to nutrition, food security, poverty alleviation, livelihoods, and local/national economies. Yet, their multiple benefits and contributions are often overlooked as many SSF communities remain economically and politically marginalised, are highly vulnerable to change, and remain invisible in policy debates. Nonetheless, the survivability of many small-scale fisheries suggests certain strengths and forms of resilience. A holistic understanding of what causes vulnerability and what makes small-scale fisheries viable is required. The goal of the roundtable panel is to critically examine the diverse factors and conditions contributing to the vulnerability of SSF and to reflect on ways that are crucial to enhance and facilitate their transition to viability. The panel invitees, mainly constituting members of the Vulnerability to Viability (V2V) Global Partnership, will reflect on the different dimensions of 'Vulnerability to Viability (V2V) Transition' as a transdisciplinary approach useful to facilitate the process of 'getting small-scale fisheries governance right' within the context of a rapidly changing ocean.

**Parallel session #2.3:
Adjusting the Governance Lens (I) – Contributed papers**

Location: SALON D

Chair: Susan Squires, University of North Texas, USA

Contributions from individual papers.

Speaker	Title
Courtenay E. PARLEE	Full spectrum sustainability and a theory of access: Integrating social benefits into fisheries governance
Frédéric Cyr	Getting your pantry right: How the COVID-19 pandemic boosted local seafood consumption on the Magdalen Islands
Charles MATHER	Recruitment and retention in Newfoundland and Labrador’s fish processing sector (in the time of COVID-19)
Madu GALAPPATHTHI	Women’s experiences in influencing and shaping small-scale fisheries governance: A global literature review
Sahir ADVANI	Selling seafood by the seashore – Getting the size of the US direct seafood sector right
Katia FRANGOUEDES	A transdisciplinary research to support Ecosystem Based management in French English Channel: design of an acoustic telemetry network

**Parallel session #2.4:
Getting Conservation Right – Contributed papers**

Location: Placentia Bay

Chair: Patricia Pinto da Silva, NOAA, USA

Contributions from individual papers.

Speaker	Title
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Evan J. ANDREWS	The case for collaboration for social science and humanities in decision-making for fisheries and oceans sustainability
Alida BUNDY	Towards Ecosystem Based Management: The Maritimes Region (EBM) Initiative
Kayla HAMELIN	Community-based approaches to addressing information gaps for a forage fish in Atlantic Canada
Walter BEZHA & Grace MARTIN	The importance of human-fish relationships in Indigenous fisheries stewardship
Poppy KEOGH	Stepping from Zero to Moving Together in Marine Conservation
Tony CHARLES	Small-Scale Fisheries Linking Conservation and Livelihoods

TUESDAY, JUNE 21TH – DAY 2

REGISTRATION & NETWORKING 09:00-10:00

DAY 1 SUMMARY

10:00– 10:30

PLENARY SESSION #3

Step Zero for Getting Marine Conservation Right

Tuesday, June 21th, 10:30 – 12:30

Location: SALON A

Chairs:

- Patricia Pinto da Silva, NOAA, USA
- Evan J. Andrews, Memorial University, Canada

This plenary presents diverse perspectives about marine conservation in Canada, USA and across the Atlantic as means to understand research and policy opportunities to build capacity for inclusive marine conservation. Marine and ocean users and leaders, whether Indigenous or non-indigenous, inshore and offshore

industries, environmental organizations or community groups, may have different perspectives, visions and values related to marine and ocean conservation. Non-users may be latent in the discussion about marine conservation, even though they may feel like they too have something to contribute. While groups may agree that some level of conservation is desirable, what that means in practice often differs based on group values, priorities, and concerns, as well as different visions for the ocean. Perspectives that broaden the view of marine conservation are critical for collaborative planning of marine conservation in Canada, as it aims to meet its Marine Conservation Targets (MCT) and conserve 25% of the oceans by 2025 and 30% by 2030. To help facilitate a broad and inclusive view of marine conservation, to exchange lessons with conservation efforts elsewhere, and to foster opportunities for future research and practice, this plenary brings together representatives from diverse groups and sectors to share their conservation story, discuss their vision for marine conservation, and talk about pathways for action.

Speakers

- Erica Porter, Fisher, Canada
- Tyler Eddy, Memorial University, Canada
- Brice Trouillet, Nantes University, France
- Patricia Clay, NOAA, USA

LUNCH (12:30 – 13:45)

PLENARY SESSION #4 Getting GOVERNANCE Right

Tuesday, June 21th, 13:45 – 15:45

Location: SALON A

Chairs:

- Kristen Lowitt, Queen's University, Canada
- Susan Squires, University of North Texas, USA
- Prateep Nayak, University of Waterloo, USA

To be successful, at the heart of governance is collaboration. This session will consider joint governance among communities, government, civil society, and academic organizations engaged in small-scale fisheries. The first part of the session will feature a keynote panel of speakers with a broad range of experiences on small-scale fisheries governance issues and considerations including stakeholder rights, knowledge acquisition and sharing, the impact of local and regional values, and the importance of inclusion. Importantly they can also speak to big picture issues framing governance in a systems perspective. The second half of the session

is interactive providing participants the opportunity to discuss governance issues and solutions in small groups. Sharing small group feedback and Q&A with the panel on the ideas emerging from small group discussion will conclude the session.

Speakers:

- Barb Neis, Memorial University, Canada
- Bonnie McCay, Professor Emerita at Rutgers University, USA
- Madeleine Hall-Arber, Massachusetts Institute of Technology, USA

BREAK (15:45 – 16:15)

PARALLEL SESSION #3

Time	Session title
16:15 - 17:45	Parallel Session #3
	#3.1: Making co-management work: Case studies from Maine’s river herring and shellfish fisheries #3.2: Thinking BIG about Small-Scale Fisheries in Canada: eBook Launch #3.3: Getting Governance Right (2) – Contributed papers #3.4: Getting Aquaculture Right - Contributed papers #3.5 - Illuminating Hidden Harvests: The Contribution of Small-Scale Fisheries to Sustainable Development

Parallel session #3.1:

Making co-management work: Case studies from Maine’s river herring and shellfish fisheries

Location: Salon B

Organizers:

- Emily Farr, Manomet, United States
- Mike Thalhauser, Maine Center for Coastal Fisheries, United States

Speakers:

- Josh Stoll, University of Maine, United States
- Bailey Bowden, River Herring and Shellfish Harvester, United States
- Mike Thalhauser, Maine Center for Coastal Fisheries, United States
- Marissa McMahan, Manomet, United States

Synopsis:

Fisheries collaborative management, or co-management, is a governance structure where resource users and governments share responsibility to manage a fishery. Co-managed fisheries fall along a continuum of shared responsibility and power-sharing, but each require adaptive problem-solving, collaboration, and relationship-building across a range of stakeholders and scales to be successful. This session will highlight several efforts to advance co-management and elevate fishers' knowledge in Maine. The river herring and wild clam and mussel fisheries in Maine are each co-managed between municipalities and the state, combining the local knowledge of fishermen with the scientific expertise and capacity of the state. Both fisheries also face many social, economic, cultural, and ecological challenges including harvest access, climate change, habitat degradation/loss, and limited capacity. Panelists will describe recent efforts to build collaborative networks and advance stakeholder-driven solutions that improve co-management of these fisheries and support adaptation to a changing ecosystem. These efforts include collaborative policy initiatives; improving information access/sharing; supporting community-led restoration activities; and standardizing data collection to inform management. Panelists include two non-profits engaged in community-based research and management efforts and a research professor. Through these case studies, this session will highlight the factors that are needed to make co-management of community-based fisheries work. Panel presentations will be followed by time for Q&A and discussion, including an invitation for audience members to share additional efforts to advance co-management in other fisheries and geographies.

Parallel session #3.2:

Thinking BIG about Small-Scale Fisheries in Canada: eBook Launch

Location: SALON C

Organized by:

- Evan J. Andrews, Memorial University, Canada
- Christine Knott, Memorial University, Canada

Speakers:

- Kirsten Bradford, Simon Fraser University, Canada
- Cailyn Siider T. buck Suzuki Foundation, Canada
- Sarah Harper, University of Victoria, Canada
- Nathan Stanley, Dalhousie University, Canada
- Zaman Sajid, Memorial University, Canada
- Evelyn Pinkerton, Simon Fraser University, Canada
- Hannah Harrison, University of Guelph, Canada

Synopsis:

Small-scale fisheries in Canada are under-recognized, and opportunities exist to better understand their contributions to seafood production, food security, well-being, and

sustainable communities. This panel launches an upcoming knowledge synthesis eBook, “Thinking BIG about Small-Scale Fisheries in Canada”. The eBook brings together 73 community, civil society, and academic contributors to draw attention to small-scale fisheries in Canada including perspectives, challenges, and opportunities for small-scale fisheries in Canada. The eBook reflects a novel offering to Canadian fisheries scholarship with implications for future research and policy recommendations. It bridges conventional knowledge silos including contributions from fisheries in coastal, marine, and freshwater contexts from a range of perspectives and knowledges, such as Indigenous and local knowledge, empirical research, reflections, and stories. The panel will include contributors to the eBook who will share insights from their eBook chapters, and engage in a facilitated cross-contextual discussion about how to get small right for fisheries in Canada through research and policy.

**Parallel session #3.3:
Getting Governance Right (II) – Contributed papers**

Location: SALON D

Chair: Megan Bailey, Dalhousie University, Canada

Contributions from individual papers.

Speakers:

Speaker	Title
C. Julian IDROBO	Northern Inland fisheries facing challenging times: A dialogue between fishers and scientists about freshwater socio-ecological systems
Hannah HARRISON	Forgotten Fish: Contemporary Challenges and Opportunities in Great Lakes Commercial Fisheries
Iria GARCÍA LORENZO	Governance of small-scale fisheries: organisation, co-management and cooperation within the Indigenous Communities of Canada
Bhabishya KHANIYA	Understanding the impact of global changes in small-scale fisheries: key lessons to progress from vulnerability to viability
Sonia STROBEL	Getting Community Supported Fisheries Right
Solmundur Karl Palsson	The success and failure of the Freshwater Fish Marketing Corporation on Lake Winnipeg and the

	next step for fishers to secure their rights to the market
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**Parallel session #3.4:
Getting Aquaculture Right – Contributed papers**

Location: Placentia Bay

Chair: Charles Mather, Memorial University, Canada

Contributions from individual papers.

Speakers:

Speaker	Title
Robin FAIL	Learning from our mistakes on land: Opportunities for Centering Equity in Mariculture Development
Taylor REIDLINGER	Lessons from Kelp Aquaculture: for Better Ocean Governance and Economies
Maria Andree LOPEZ GOMEZ	Getting Employment in Aquaculture Right: a case study on the Burin Peninsula
Wilf SWARTZ	Exploring perceptions of commercial fisher representation in management: A case study of the North Atlantic right whale UME, 2017-2021

**Parallel session #3.5
Illuminating Hidden Harvests: The Contribution of Small-Scale Fisheries to Sustainable Development**

Location: Zoom

Organizers: FAO, Duke University and WorldFish

Speakers:

- Maria del Mar Mancha-Cisneros, University of San Diego, USA
- John Virdin, Duke University, USA
- Josh Stoll, University of Maine, USA

Synopsis:

As a contribution to the celebrations of the International Year of Artisanal Fisheries

and Aquaculture, this session will present on the Illuminating Hidden Harvests. This is a global initiative of FAO, Duke University, and WorldFish to generate and disseminate new evidence about the benefits, interactions and impacts of small-scale fisheries to inform policy and practice.

The initiative helps to inform all levels of policy-making processes and contributes to empowering fishing communities, their organizations, and advocates to make a strong case for productive, sustainable and equitable small-scale fisheries. In this way, the IHH initiative supports the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication and progress towards the UN’s Sustainable Development Goals.

A key output of the IHH initiative is a major report, which provides a snapshot of the diverse contributions of small-scale fisheries globally. The report—which draws on diverse data sources, 58 country case studies, and 104 government questionnaires—represents a novel, multidisciplinary approach to assess and understand small-scale fisheries.

The session will introduce the approach and share findings and experiences related to the preparation of the study. IHH team members, thematic study authors and members of the Technical Advisory Group will participate in the session which will allow for discussion on the approach and results with attendees.

BREAK (17:45 – 18:00)

PARALLEL SESSION #4

Time	Session title
18:00 – 19:30	Parallel Session #4
	<p>#4.1: Two-Eyed Seeing and fisheries governance: The Saugeen Ojibway Nation Perspective</p> <p>#4.2: Inspiring new pathways: innovation, network building, and research in community-based seafood system</p> <p>#4.3: Getting Blue Economy Right – Contributed papers</p> <p>#4.4: Getting Future Right– Contributed papers</p>

**Parallel session #4.1:
Two-Eyed Seeing and fisheries governance:
The Saugeen Ojibway Nation Perspective**

Location: SALON B

Organized by:

- Ryan Lauzon, Chippewas of Nawash Unceded First Nation Fisheries Assessment Program, Canada
- Alexander Duncan, Centre for Indigenous Fisheries, University of British Columbia, Canada
- Breanna Redford, Chippewas of Nawash Unceded First Nation Fisheries Assessment Program, Canada

Speakers:

- Ryan Lauzon, Chippewas of Nawash Unceded First Nation Fisheries Assessment Program, Canada
- Alexander Duncan, Centre for Indigenous Fisheries, University of British Columbia, Canada
- Breanna Redford, Chippewas of Nawash Unceded First Nation Fisheries Assessment Program, Canada
- Christopher Akiwenzie, Chippewas of Nawash Unceded First Nation Fisheries Assessment Program, Canada
- Jordane Chegahno, Chippewas of Nawash Unceded First Nation Fisheries Assessment Program, Canada

Synopsis:

Since time immemorial, the Saugeen Ojibway Nation (SON; Chippewas of Nawash Unceded First Nation and Chippewas of Saugeen First Nation collectively) have harvested fish for ceremony, trade, and subsistence, developing a strong cultural connection and understanding of the waters and fish in Lake Huron and Georgian Bay. The history of the SON fishery is wrought with conflict and injustices; however, the fishery persists, and the most recent era is characterized by an innovative Two-Eyed Seeing approach to collaboration, research, reconciliation, and self-governance. This session will explore the SON fishery through a contemporary lens and provide insight into the events that occurred following the signing of the 2000 Fishery Agreement. In published literature to date, this modern era of the SON fishery has not been adequately documented. Through the continued assertion of their rights, the SON has created their own unique path to achieve self-governance and reconciliation via research, Nation-to-Nation negotiations, consultation, collaboration, and when necessary, litigation. There are many lessons to be learned from SON's experiences and the purpose of this session is to share these lessons with a broader audience. The content in this session is based on a book chapter written by Ryan Lauzon and Alexander Duncan for the Too Big to Ignore Network (TBTI) e-book, "Thinking Big about Small-Scale Fisheries in Canada."

**Parallel session #4.2:
Inspiring New Pathways:
Innovation, Network Building, and Research in Community-based Seafood System**

Location: SALON C

Organized by:

- Joshua Stoll, University of Maine, USA
- Sahir Advani, University of Maine, USA

Speakers:

- Sahir Advani, University of Maine, USA
- Talia Young, Fishadelphia Community Supported Fishery, USA
- Sonia Strobel, Skipper Otto Community Supported Fishery, Canada
- Peter Halmay, San Diego Fishermen's Working Group, USA
- Kevin Scribner, Koooskooskie Fish, USA
- Sarah Shoffler, NOAA Fisheries, USA
- Jordan Richardson, Local Catch Network / University of Maine, USA
- Joshua Stoll, University of Maine, USA

Synopsis:

Seafood is an important source of employment, nutrition, and wellbeing for millions of people in North America and around the world. Seafood is also the most traded food commodity in the world, creating a dynamic in which fishers' catch increasingly leaves the regions where it is harvested. Here, we share a series of vignettes from across the United States that represent inspiring new pathways to catalyze local and regional food systems through innovation, network building, and research. Our session will highlight the link between resilient fisheries and vibrant local food systems with an eye towards centering a "fish-as-food" dialog at the World Small-Scale Fisheries Congress. Panelists will include a representative from the fishing sector as well as a network leader, researcher, and government representative.

**Parallel session #4.3:
Getting Blue Economy Right – Contributed papers**

Location: SALON D

Chair: Sheila Prall-Dillman, Fisheries and Oceans, Canada

Contributions from individual papers.

Speaker	Title
Racheal WEYMER	Coastal People Need to Helm the Blue Economy
Syma EBBIN	Fishing for Space in the New Blue Economy: Conflict and Cooperation between the Fishing and Wind Industries in two Northeast US Working Waterfronts

Megan BAILEY	Positioning Canada's Blue Economy for Growth and Success Through Rights Recognition
Sarah ECOLANO	Working Waterfronts: Supporting independent fishermen by slowing the consolidation of market channels
Paloma HENRIQUES	Co-Creating Accountability Indicators with Alternative Seafood Networks
Ian STEWART	Assessing impacts of offshore oil and gas exploration and development on small-scale fisheries: current challenges facing Atlantic Canada

**Parallel session #4.4:
Getting Future Right – Contributed papers**

Location: Placentia Bay

Chair: Gerald Singh, Memorial University, Canada

Contributions from individual papers.

Speaker	Title
Mirella DE OLIVEIRA LEIS	Fishing into the Future with The Fish Market: A mobile application for (re)connecting small-scale fishers to consumers in Newfoundland and Labrador
Rachael CADMAN	Values-based governance and the future of Labrador Inuit fisheries
Monica ENGEL	Balancing public views toward Marine Protected Areas management using the Potential for Conflict Index ²
Desai SHAN	Enforcement of Fishing Occupational Health and Safety Standards: Challenges in Atlantic Canada
Rob STEPHENSON	The future of fisheries: Small-scale fisheries in a blue economy?
Eranga GALAPPATHTHI	Resilience-based steps for adaptive co-management of Arctic small-scale fisheries

**Movie Night "Lake Superior Our Helper:
Stories from Batchewanaung Anishinabek Fisheries"**

Time: 20:30 - 22:30 pm

Film Launch to be held at Bruneau Centre auditorium, Memorial University

Host: Kristen Lowitt

Speakers:

- Kristen Lowitt
- Charles Levkoe
- Greg Agawa
- Sarah Furlotte

WEDNESDAY, June22nd, 2022 – DAY 3

REGISTRATION & NETWORKING 09:00-10:00

DAY 2 SUMMARY

10:00 – 10:30

PLENARY SESSION #5

Getting BLUE ECONOMY Right: Food, Fishing, and Visions for the Blue Economy

Wednesday, June 22nd, 10:30 – 12:30

Location: SALON A

Chairs:

- Gerald G. Singh, Memorial University, Canada
- Joshua Stoll, University of Maine, USA

As people, corporations, and governments alike begin to operationalize their visions of the Blue Economy, pressing questions emerge about which ecosystem services, economic benefits, and sociocultural values will be foregrounded and who stands to benefit most. Here, we take the perspective that Getting a Blue Economy Right requires explicit attention to aquatic food production and the contributions, needs, and experiences of seafood harvesters, including those engaged in small-scale fisheries. In this plenary, we hear about efforts and processes in Canada and the US to plan the Blue Economy as well as how considerations of 'Blue Justice' and 'Blue Communities' are being taken into account. We also hear from a panel of Indigenous and scale-scale fishers about what the Blue Economy means to them

and their futures as ocean stewards and resource users. This session seeks to stimulate research and policy dialogue about how to situate small-scale fisheries and aquaculture in the Blue Economy, including understanding community connections.

Speakers

- Robert Pascal, Fisheries and Oceans, Canada
- Peter Halmay, Fishermen's Marketing Association San Diego, USA
- Charles Mather, Memorial University, Canada
- Sarah Shoffler, NOAA, USA
- Chris Milley, NEXUS Coastal Resource Management, Canada

LUNCH (12:30 – 13:45)

PLENARY SESSION #6

Exploring New Transdisciplinary Frontiers to Get the Future Right

Wednesday, June 22nd, 13:45 – 15:45

Location: SALON A

Chairs:

- Julián Idrobo, Aurora College, Canada
- Megan Bailey, Dalhousie University, Canada

This plenary brings together researchers, industry, and practitioners to discuss what is needed to Get the Future Right for marine and freshwater social-ecological systems in North America. Calls are emerging for societies to better anticipate and address future changes to fisheries and their associated communities and economies in Canada and abroad. Interacting drivers such as resource use, climate change, practices of settler colonialism, ageing infrastructure, and economic development are intensifying the complexity and uncertainty of changes to ecosystem health, livelihoods and human wellbeing. Advancing sustainable futures requires collective actions in the present, informed by lessons learned about governance in the past. But equally so, it requires a willingness to transcend historical and present-day crisis management models of reactive fisheries governance and a commitment to work collaboratively to create, operationalize, and sustain a joint vision of prosperous futures for small-scale fisheries. Designing those futures requires diverse knowledge systems, values and ways of being, including Indigenous peoples, their governance systems and their struggles for decolonization and resurgence. New transdisciplinary interactions are needed to

support more proactive governance of these systems. This plenary aims to encourage those interactions through a mixture of speakers who present different ways of thinking, navigating and steering the future.

Speakers:

- Ken Paul, Wolastoqey Nation of New Brunswick, Canada
- Momo Kochen, Momo Kochen, Future of Fish, USA
- Hekia Bodwitch, Dalhousie University, Canada
- Rob Stephenson, Fisheries and Oceans, Canada
- Patricia Pinto da Silva, NOAA, USA

BREAK (15:45 – 16:00)

**Plenary Session #7:
Getting Everything Right**

Wednesday, June 22nd, 16:00 – 17:45

Location: SALON A

Chairs:

- Evan J. Andrews, Memorial University, Canada
- Ratana Chuenpagdee, Memorial University/TBTI, Canada

The final plenary explores Congress highlights and key prospects for small-scale fisheries in North America. In three days, over 65 presentations/sessions and six plenary sessions explore how to get right adaptation, small, governance, marine conservation, the Blue Economy, and the future. This final plenary is an opportunity to bring together outcomes from this three-day journey, and position new trajectories to get everything right for communities, science, and policy. Join in bold discussions with plenary speakers and attendees from communities, industry, government, and academia.

Speakers:

- Kevin Anderson, Fisheries & Marine Institute of Memorial University, Canada
- Paul Foley, Memorial University, Canada
- Kimberly Orren, Fishing for Success, Canada
- Keith Sullivan, FFAW, Canada

FINAL SUMMARY AND CLOSING REMARK

17:45 – 18:00

ABSTRACTS – CONTRIBUTED PAPERS

Selling seafood by the seashore – Getting the size of the US direct seafood sector right

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Americo Vega-Labiosa, USDA, americoj.vega-labiosa@usda.gov

Joshua Stoll, Assistant Professor, University of Maine, joshua.stoll@maine.edu

Seafood sales that are directly beneficial and traceable to fishers, or direct seafood marketing, strengthen local seafood systems and livelihoods of small-scale fishing communities. Yet, estimates of the diversity and scale of the direct seafood marketing sector globally and in North America are poor. We describe the methodology being implemented to produce the first benchmark assessment of the US direct seafood marketing sector. We highlight the resources available and steps necessary to conduct a national survey of US fish harvesters involved in direct sales. An accurate estimate of the US direct seafood marketing sector can highlight to policymakers the importance of local and regional seafood systems – of which small-scale fishers are vital – and encourage future investment. This project is the result of a unique collaboration between the National Marine Fisheries Service, US Department of Agriculture, University of Maine, and the fishing sector. The synergistic advantages of such an approach are also described as a means of getting the assessment right.

Decision-making in DFO: Tracking interactions that implement marine conservation

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Understanding decision-making processes supports effective governance for marine conservation. The Canadian government has set ambitious Marine Conservation Targets, seeking to protect 25% of marine and coastal areas by 2025 and 30% by 2030. To meet targets, planning for marine conservation and ocean uses requires diverse knowledge sources and collaborations, in which interactions between multiple stakeholders in the public and private sectors are imperative to advance governance outcomes. Under these conditions, exploring how and with whom DFO interacts with,

internally and externally, to advance marine conservation can serve as a foundation for formulating plans, policies and recommendations. This presentation provides preliminary results from a transdisciplinary study that documents public and private stakeholders' interactions and, based on it, identifies relevant governance principles for advancing Canada's Marine Conservation Targets and other related goals. The study was co-created with partners from DFO and the Ocean Frontier Institute Module I, and draws on interviews with DFO staff from DFO's three Atlantic administrative regions.

Positioning Canada's Blue Economy for Growth and Success Through Rights Recognition

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Canada's current Blue Economy engagement document claims that "Canada's Blue Economy Strategy has the potential to increase and diversify ocean-related economic opportunities for coastal Indigenous communities that are aligned with their values, priorities and aspirations.". Despite this rhetoric, federal and provincial barriers to accessing safe and sustainable fishing opportunities for Indigenous people and communities remain firmly in place. Even with constitutionally protected treaty rights, a federal commitment to truth and reconciliation, and new federal legislation to implement the United Nations Declaration on the Rights of Indigenous Peoples, some Mi'kmaq continue to be harassed at the wharves and on the water, have their gear apprehended or stolen, and are forced to be seen as illegal actors in the nation's most valuable fishery: that for American lobster. Using an access lens and the treaty right for Mi'kmaq to fish for a moderate livelihood, this paper interrogates the nine areas forwarded by Canada to position its Blue Economy for growth and success (natural environment, innovation, financing, science and data, market access, business environment, regulatory environment), and offers opportunities within each one to use Canada's Blue Economy to support Indigenous Rights. While the focus in this paper is on the Mi'kmaw treaty fishery for lobster, this paper highlights the importance of putting Indigenous Rights at the forefront of Blue Economy strategies across the country.

Towards Ecosystem Based Management: The Maritimes Region (EBM) Initiative

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Members of the EBM Initiative

DFO has a long-standing mandate to apply an ecosystem approach to fisheries and oceans management in Canada. This involves the consideration of ecological, economic, social/cultural and governance information in decision-making processes, as outlined in Department policies and legislation, including the Fisheries Act and Oceans Act. While DFO is increasingly being tasked with the management of diverse activities that cut across issues, species, ecosystem components and ecological, economic and social impacts, potential management responses remain fractionated within different DFO Sectors. DFO advice and management is generally focused on ecological objectives and does not fully articulate or evaluate the full range of ecological, economic, social/cultural, and governance objectives necessary for sustainability. To address this need, DFO Maritimes Region is revising its Ecosystem Based Management (EBM) Framework, to encompass these objectives as its four pillars, in order to support DFO's mandate and advance sustainable development goals in the Maritimes Region. The EBM Framework is being co-developed with all DFO sectors and external social science experts and is intended to enable transparent and evidence-based decision making based on a broad range of objectives. The EBM framework will also support the evaluation of management plans within and across sectors and the assessment of trade-offs and cumulative impacts using indicators sourced from a wide range of information, knowledge and data of the social-ecological system. This holistic EBM approach will form a common basis for integrated management, marine spatial planning, growing a successful, just Blue Economy, and is key to improved management ('getting governance right').

Values-based governance and the future of Labrador Inuit fisheries

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Across the Arctic, Inuit are connected to their marine environments through subsistence and commercial fisheries. Fisheries are a vital source of economic development, cultural preservation, and community wellbeing in Nunatsiavut, a land claim area on the North coast of Labrador. Fisheries in Nunatsiavut are currently managed with a focus on problem-specific planning, while policy interventions continue to redirect most benefits of adjacent marine resources outside of the region. Northern fisheries policy fails Inuit in part because the Canadian government's mandates are determined outside of communities and do not focus on holistic, long-term governance. To advocate for improved integration of Inuit Knowledge and values, Labrador Inuit are asking: How do Inuit envision the future of fisheries?

To answer this question, representatives from the Torngat Wildlife, Plants and Fisheries Secretariat, the Torngat Fish Producers Co-operative, and the Nunatsiavut Government have partnered with researchers at Dalhousie and Memorial Universities to share their visions for the future of the fishing industry. Researchers have

interviewed Inuit fishers, processors, managers, and scientists to find synergies and identify potential structural changes to the industry. Using a modified Delphi approach, this study has elicited information about values and priorities Labrador Inuit hold in relation to the fishing industry. Major findings include the strengths, weaknesses, opportunities, and threats that Labrador Inuit see on the horizon, as well as recommendations for creating resilient and culturally appropriate fisheries. This work also collects recommendations to substantively incorporate those same values and priorities into governance.

Small-Scale Fisheries Linking Conservation and Livelihoods

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Small-scale fishers and fishing communities around the world are engaging in environmental conservation and stewardship activities, yet these are too little noticed, and supported, around the world. They are playing a major role in effectively maintaining fish stocks, enhancing aquatic habitats, and supporting sustainable local livelihoods, and with 2022 marking the International Year of Artisanal Fisheries and Aquaculture (IYAFA), this is a perfect time to highlight the role of small-scale fishers (SSF) in environmental stewardship globally. This presentation will draw on the results of an ongoing SSF-Stewardship initiative led by Saint Mary's University and supported by the UN Food and Agriculture Organization (FAO) and will also draw on insights from a decade of work by the Community Conservation Research Network, leading to the recent IUCN-published book, *Communities, Conservation & Livelihoods*. Examples of SSF stewardship will be discussed, including the work of indigenous organizations, local communities, nongovernmental organizations, and more. The presentation will also consider measures to ensure that government policy and funding is used to enhance SSF conservation efforts. Answers to four major questions will be explored: In what ways do small-scale fishing communities engage in environmental stewardship? Who makes the decisions affecting how fishing communities link conservation and livelihoods? What are the ingredients of success in fishing community conservation practices? How can government policy and practice provide better support to small-scale fishers engaged in conservation and livelihood initiatives?

Understanding Small-Scale Fisheries in Canada

Charles, Tony, Community Conservation Research Network, Saint Mary's University, Canada, tony.charles@smu.ca

Understanding Canadian small-scale fisheries requires research and knowledge-building, and this presentation assesses the evolution of that understanding, through a personal journey over the decades, beginning with a seminal conference back in

1989, on research and knowledge-creation in small-scale fisheries globally. This presentation explores what has evolved, and in what ways, since that time. It first discusses the nature of small-scale fisheries in Canada, recognizing that until recently, the term ‘small-scale fisheries’ was not widely used in Canadian fishery discussions. Indeed, even within the relatively recent 1999 negotiations over the Small-Scale Fisheries Guidelines (FAO 2015), it was not clear how well the Canadian government understood the nature of small-scale fisheries in the country. We will discuss the extent to which Canada’s small-scale fisheries are now appreciated as such. The second major theme of the presentation is the ‘nature of research’, and in particular the evolution of understanding about the various sources of knowledge in small-scale fisheries, the participation of fishers in research, and the overall multidisciplinary nature of that research and knowledge-building. Finally, the third major aspect of the presentation lies in assessing the knowledge needs in Canadian small-scale fisheries, and how these have changed over time. Specific discussions will cover: fishery objectives; fishery systems; the processing sector; the role of women; labour; Indigenous fisheries; fishery management systems; the Commons; co-management; decision-making and behavioural responses; conflict; biodiversity conservation; and human rights & fishing rights in small-scale fisheries.

Getting your pantry right: How the COVID-19 pandemic boosted local seafood consumption on the Magdalen Islands

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Canadian seafood producers maximize their profit by targeting the international market. While harvesters often take profit from this global gold (or blue) rush, local consumers often find themselves unable to afford a resource harvested locally. This is the case on the Magdalen Islands (Qc), where the lobster fishery is the main economy. Deprived from their seasonal workforce due to closed borders at the beginning of the COVID-19 pandemic – which largely prevented secondary and tertiary transformation of seafood – the Islands’ seafood producers had no choice but to sell a large part of their live production locally, and at low prices. Through news articles, family stories and informal interviews, we report here how the pandemic changed the lobster fishery distribution – and the kitchen parties – for the joy of locals. At least for one season.

Fishing into the Future with The Fish Market: A mobile application for (re)connecting small-scale fishers to consumers in Newfoundland and Labrador

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The United Nations Decade of Ocean Science for Sustainable Development offers us a unique opportunity to take a closer look at our global progress in the 2030 Agenda for Sustainable Development and trace our next steps towards “Getting the Future Right”. In a context of change, ocean and fisheries sustainability relies on innovative and technological solutions to overcome current and future challenges. In Newfoundland and Labrador (NL), small-scale fishers and local consumers have become increasingly distanced, both geographically and socially, with a long fish chain and a focus of export markets. About 90% of all seafood caught in the province is exported, and direct sales of fish and seafood were not permitted until 2015. The Fish Market is a mobile application for (re)connecting small-scale fishers to local consumers in NL and elsewhere. Through the app, small-scale fishers can directly sell their catch to consumers, increasing their revenue and access to local markets, while contributing to food sovereignty. Consumers can have access to locally caught seafood with increased transparency while supporting fisheries sustainability. With funding support from Ocean Wise, The Fish Market has conducted over 45 interviews with key stakeholders in NL, involved 50 beta testers, established ten partnerships, hosted public outreach events, received two awards, was featured in 13 media interviews and guest presentations, and released its prototype version. The final launch is planned for the summer of 2022 in celebration of the International Year of Artisanal Fisheries and Aquaculture, highlighting its contribution to the small-scale fisheries of the future.

Fishing for Space in the New Blue Economy: Conflict and Cooperation between the Fishing and Wind Industries in two Northeast US Working Waterfronts

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Working waterfront space is limited, leading to competition for coastal space among waterfront dependent, and non-waterfront dependent industries. The ascendance of offshore wind power in the US is squeezing already scarce port resources, exacerbating competition for these spaces, and generating conflicts. The Biden administration’s prioritization of wind energy generation has augmented demand for port space to serve as production, staging and marshalling areas for this offshore development. Although the development of wind power will occur offshore, Northeast US ports are anticipating port use by wind companies. This paper focuses on the competition for waterfront space between the fishing and wind industries on the Thames River, Connecticut, and in New Bedford Harbor, Massachusetts. Emerging wind power in the new Blue Economy looks to reshape port usage, generating both winners and losers. This paper explores the processes by which port space is being (re)allocated and examines the generation of conflicts and cooperation among competing stakeholders.

Working Waterfronts: Supporting independent fishermen by slowing the consolidation of market channels

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In Alaska, and elsewhere, remote coastal fishing communities are experiencing the shuttering of independently owned local processors, amid the rise of consolidation the fishermen are becoming beholden in “company towns” essentially owned by multi-national corporations with more concern for earnings than the people that have worked for generations to provide a pristine food source. The seafood production landscape is on course to mimic the supply chain monopoly woes of the livestock industry. An industry that is so messed up that the US government is investing 1 billion dollars as an attempt to restructure a broken system. Before the domestic seafood industry hits the flash point of our current livestock industry brought about by narrowing of market channels, the US administration should be focused on diversification and promotion of small and mid sized seafood suppliers. As more industrial seafood buying and processing giants lean into value added products and direct to consumer sales. They displace smaller artisan seafood products and allow the unfair advantage of reaping profits at both ends. Being in control of both the price paid to fishers who suffer from lack of market options and setting the price of product sold to grocery or direct to consumer allows for the perfect scenario for reaping maximum benefit while squeezing those at either end of the production chain.

Balancing public views toward Marine Protected Areas management using the Potential for Conflict Index²

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Implementing marine protected areas and deciding what activities should be permitted can trigger conflict among the public. The Potential for Conflict Index² has been widely used to assess the likelihood of conflicts across various contexts but has not as yet been applied to managing marine protected areas. This article assessed levels of consensus or potential conflict across various management options before implementing a new MPA. The options ranged from no-take to allowing oil drilling. Data from Newfoundland, Canada, showed that despite public support for the full protection approach, a higher potential for conflict was observed for not allowing small-scale fishing and closing the area for any human activity. A lower potential for conflict/higher consensus was observed for not allowing industrial fishing and oil exploration. Understanding public acceptability for MPAs and identifying areas of potential conflict may increase the likelihood of successfully implementing new areas for biodiversity conservation and meeting the global targets of ocean protection.

Learning from our mistakes on land: Opportunities for Centering Equity in Mariculture Development

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Food production represents the most significant nexus between the environment and society—a relationship often characterized by environmental degradation and inequitable access. Our terrestrial food system is dominated by corporate ownership and agro-industrial production systems that treat food as a commodity serving the agenda of global economic development, with little attention to the environmental and social impacts of the system. As a rapidly growing sector of food production, mariculture has the opportunity to learn from the mistakes of modern industrial agriculture and bring different priorities to bear in its contribution to our food system. Proponents of mariculture expansion commonly highlight its potential for economic growth, aligning it with broader Blue Economy discourse that positions ocean spaces as horizons of economic development. This research is grounded in the recognition that aquaculture, while providing a substantial contribution to our food system, paradoxically has the potential to inhibit equitable outcomes through privatizing public waters, competing with wild-capture fisheries, generating profit for multinational corporations rather than local business owners, and focusing production on foods that are affordable for and desirable to high-income consumers. As mariculture makes up an increasing percentage of food produced within the U.S., policymakers must grapple with questions of who this food is for and who benefits from this burgeoning industry. With equity as a guiding principle of aquaculture development, the sector could have an opportunity to support and empower small-scale growers, recognize and accommodate diverse values and preferences regarding seafood, and, ideally, create a more sustainable and accessible (sea)food system.

A transdisciplinary research to support Ecosystem Based management in French English Channel: design of an acoustic telemetry network

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Marine fisheries within the English Channel region support around 4000 vessels representing 27% of UK and 28 % of French fishing fleets from which a large part is small scale vessels. In collaboration with regional fisheries and statutory conservation bodies and fishers, recreational fishers, divers, the project FISH INTEL (EU Interreg Chanel-Manche) deploys state of the art fish tracking techniques to evidence and implement Ecosystem Based Fisheries Management (EBFM) at 7 pilot sites in three countries (France, UK, Belgium) for four economically and ecologically important marine species (seabass, pollack, crawfish, bluefin tuna).

Fishers Local Ecological Knowledge (LEK) will be used to identify the points to deploy the acoustic devices and understand fish behavior and then design new management rules. Meetings and interviews were conducted in the three French pilots' sites (Iroise Sea, Bay of Saint Brieuc and Bay of Seine) with Small scale fishers (netters and liners). The presentation will present the main results of these interviews and meetings: small scale fishers opinion about acoustic tools and EBFM, knowledge about the species behavior, state of the resources (4 species), efficiency of current management system of species and how to improve fisheries management for the three species.

Women's experiences in influencing and shaping small-scale fisheries governance: A global literature review

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This presentation will focus on the findings of a synthesis of current empirical evidence on how women experience, shape, and influence small-scale fisheries (SSF) governance. Globally, women make up about half of the fisheries workforce (56 million women) and critically depend on coastal resources for livelihoods and wellbeing. Yet, women are rarely involved in any decision-making and institutions concerning the issues of access to, control over, and the management of coastal resources. Their unique experiences, issues, priorities, and specific needs are therefore left out of deliberations while perpetuating gender inequity. These issues also have gained attention in recent global policy frameworks, such as the Voluntary Guidelines for securing sustainable small-scale fisheries and Sustainable Development Goals, where explicit commitments have been made to foster gender equality as a guiding principle in efforts at all levels. However, a comprehensive synthesis on the state of empirical evidence on women's engagement in governing SSF remains a critical gap in scholarship. To address this gap, we employed the systematic scoping review method to assess relevant peer-reviewed literature. Our review findings reveal a typology of women's governance roles, the specific outcomes they contribute to, and the context-specific barriers they face in doing so. The results also highlight the gaps, opportunities, and directions for future research at the intersection of gender and SSF governance.

Resilience-based steps for adaptive co-management of Arctic small-scale fisheries

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Arctic small-scale fisheries are essential for the livelihoods, cultures, nutrition, economy and food security of Indigenous communities. Their sustainable management in the rapidly changing Arctic is thus a key priority. Fisheries management in complex systems such as the Arctic would benefit from integrative approaches that explicitly seek to build resilience. Yet, resilience is rarely articulated as an explicit goal of Arctic fisheries management. Here, we first describe how marine and anadromous fisheries management throughout the North has used the notion of resilience through a literature review of 72 peer-reviewed articles. Second, we make a conceptual contribution in the form of steps to implement adaptive co-management that aim to foster resilience. Building on resilience-based insights from the literature review and foundational research on adaptive co-management and resilience, the steps we propose are to initiate and carry out 1) dialogue through a discussion forum, 2) place-based social-ecological participatory research, 3) resilience-building management actions, 4) collaborative monitoring, and 5) joint process evaluation. Additionally, we propose action items associated with the steps to put adaptive co-management into practice. Third, we assess two case studies, Cambridge Bay and Pangnirtung Arctic Char commercial fisheries, to explore how the five steps can help reinforce resilience through adaptive co-management. Overall, we propose novel guidelines for implementing adaptive co-management that actively seeks to build resilience within fishery social-ecological systems in times of rapid, uncertain, and complex environmental change.

Governance of small-scale fisheries: organisation, co-management and cooperation within the Indigenous Communities of Canada

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This study is a work in progress about the fisheries governance in the Indigenous Communities of Canada and is part of a broader research project about the contribution of community-based fisheries organisations to sustainable development in small-scale fisheries*. In this sense, the objective is to analyse the organisational structures (formal or informal) that the Indigenous Peoples of Canada have to manage their fisheries activities (in self-management or in co-management systems). The focus is given to: i) the position of these structures within the fisheries socio-ecological system: ii) the internal characteristics of the organisation, such as decision-making processes, by-laws or distribution of the benefits arising from the fisheries activities. This study applies approaches from the New Institutional Economics and the Social and Solidarity Economy, specifically on compliance with the cooperative principles. // *I. García-Lorenzo, D. Ashan, M.M. Varela-Lafuente, Community-based fisheries organisations and sustainable development: Lessons learned from a comparison between European and Asian countries. *Mar. Policy* 132 (2021), 104672. <https://doi.org/10.1016/j.marpol.2021.104672>.

The decline of European sea bass stocks in Iroise Sea, France: a case study on the adaptation strategies of small-scale liners

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In Iroise Sea, France, European sea bass has been for many decades the main harvested species for small-scale fishers of the area, in particular for hand-liners. This specie has experienced a decline in the biomass of reproductive stocks in Europe since 2005 and is now, according to scientists, below the biomass threshold (BT) in the northern area (Celtic Seas, North Sea Channel). In this particular sector, where significant Marine Protected Areas (MPA) are present, management measures have been implemented since 2012 (licensing system, an increase in the minimum catch size, etc.), which have impacted the activity of local fishers. Finistère small-scale fishers consider that the decline of the stocks can be explained by the effects of climate change and the activity of pelagic trawls, especially during the biological rest period (January to March).

According to recent observations, this situation has obliged small-scale fishers to diversify species and fishing practices in order to make their livings. Many of them are now turning to fishing pollack, previously a by-catch, but for this species biological data is rare and management rules are almost inexistent (no rest period, no quotas, etc.). Through the analysis of semi-structured interviews, this presentation will summarize fishers visions concerning their current activity and the adaptation of their fishing practices to this situation and current management measures. This presentation is based on the work realized within the frame of FISH INTEL project (Interreg EU Channel-Manche).

Fishing for Success- getting the future right for all small-scale fishermen in a Port

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Small-scale fisheries in San Diego, like fisheries across the nation, face concurrent challenges of waterfront gentrification, potential competition for ocean use via finfish aquaculture and wind farms, competition with cheap imports, concerns about impacts on protected species and a pandemic which interrupted exports and demand from restaurants, the main recipients/clients for this industry and the processors who buy their harvest. The pandemic served to highlight existing and pervasive supply chain issues. These all affect the resilience and future of small-scale fisheries and thus the availability of a sustainable source of healthy protein for the public.

The San Diego fishing industry includes 140 fishing vessels which use seven gear types to harvest ~130 species of fish and invertebrates. It is a small-scale fishery. To ensure food security for the region and maintain the portfolio of opportunities which keep the San Diego small-scale fishing industry in business, solutions to the concurrent challenges should focus on benefitting the entire industry. How can the industry develop a business-marketing plan for all fish landed in San Diego through an association consisting solely of fishermen. In this presentation, we will describe examples of functions that existing food hubs in the nation are providing to their industry, describe the functions that would benefit the San Diego industry and ask for advice.

Community-based approaches to addressing information gaps for a forage fish in Atlantic Canada

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Atlantic mackerel (*Scomber scombrus*) is an ecologically significant forage fish that is subjected to commercial, bait, and recreational fisheries in Atlantic Canada. The federal Department of Fisheries and Oceans has assessed mackerel in the “critical” zone under the Sustainable Fisheries Framework, meaning that the stock is in need of conservation action to rebuild the population. However, scientific assessment and management of this species focuses primarily on the commercial fishery, with little to no data collection or stakeholder engagement from others who use the resource, including a large, widely distributed community of recreational fishers. This study uses community engagement tools to describe biological, operational, and socio-cultural dimensions of recreational mackerel fishing in Nova Scotia to address information gaps affecting the management of this species. First, this community-based science project will estimate catch, effort, and discard rates in the recreational mackerel fishery, and relationships between mackerel catch and date, time, tide level, and temperature. A second research objective is to describe the diverse community of recreational mackerel fishers in the region. Ultimately, this research will provide the first standardized data collection on recreational Atlantic mackerel fishing activities in Canada, illustrate the range of stakeholders in this fishery, and highlight the diverse ways in which they rely upon and benefit from this resource.

Bringing perceptions of fairness into the fold in navigating climate change impacts on fisheries systems

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Climate change will amplify stress on systems already challenged by unequal distribution of access to, control over and benefits from fisheries. Understanding how those most connected to fisheries perceive the risks associated with climate change is critical to developing effective responses and establishing management priorities. Adaptation planning efforts may be hindered by perceptions of unequal or unfair distribution of resources and the processes in place to manage them. In contrast, adaptation planning that engages with perceptions of fairness is more likely to garner support. We elicited fisher perceptions of climate change impacts on fisheries, and responses to these impacts, through an online survey of commercial fishers in Canada's Pacific region. The survey, completed by 105 fishers, highlights substantial concern for climate change, the impacts it will have on fishers' livelihoods and wellbeing, and some of the key challenges which may interfere with the ability of fishers and fisheries management to adapt. We frame the findings of the survey drawing from concepts of social justice, focusing on distributive and procedural justice, as necessary considerations for climate change adaptation planning. Developing plans and processes to respond to climate change impacts on fisheries require not only understanding ecological impacts and challenges, but also the social, economic, and institutional considerations that could help or hinder efforts to respond effectively and equitably to a changing ocean.

Forgotten Fish: Contemporary Challenges and Opportunities in Great Lakes Commercial Fisheries

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Commercial fisheries on the Great Lakes collectively form the world's largest freshwater commercial fishery. These fisheries are diverse both in scale, targeted species, gear types, and include Indigenous and settler participants. However, these fisheries face significant challenges from urban development and coastal gentrification, agricultural pollution, a long history of introduced exotic and invasive species, and a dwindling number of participants due to high barriers to entry. This presentation will discuss preliminary findings of ongoing human dimensions research on Great Lakes commercial fisheries, and will feature the trailer of a forthcoming documentary film and podcast series focused on these fisheries. This combination of empirical research and knowledge mobilization will highlight how today's commercial fishers are facing challenges and seeking new opportunities to remain resilient in a changing landscape of seafood consumption.

Co-Creating Accountability Indicators with Alternative Seafood Networks

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As awareness around overfishing, habitat loss, labor abuses and issues of equity and access in fisheries have increased, certifications are being used to incentivize sustainability. However, certification schemes have been criticized for not fulfilling their purpose, being inattentive to socioeconomic and cultural dimensions of sustainability, and disproportionately disadvantaging small-scale fishing operators. These limitations, coupled with a specific interest in actively cultivating empowering models of shared accountability, warrant the exploration of alternative processes for encouraging sustainability in fisheries. The University of Maine is collaborating with the Local Catch Network, a network based around small-scale fisheries, and Sitka Salmon Shares, a Community Supported Fishery, to conduct participatory action research on accountability indicators. We used the Local Catch Network core values, based on caring for communities and the environment, as the starting point to design measurable metrics that could be used as the basis for a self-reflective or peer review tool. This research aims to take a step towards changing the way certifications are used and deployed in fisheries in North America and beyond by (1) co-creating measurable metrics for accountability among small-scale seafood enterprises in North America and (2) piloting a process that seafood enterprises can use to evaluate their operations relative to these metrics. This research is funded by the Robert and Patricia Switzer Foundation, Sitka Salmon Shares, and the University of Maine.

Understanding the Past to Build Resilient Futures: Documenting Historic Deepwater Flounder Inshore Fisheries in Newfoundland

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American plaice, or deepwater flounder, has been under moratoria since the early 1990s. Pre-moratorium, this species was a valued component of many harvesters' inshore fisheries, with deepwater flounder fisheries operating around Newfoundland. Inshore harvesters requested research documenting pre-moratorium inshore flounder fishery as part of understanding past and current flounder distribution and

abundance and in preparation for possible fishery reopening, and highlighted the importance of this fishery. Fishers have noted that many fishing grounds were shoreward of past and present research vessel surveys used to estimate groundfish species' abundance. Fishers' knowledge research was carried out with harvesters from Fortune Bay to White Bay using semi-structured interviews with a mapping component (19 to date). Participants described fishing practices, catch rates, mapped grounds and discussed the importance of deepwater flounder fishing as part of their annual fishing cycle and income. The fishery occurred from March to December, depending on the area and other species fished. Flounder were mainly fished using gillnets (8-inch mesh), with some longline fishing in the fall. Deepwater flounder were fished over level bottoms, with sand or mud bottom, at depths ranging from 30 to 200 fathoms. Up to half of the income of those who directed for deepwater flounder came from this fishery. Interview findings provide insight into the importance of multiple fisheries, fished sequentially, for the economic sustainability of inshore fisheries. Overlaying historic fishing grounds and catch and effort data with current stock definitions and research survey data will help determine research and management needs for inshore fisheries.

Stepping from Zero to Moving Together in Marine Conservation

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This presentation discusses new insight and future directions from an outreach and governance capacity building projects: Catalyzing Step Zero for Marine Conservation Targets: A Transdisciplinary Outreach in Newfoundland and Labrador. The project seeks to build relationships that can help improve understanding about values, visions, and experiences of ocean users, actors, and leaders for marine conservation, in the context of the Canadian government's Marine Conservation Targets. To meet targets, planning for marine conservation and ocean uses requires diverse knowledge sources and collaborations, in which relationships among multiple stakeholders in the public and private sectors are imperative to advance conservation outcomes. Through an interactive knowledge platform, we are encouraging community members from around Newfoundland and Labrador to engage with marine conservation in the province, aiming especially to grow awareness about the topic, make visible the connection between people and the ocean, share stories about community-led conservation initiatives, and enhance knowledge about the importance of life above and below water. Ultimately, we hope to build shared visions and motivations for the future of the ocean, starting at Step Zero for Getting Conservation Right.

Understanding the impact of global changes in small-scale fisheries: key lessons to progress from vulnerability to viability

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Small-scale fisheries across the globe are facing multifaceted vulnerabilities mainly associated with poverty, marginalization, and social injustice due to global change. Yet, these fishing communities across the globe have developed certain strengths and capacities to deal with these changes. The main aim of this research is to conduct a comparative study using the I-ADApT framework to understand the major drivers of vulnerabilities faced by small-scale fishing communities, their adaptive capacity, and grounded societal and governing responses used in developing resilience to deal with global changes. We performed both qualitative and quantitative assessments using content analysis in NVIVO and multiple factorial analysis in R-Studio, respectively to compare twenty-nine small-scale fisheries systems representing nineteen different geographical locations. The goal of the analyses was to develop typologies of the small-scale fisheries system based on shared characteristics when viewed from the lens of vulnerability, governability, and sustainability responses. We find the most common responses to deal with global change included a shift toward alternative livelihood opportunities, a shift from hierarchical management to a co-management type of governance, and extended collaboration with various stakeholders. The most common factors that prevented the management objectives were lack of social cohesion, lack of financial capital, and delayed response to deal with the social-ecological crisis. The typology developed here serves as a decision support tool to guide policy and practice for helping small-scale fisheries communities progress from vulnerability towards viability.

Getting recruitment and retention of people in small-scale fisheries right

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Small-scale fisheries in Newfoundland and Labrador (NL) have supported livelihoods in hundreds of coastal communities for centuries, but recent ecological, societal, economic and governance changes have changed the way in which people fish and enter fisheries work. The implementation of groundfish moratoria in the early 1990s coupled with downsizing policies reduced the number of fish harvesters in NL by 45% in the last two decades. The result is a reduced and aging labour force and reduced local employment options for young people, encouraging outmigration. Who will be able to fish and who will benefit from the fishery are important questions related to the future sustainability of coastal communities in the region. This study investigates

the processes and dynamics that impact recruitment, training and retention of people in small-scale fisheries in NL through a mixed methods approach that includes a review of the literature, analysis of fisheries-related data, results from an online fish harvester survey (330 respondents) and interviews with people interested in entering fisheries work (n=11). Findings show that recruitment of crew is not an immediate problem for small-scale enterprises, but that retention of crew is a challenge as crew have to juggle formal requirements to stay in the fishery and strategies to earn a livelihood throughout the year with long-term obstacles to shifting from crew to owner-operator status. Addressing intergenerational equity issues in terms of succession in the fishery, including the policies and regulations that mediate entry, and ensuring community access are critical to 'getting it right' in future fisheries.

Getting Employment in Aquaculture Right: a case study on the Burin Peninsula

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Recently a multinational aquaculture firm opened operations in the Burin Peninsula region in Newfoundland and Labrador (NL) promising economic development and the potential to create economic opportunities in the local seafood sector, including attracting and retaining workers and families. It was expected that the aquaculture firm would generate 440 direct jobs and 380 jobs in affiliated sectors. However, concerns around labour shortages due to the small population and potential skills mismatch raise questions about how the aquaculture industry will fulfill these jobs. This presentation outlines the findings from a Harris Centre Thriving Regions Study, in which communities identified priorities needed to improve the sustainability of the Burin Peninsula in NL, Canada. This study informs two of the priority areas identified: attraction and retention of workers and families and ocean health and seafood opportunities. The aim of the study was to understand the needs of the community and possible opportunities for sustainable employment development related to aquaculture production. Through key informant interviews and an online survey, we asked participants about their expectations and needs regarding aquaculture employment in the area and what would be a useful tool for researchers to provide to community to inform these issues. Preliminary findings indicate that communities want: the sector to hire locally, information about what aquaculture jobs entail, training available locally, and amenities such as childcare to retain and attract workers, among others. This presentation will showcase final findings and the deliverable for communities in the Burin.

Activating Personal Locator Beacons: The Impact of Cold Water Exposure on Hand Dexterity for Personal Locator Beacon Activation

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Rapid detection and location of casualties following maritime accidents is of paramount importance to ensure their survival at sea. Emergency location transmitters such as personal locator beacons (PLBs) transmit an emergency distress signal to alert authorities of an incident and a GPS position to help locate the survivors. PLBs are small, lightweight, and portable handheld devices which, when activated, can help reduce search and rescue time. People involved in maritime survival situations can find themselves exposed to cold water which reduces both their core temperature and the dexterity of their fingers/hands. Activation of a PLB requires that users perform fine manipulative tasks such as deployment of an antenna and pressing a button which may not be visible to them. Anecdotal evidence suggests that some PLB users have found it difficult to locate and depress a PLB activation button. These signaling devices and understanding their application as a piece of critical safety equipment for fish harvesters in emergency situations is very important. Our study measured the effect of button design characteristics on activation rate for users with cold hands and suggest improvements which would enable easier activation. It is anticipated that our results could benefit beacon manufacturers, regulators as well as the user community (e.g. fish harvesters and recreational boaters).

A data-driven social franchise business model for small-scale fisheries.

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Thriving, equitable, and resilient small-scale fishing communities are key to restoring ocean life. Small fisheries catch almost 50% of the fish that is consumed in the world, sadly most fishermen are forced to sell their fish at very low prices to intermediaries as they usually lack the management capacities, infrastructure, market access, and legal and sustainability compliance. To tackle the previous challenges, we propose the implementation of bottom-up Information and Communication Technologies for Small-scale Fisheries (ICT4SSF) in conjunction with a social franchise business model. One of the oldest and most successful business models are franchises, and today a new radical variation is arising in the impact scene: social franchises. These have been described as the application of commercial franchising methods and concepts to achieve socially beneficial ends, and during the last five years they have gained traction in the fields of health, housing and agriculture, but they have not been tested within small-scale fisheries yet. Here we propose a roadmap to trigger discussions of social franchise business model for small scale fisheries using a combination of

infrastructure enhancement, capacity building, traceability technology, and market access, all financially justified in a profitable business. By connecting conscious consumers with premium quality, fair-trade, and responsibly-caught local seafood from the franchises, we believe that this business model has the potential to protect fish stocks for future generations while improving the livelihoods in rural fishing communities.

The importance of human-fish relationships in Indigenous fisheries conservation

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How can Indigenous conservation planning support sustainable small-scale fisheries and community wellbeing in the context of social, economic, and environmental change? The subsistence fishery from Sahtú (Great Bear Lake) in the Northwest Territories is a dietary staple in the Dene community of Délıne and is essential for its cultural and spiritual connection to land, water, and wildlife. In pre-colonial times, Délıne community members used stories and experience to maintain respectful relations with fish, but social-ecological changes in the Sahtú watershed have since led many to abandon fish harvesting as a livelihood. The Genome Canada 'FISHES' (Fostering Indigenous Small-scale fisheries for Health, Economy, and Food Security) project is researching ways to help ensure local and regional fisheries governance processes are equipped to support long-term community food sovereignty and address uncertainties associated with climate change. The partners will present Délıne's approaches to fisheries monitoring and conservation, including how principles of Dene ts'ıłı (ways of life, identity) including "ʔasıłı godı hé gots'edı" ('all living things living together') have the potential to help sustain healthy Sahtú fish populations and the wellbeing of the community of Délıne into the future.

Recruitment and retention in Newfoundland and Labrador's fish processing sector (in the time of COVID-19)

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Newfoundland and Labrador's fish processing sector has played a critical role in providing employment for people living in rural coastal communities. Since the 1990s, the number of processing plants and number of workers has declined significantly but as of 2019 the sector continued to provide employment for approximately one thousand five hundred seasonal workers. NL seafood processing faces a number of challenges related to current and future recruitment and retention of workers. These include an ageing workforce, changes in the structure and ownership patterns of the fish processing sector, low incomes, adverse working conditions, and employment uncertainty related to changes in the health of fish and shellfish stocks, their geographic distribution and consolidation of access to licenses and quota in the harvesting sector. The sector also has a history of serious occupational health and safety threats, with the ongoing COVID-19 pandemic adding a new threat to both health and employment. This paper presents some preliminary findings from a study of recruitment and retention of workers in NL seafood processing. Our methods include a review of grey and academic literature on the post-1990s history of NL processing with a focus on recruitment and retention and key relevant changes in NL's fish processing industry including ownership, markets and government policies; as well as key informant interviews with processors, industry representatives, and relevant government employees. The aim is to deepen and extend recent research in the area through research and dialogue with industry, labour and government. One of the central aims of our research is to draw attention to lessons learned from the effects of the COVID-19 pandemic on current and future labour recruitment needs and options in the sector.

Vulnerability to the viability of small-scale fisheries: are existing governance approaches and theories well-equipped for the transition?

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Despite contributing to food security, employment, poverty eradication, and community well-being, small-scale fisheries are neglected remain vulnerable to a range of challenges. In dealing with such vulnerabilities of small-scale fisheries, the governance of small-scale fisheries is varied and has been going through a significant

change in thinking and approaches for the last 15-20 years. A number of theories and approaches have been established, such as co-management, good governance, and adaptive governance, to sustainably govern the common-pool resources, including small-scale fisheries. These approaches, along with the action of the governing institutions (including state, market and civil society), exert a huge influence on small-scale fishers' socio-economic outcome and resource sustainability. This study investigates how these theories or approaches see the vulnerability and viability of small-scale fisheries and whether these theories or approaches are well equipped to help transition small-scale fisheries from vulnerability to viability. A systematic literature review will be conducted to find out how different governance approaches address the vulnerability to the viability of small-scale fisheries. The study argues that a lack of understanding about the root causes of context/case-specific vulnerabilities and subsequent inappropriate governance actions accelerates the vulnerability and makes barriers in moving towards the viability of small-scale fisheries. Thus, the findings will contribute to the relevant literature areas by identifying the pros and cons of the existing approaches pertaining to small-scale fisheries governance. A concrete list of principles will be identified for enabling the transition of vulnerability to viability.

The success and failure of the Freshwater Fish Marketing Corporation on Lake Winnipeg and the next step for fishers to secure their rights to the market

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Between 1960s and 1980s many marketing boards were established around Canada and Manitoba. One of the objectives of these marketing boards were to protect the primary producers from the unequal nature of the market and to ensure that the surplus flowed back to the primary producers. The federal government in co-operation with few provinces established Freshwater Fish Marketing Corporation (FFMC) to put an end to fishers' exploitation by bigger American importers in Inland waters. In FFMC, the fishers had a guaranteed buyer that secured fisher's financial stability and freedom from internal and external competition. The FFMC is heavily embedded in Manitoba's food production and economy. However, in 2017, the Conservative government of Manitoba decided to opt-out of FFMC to favor a more competitive market in a neo-liberal fashion.

This paper explore how nested FFMC is in the Manitoba's inland fishery and how FFMC supported both fisher's freedom and financial security. Moreover, the paper will examine the right to the market and the fishers 'right to influence how their market is designed to support their own idea of the good life. As the right to the market is not just about financial gain, but important for food security and self-determination of many First Nations. In the end, the paper will detail the challenges that the newly established Freshwater fish Harvesters Association faces in their effort to turn FFMC into a Co-op.

Full spectrum sustainability and a theory of access: Integrating social benefits into fisheries governance

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The United Nations has identified access to and benefits from fisheries resources as key sustainable development challenges. The business-as-usual management approach focusing on a limited set of biological and economic considerations has not adequately addressed widespread global calls for governing the distribution of access and benefits effectively and equitably. Our paper develops a novel approach for incorporating social science analysis of the generation, distribution and maintenance of benefits into integrated full spectrum sustainability frameworks. To do so, our paper puts a full spectrum sustainability framework into conversation with Ribot and Peluso's influential Theory of Access framework, a political ecology framework which allows for a comprehensive understanding of who benefits from resources, and through what processes they are able to do so. Our paper proposes five immediate uses of these combined frameworks: (i) to facilitate the development of indicators around access and benefits; (ii) to help identify, organize and analyze social benefit data; (iii) to guide the development of cross-disciplinary representations of a system; (iv) to lay out potential trade-offs, cumulative impacts and changes to oceans governance; (v) and to help users respond to national and international objectives around the generation and distribution of benefits. In proposing novel ways of analyzing sustainable resource use in fisheries, our paper thus responds to management challenges associated with an expanding agenda and set of priorities, and growing policy interest in governance and management of the ocean for the benefit of coastal peoples and their communities.

Lessons from Kelp Aquaculture: for Better Ocean Governance and Economies

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Aquaculture is central to conversations about the future of food and the ocean. Getting aquaculture right will depend strongly on decisions made for the blue economy and ocean governance. We are faced with an opportunity to create more sustainable and equitable food systems and coastal economies by designing these three ocean activities well.

There is a gap between where we are now and where we aspire to go. What information and priorities will guide the equitable, sustainable, and just use of coastal spaces, and the distribution of benefits derived from ocean resources?

This session – grounded in recent research – is aimed at stimulating conversations in response to this question. In 2020 I set out to understand why and how people are innovating in the marine food space. Throughout 2021 I conducted interviews in British Columbia and honed my focus to identify levers for change in kelp aquaculture. My focussed findings around kelp are embedded in broader narratives about our marine food system. In this session, I will share major themes that emerged from my research about marine food systems, as well as specific hurdles faced in Canadian plant aquaculture.

Aquaculture, blue economies, and ocean governance need to respond to rapidly changing social and environmental conditions. We also need alignment with our desired future social, economic, and environmental outcomes. Learning from lived experiences, we can move forward with greater knowledge about the immediate hurdles and longer-term change needed for coastal activities to support better global food systems, livelihoods, and well-being.

An Inshore Fishery Model for the Arctic

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We discuss various factors to consider for a successful and locally beneficial inshore fishery operation in the Arctic. We base our analysis on harvest study data and interviews with local fishers for Usqsuqtuuq (Gjoa Haven) and Taloyoak, Nunavut, as well as available data on existing commercial operations in Cambridge Bay, Rankin Inlet and Pangnirtung, Nunavut. The paper identifies lessons learned, critical factors and requirements for successful and consistent operations, and how to deal with trade-offs between subsistence and commercial harvesting. We discuss various supply chain and processing options and compare them in terms of public expenditures, local multipliers, food inspection requirements, value added, food security aspects and the distribution of the returns from inshore fisheries. Finally, we discuss potential implementation strategies for various options including public infrastructure investments, the role of science and genomics, Indigenous Knowledge, ecocultural certification methods and biomonitoring to ensure sustainable and equitable management, distribution and use of inshore fisheries.

Enforcement of Fishing Occupational Health and Safety Standards: Challenges in Atlantic Canada

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Fishing is a hazardous occupation worldwide with a poor health and safety record. In Canada, in 2019, among 207 marine accidents reported to the Transportation Safety Board (TSB) of Canada, 29% involved fishing vessels. Commercial fishing has been on Canada's TSB Watch List for transportation safety since 2010. Like fisheries

governance more generally, governance of fishing health and safety is a wicked problem, which cannot be solved once and for all but tends to reappear. While there are no panaceas for improving fishing safety, improved regulation can help. In Canada, the federal government (Transport Canada Marine Safety) is responsible for providing a national regulatory framework that applies to the structural and operational safety of vessels and provincial governments are responsible for the workplace health and safety of crews while they are engaged in commercial fishing activities. In this context inconsistencies among standards and variability in levels of protection across fleets and provinces can exist and jurisdictional conflicts may occur. However, few studies have examined this problem.

To fill this research gap, guided by governance theory and drawing upon findings from a legal review of international, federal and provincial fishing OHS laws and regulations and a review of case law, this article identifies multiple OHS law regulatory and enforcement challenges in the Atlantic Canadian context. These challenges include: (1) fragmented OHS governance due to the division of powers between federal and provincial governments; (2) variation in OHS-related standards and protections between provinces with those from the provinces of Prince Edward Island and New Brunswick less protected than those from Nova Scotia and Newfoundland and Labrador; (3) evidence of jurisdictional disputes that can reduce the efficiency of enforcement and development of fishing OHS standards; and, (4) indications federal-provincial jurisdictional divisions may be impeding Canada's progress in ratifying and implementing international OHS instruments such as the C-188, Work in Fishing Convention of the International Labour Organization. These four challenges mean improving fishing occupational health and safety in Canada particularly is difficult. The paper proposes a regional fishing OHS initiative based on a partnership between the federal and provincial governments to establish harmonized fishing OHS standards as a way to potentially mitigate these challenges.

Are targets really SMART-er? Challenging assumptions behind global ocean policies to realize fisheries equity

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Implementing global fisheries goals using policies is a messier process than the straightforward language of 'scaling down' implies. Unpacking policy mobility (what happens to policies when they 'move') is critical to understanding the implementation of global policies, including why many goals, including equity-related ones, remain unmet. Policy mobility is an interdisciplinary theoretical approach that emphasizes how policies move, who implements them and why, and how goals are transformed as they are enacted in place. In this paper, we 'follow the policy', tracing the movements of two globally mobile environmental policies with equity goals in oceans governance, one of which takes place in North America (Mexico). Following cases of national-level implementation of the Aichi Biodiversity Targets in Mexico and the

Small-Scale Fisheries Guidelines in Tanzania, we show how flexibility and ‘wiggle room’ to determine implementation strategies and measures of progress in place can benefit equity. Yet targets typically aim to eliminate this ‘wiggle room’ in favor of universal, commensurable, and globally coherent means of tracking implementation. Right now, the Convention on Biological Diversity is negotiating the international biodiversity agenda for the next decade and the future status of equity goals is uncertain as difficult to measure goals like equity are poised to be either simplified, eliminated, or revised to be “SMART”-er (Specific, Measurable, Achievable, Realistic, and Time-bound)—strategies which amount to doubling down on targets. Based on our analysis, we call on the Convention of Biological Diversity to double down on equity, expanding the paradigm of targets themselves beyond business-as-usual policymaking.

Moving Forward, Glancing Back: A Legal Perspective on Achieving a Flourishing Future for Small-Scale Fisheries

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The United Nations General Assembly has designated 2022 as the International Year of Artisanal Fisheries and Aquaculture. It is an appropriate time to reflect on past models and decisions in fisheries governance to design a sustainable, viable model for small-scale fisheries in Canada moving forward.

The current legal regime for fisheries is immense and somewhat decentralized; regulations affecting fisheries participants are spread throughout our body of statutes. The legal aspect of fisheries governance is difficult to understand and navigate, and daunting to approach for those without legal knowledge. However, it is essential to work within this system to carve out a space for future fisheries governance. Unweaving these legal concepts and reweaving them with scientific assessment, lived experiences and knowledge, respect for the inherent rights of indigenous peoples, and a vision of sustainable and viable small-scale fisheries is necessary to move forward.

This contribution will discuss Canada’s legal system as it relates to Atlantic Canadian fisheries, and how this legal structure can be communicated effectively to provide tools for researchers, fishers, and other marine space users to work with. It will discuss small-scale fisheries and how they fit into the domestic legal regime, and suggest a scheme for how such fisheries might be pursued in a way that prepares them for a flourishing future. This discussion will be supported by interactive governance theory, past examples of fisheries policies and their effects, and contemporary issues which provide insight on how fisheries could be managed going forward.

The future of fisheries: SSF in a blue economy?

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The management of fisheries must change. There is an urgent need not only to correct some shortcomings of current management, but to shape fisheries in relation to climate change and to aspirations for a vibrant 'blue economy'. Many fisheries have been managed with emphasis on only a subset of ecological and economic objectives. This has resulted in insufficient consideration of some of social/cultural considerations, and a number of untracked and unintended consequences. The full scope of relevant considerations for future fisheries management is becoming clear (from developments such as full spectrum sustainability and the Sustainable Development Goals). Fisheries of the future will undoubtedly have to be managed (and will be audited) with other activities against a greater range of ecological, social/cultural, economic and institutional criteria, with higher standards and explicit consideration of trade-offs and cumulative effects. Improved management of fisheries, and other activities, suggests the need for some form of effective integrated management, (or marine spatial planning), and that, surely forms the basis for any notion of a 'blue economy'. This will test management, science and fishery participants, as it will require major changes in governance, in decision-making structures, in the information basis for management and in advisory processes. On the other hand, it offers an opportunity for more sustainable fisheries that contribute to better societal outcomes, and that can adapt to ecosystem and social change. It is predicted that, 'small-scale' fisheries, that have greater ties to communities, and can be adaptable, will be appreciated as an essential component of 'getting it right'.

Understanding the impact of global change on small-scale fisheries: key lessons to progress from vulnerability towards viability

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The record around the world, including North America, is clear: offshore oil and gas exploration and development (including related shipping) poses substantial (and usually disproportionate) risks to small-scale fisheries. The science-based management tool of Impact Assessment is intended to identify and mitigate such risks, but faces serious challenges. This paper reports on recent research findings in particular on the current realities in Canada's Atlantic region for how small-scale fisheries are considered (or not) in Impact Assessment. It will also make forward looking recommendations for improvements, in light of political aspirations for expansion of offshore oil and gas development in the region. Given the cross-sectoral nature of Impact Assessment, this presentation will address three of the Congress' topics, respectively: Conservation, Governance and The Future.

Getting Community Supported Fisheries Right

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Since the late 2000's, Community Supported Fisheries have proliferated around the world in an effort to connect small-scale fishers and their catch with local consumers. Although the model has enormous potential to build a thriving blue economy in coastal communities and build robust local food systems around the world, many of these enterprises struggle, founder, and fail for a variety of reasons. Skipper Otto Community Supported Fishery (CSF), founded in 2008, has been actively exploring the factors that determine the success of a CSF. They have developed a model that is unique among CSFs, one that is growing, and profitable without outside investment, allowing for a focus on conservation, reconciliation, food security, and preserving a fishing way of life in coastal communities. In this session, Skipper Otto will share what they've learned and collaborate with harvesters, researchers, and other attendees to continue getting the CSF model right.

A Climate-Smart Fisheries Monitoring Framework for Guiding Adaptation in the Small-Scale Fisheries Sector

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Climate change adaptation planning in the fisheries sector is often informed by predictive climate impact modelling but remains constrained by a lack of current information on evolving vulnerabilities and impacts. We summarize key outcomes from work on a 'climate-smart' fisheries monitoring framework initially developed for small-scale fisheries in the Caribbean as part of the Pilot Program on Climate Resilience, but designed to be applicable at a global scale. The framework outlines key indicators and metrics for systematically tracking climate change impacts across multiple ecological, social, and economic dimensions the fisheries sector as well as differing levels of monitoring capacity, which is often constrained in the communities where small-scale fishing takes place. We go on to discuss the importance of linking this monitoring data to adaptation decision-making and the need to leverage existing programs and partnerships to increase capacity for climate change monitoring and impact reduction in the face of limited adaptation resources. By adopting the monitoring guidance provided in this paper, regional fisheries management and adaptation practitioners will be better positioned to draw a line of sight between monitoring data, adaptation measures, and vulnerability reduction, which is also important in making the case for accessing global climate finance. We conclude by sharing key insights and lessons learned throughout our work in developing and disseminating this monitoring framework across the Caribbean region and draw parallels with how these might apply in the North American fisheries context.

Understanding the roles of knowledge and learning in climate resilient small-scale fisheries

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Small-scale fisheries (SSF) often lack scientific data and information that can inform their climate adaptation and resilience planning. Even when climate-related information is available, spatial and temporal scales of such information may not be suitable for their decisions. Many SSF rely heavily on their lived experiences and indigenous or local knowledge to inform their decisions. This study synthesizes findings from global case studies of 15 fisheries, including 11 small-scale commercial, subsistence, and artisanal fisheries, that investigated the prominence of 38 ecological, socio-economic, and governance attributes of resilience, actions taken to build resilience, and SSF capacities to improve climate resilience. To understand how SSF with limited scientific data and information are building climate resilience, we examined i) roles of knowledge and learning-related attributes (diversity of knowledge sources, access to knowledge, learning capacity, and adaptive governance) in shaping resilience, ii) what other resilience attributes complement knowledge and learning-related attributes, and iii) how indigenous or local ecological knowledge was integrated in resilience planning. We found that learning capacity and adaptive governance are important determinants of resilience in most cases. Preliminary findings also indicate that knowledge and learning-related attributes are often complemented by social capital and agency. Additionally, polycentric, equitable and inclusive, and multi-scale governance proved to be essential to the implementation of adaptive governance. SSF are often agile and responsive to changes and can activate and share indigenous and local ecological knowledge to adapt. Further, their long-term resilience planning may be enhanced by building better access to scientific knowledge.

Geographic informational issues in marine spatial planning: Lessons from artisanal small-scale fisheries in Senegal.

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Geographical information (GI) is essential in Marine Spatial Planning (MSP) process, but its role is still little discussed. Yet, from its construction to its dissemination, GI implies a series of choices which are far from being 'objective' or neutral. This presentation examines the role of GI and associated geo-technologies in MSP. Based on an empirical investigation developed within three fisheries-related case studies in Senegal (the St-Louis region, the Kayar MPA and the Saloum delta), the study shows a fairly wide range of informational issues related to MSP, from which we sum-up three main results. Firstly, there is a chronic lack of GI in general, and there is a particular need to better document fisheries and their interactions with competing uses (especially in regard to the development of the offshore oil and gas activity). Secondly, the ways of capturing and representing data on fisheries can be diverse. Finally, it appears very important to be able to reconstruct the dynamics of human activities over a longer period of time, and to broaden the way fisheries are considered beyond the economic lens. It is therefore necessary to take a closer look at the way in which the diverse and complex 'reality' of fisheries is coded, translated and transcribed into GI that can be simplifying and embedded into MSP processes.

Exploring perceptions of commercial fisher representation in management: A case study of the North Atlantic right whale UME, 2017-2021

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There is a growing recognition of the importance of involving stakeholders in marine governance and management to enable the inclusion of the knowledge and interests of those whose livelihoods are directly linked to the marine ecosystems. This study aims to understand the perceptions of fish harvester organizations as mechanisms to represent the interests of commercial fish harvesters during a resource use conflict in Atlantic Canada. It employs a case study approach, utilising semi-structured interviews and qualitative analysis to evaluate the perceptions of fisher representation during the development of the mitigation measures to protect the critically endangered North Atlantic right whale from fishing gear entanglements. The North Atlantic right whale population have faced an Unusual Mortality Event (UME) with 34 confirmed fatalities since 2017, with human interaction by gear entanglements and vessel strikes as the leading cause of death. This case study has been selected for its urgency and the consequences of the mitigation measures on the operations of commercial lobster and snow crab fish harvesters throughout the Gulf of St. Lawrence. It is argued that the effective participation of fish harvesters in the design and implementation of mitigation measures can contribute to improved outcomes, whereby fishers can contribute to measures that are reflective of local priorities. The outcomes of this study indicate that there is a clear and valuable role for fisheries organization in the governance of Atlantic Canadian fisheries, but that strategic efforts are needed to overcome barriers of distrust and poor governance.

Coastal People Need to Helm the Blue Economy

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We need to get the blue economy right. Resilient marine and coastal socio-ecological systems are imperative to achieve our globally agreed upon Sustainable Development Goals. Terrestrial systems are reaching and surpassing carrying-capacity, and we are increasingly turning to the sea for sustainable foods, economies, and livelihoods.

Blue economies are expanding worldwide; yet, underlying economic priorities and high rates of expansion into the ocean are problematic. Our status-quo economies (by and large) continue to harm ecological integrity and expand social inequities and injustices. Without conscious and deliberate design, 'blue economies' in North America are set to replicate the errors of the 'green economy', which has largely failed to address sustainability issues within market economics.

To 'get blue economy right', development needs to be led by local knowledge, collaborative governance, and citizen led action. This local approach allows for better monitoring and stewardship opportunities; allows more prompt and appropriate response to stochastic events like pandemics or extreme weather; and allows for proactive adaptation in-line with shifting ecological baselines and social/cultural needs. Adaptive community approaches provide the best opportunity for ecological sustainability and positive socio-economic outcomes.

We are faced with a great opportunity as economies expand into our oceans; we can redefine priorities. The current financialization of resources generates opportunity primarily for investors – leaving local communities behind, bearing the burdens of unsustainable extraction. There are alternatives. Policies that protect and enhance the engagement and efficacy of local resource management can lead to greater local economic benefits and more sustainable and balanced socio-ecological systems.