

Dalhousie University's Marine Affairs Program Presents

SUSTAINABLE OCEAN **2024** CONFERENCE

November 7-8, 2024 | Dalhousie Student Union Building



**TIDES OF TOMORROW
SOC 2024**



SUSTAINABLE OCEAN CONFERENCE

The Sustainable Ocean Conference is located on the ancestral and unceded territory of the Mi'kmaw People—the past, present, and future caretakers of this land. Mi'kmaw People thrived on and cared for this land long before John Cabot arrived on the shores of Mi'kma'ki in 1497 and occupied what we now know as the Atlantic provinces. Today, Mi'kmaw leaders across five bands in Mi'kma'ki advocate for the protection of Aboriginal and Treaty rights whilst pursuing a prosperous future for Mi'kmaw peoples that is rooted in Indigenous sovereignty and culture. Throughout the weekend, we look to respect and promote the role Mi'kmaw researchers, practitioners, and community members while creating and holding space for conversations regarding truth and reconciliation within marine management. We are all Treaty people.

The Sustainable Ocean Conference is a free event that brings together a wide audience to create opportunities for collaboration and education that address the range of issues affecting our ocean. The conference is supported by the Sobey Fund for Ocean and is organized by Master of Marine Management Candidates (MMM) of the Marine Affairs Program at Dalhousie University. It is the only student-led conference of its kind in Atlantic Canada and is being held for the 13th consecutive year.

This year's theme is Tides of Tomorrow. The concept of change and progress is encapsulated in the symbolism of tides – a natural ebb and flow that mirrors the dynamic nature of the oceans. Tides serve as a metaphor for our continuous efforts to navigate and shape the future of our oceans through effective management, illustrating the evolving journey towards positive transformation and advancement for tomorrow. This year Sustainable Ocean Conference aims to highlight sustainability, equity and interdisciplinary in approaching management within ocean spaces.

THE MISSION OF TIDES OF TOMORROW

EQUITY

SUSTAINABILITY

INTERDISCIPLINARY

SOBEY FUND FOR OCEAN

The Sobey Fund for Ocean is made possible by a generous and innovative gift by Donald R. Sobey in 2013. It is a unique partnership that was formed by the Marine Affairs Program at Dalhousie University, “Canada’s Ocean University” in Halifax, Nova Scotia, and WWF-Canada, a leader in marine conservation. The goal of the Sobey Fund for Oceans is to inspire innovative multi-disciplinary approaches for creating healthy oceans and sustainable economies. The Sobey Fund for Ocean provides resources to support scholarships and work placements to help tomorrow’s leaders see “beneath the surface” of our oceans’ problems to find lasting solutions.

**SOBEY FUND
FOR OCEANS**

Sobey Fund for Ocean Advisory Group: Dr. Lucia Fanning, Peter Wells, Maxine Westhead, Cali Goud

MARINE AFFAIRS PROGRAM

The Marine Affairs Program (MAP) at Dalhousie University provides an inquiring and stimulating interdisciplinary learning environment to advance the sustainable use of the world’s diverse coastal and ocean environments. In education, research and outreach, MAP seeks to develop outstanding marine management professionals by building on extensive global-to-local marine management networks. MAP works with other educational, governmental, NGO, and private sector organizations to promote and conduct timely and relevant interdisciplinary research in a broad array of scholarly topics that is attractive to students and conducted by a team of world-class researchers.



Telephone: (902) 494-3555
Email: marineaffairs@dal.ca

WELCOME

On behalf of the 2023-2024 Marine Affairs Program students, we would like to warmly welcome you to the 2024 Sustainable Ocean Conference: Tides of Tomorrow.

Over a year ago, when we began planning for this year's conference, we kept coming back to the idea that the marine sector is changing. This change and progress is a symbolism of tides in that isn't on a single projection, but it ebbs and flows as progress continues over time. This year, the Sustainable Ocean Conference aims to highlight sustainable, equitable, and interdisciplinary approaches to management within ocean spaces and looks to bring together multiple perspectives to discuss what progress is being made and what the future can look like.

We wanted to create a space where we can acknowledge that solving today's problems requires healing relationships among nature and communities, celebrate local accomplishments and highlight what has been achieved, and empower individuals to instigate change and contribute to incremental progress. We aim to have attendees leave with hope for our marine spaces, while recognizing the work that we still have left.

The Sustainable Ocean Conference is the product of hard work from the 2023-24 Master of Marine Management students, but there are so many groups which supported us throughout the last year. First and foremost, we would like to thank Maxine Westhead, Cali Goud, and the Marine Affairs faculty for their guidance throughout the last year. We would also like to thank our partners for their support in helping us provide value to this year's conference.

Over the next two days, we will explore what it means to research, work, and co-exist in this evolving sector. On behalf of the planning team, thank you very much for supporting our student-led initiative and we hope you enjoy this year's Sustainable Ocean Conference!

Sincerely,



SCOTT
SCHREMPF



IRELAND MORO



EMMA
SANSOME

CONFERENCE CO-CHAIRS

MASTER OF MARINE MANAGEMENT CLASS OF 2023-2024

CO-CHAIRS

Scott Schrempf

Ireland Moro

Emma Sansome

MARKETING

Ruth Riley
(Lead)
Kali Hines
Gita Tsomik
Tamara Joseph

INTERNAL

Georgia Cooney
(Lead)
Abby Christopher
Lauara Bonga

EXTERNAL

Brenna Noble
(Lead)
Mercedes Farn

FINANCE

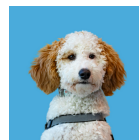
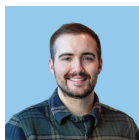
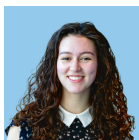
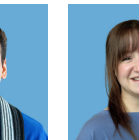
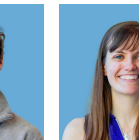
Michael Fabiano
(Lead)
Bethany Pohl
Ojas Gitai
Kayla Silver

SPEAKERS & SUBMISSIONS

Erling Rolseth
(Lead)
Maria Mason
Aidan McDiarmid
Kevin Allen

BEST BOY

Chewie



SFO SCHOLARSHIP RECIPIENTS 2024/2025



SAMANTHA BEAL

I am deeply grateful to have been awarded the Sobey Fund for Oceans Scholarship as I begin my PhD at Dalhousie University. My passion for conserving aquatic species and ecosystems drives my research, which will combine cutting-edge scientific methods, citizen science, traditional ecological knowledge, ecological projections, and outreach to explore the past, present, and future of Nova Scotian aquatic biodiversity in both freshwater and coastal marine systems. Biodiversity is vital to the health and functioning of ecosystems, and its loss can have far-reaching impacts on both nature and humanity. Through my PhD, I aim to provide valuable insights to guide strategic conservation and management practices critical to sustaining provincial aquatic environments. This project highlights the interconnectedness of freshwater and marine ecosystems, emphasizing that effective conservation requires a holistic approach across the entire aquatic continuum.



**KALEIGH
JOHNSON MARTIN**

I am truly grateful to be receiving the Sobey's Fund for Oceans scholarship and thankful for this support as I pursue my Master of Marine Management at Dalhousie University. While working on my undergraduate degree in biology I attended a marine biology field course and fell even deeper in love with the ocean and conservation. I am passionate about marine preservation and ensuring positive and inclusive marine management practices on surrounding communities. I hope to work with Katchi and their advanced trawling technology to implement more innovative fishing techniques aimed at reducing by-catch and improving targeted catch efficiency. This project has the potential to mitigate overfishing, preserve biodiversity, and offer optimal fishing opportunities to local and Indigenous communities while promoting long-term marine ecosystem health.

SFO SCHOLARSHIP RECIPIENTS 2024/2025



EMMA TOUCHIE

I am extremely honoured to have been chosen as a recipient of the Sobeyes Ocean Fund as I begin my Master of Marine Management degree. Originally from Quebec, my passion for science literacy, education, and conservation brought me to Dalhousie for my undergraduate degree in Marine Biology (Hons). After working in various fields such as governmental bodies, grassroots NGOs, and education organizations, and receiving a post-graduate certificate in Marine Mammal Science at St-Andrews University, UK, I am excited to return to Dalhousie to complete my master's degree. I wish to focus my studies and research on community co-management of human interactions with species at risk and the social dimensions of human interactions with the ocean regarding livelihood, cultural integrity, and well-being. I am grateful for the Donald R. Sobeyes fund for their support as I aim to accomplish my goals.

SCHEDULE

THURSDAY, NOVEMBER 7TH
MCINNES ROOM, STUDENT UNION BUILDING, DALHOUSIE

1:00 - 2:00 PM	Registration
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2:10 - 2:50 PM	Opening Remarks, Acknowledgements & Smudging Ceremony Smudging by Elder Ann LaBillois
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3:00 - 4:00 PM	Oral Presentations, Session One Abby Christopher Harboring Life: Examining Aquatic Ecosystems in the Halifax Harbour for Port Management Ruth Riley Developing an Assessment Tool for Whale Conservation: A Case Study of the Gully Marine Protected Area Kayla Silver Charting the Progress on Ecosystem Based Management (EBM) of Fisheries in the Western Scotian Shelf: Integrated Fisheries Management Plans through the lens of the Maritimes EBM Framework Brenna Noble Failures of No Net Loss (NNL) Policies to Protect Juvenile Pacific Salmon of the Lower Fraser Estuary
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4:00 - 4:10 PM	Break
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4:10 - 5:10 PM	Oral Presentations, Session Two Ireland Moro Examining how the declining health of Atlantic Salmon (<i>Salmo salar</i>) designable units in the Bay of Fundy has impacted management practices and strategies. Scott Schrempf The Cost of Doing Nothing Emma Sansome Balancing Global Goals & Local Values: Applying an Interest Convergence Lens to the Rights of Nature Movement in Bocas del Toro, Panama Michael Fabiano Hatcheries as a Contested Management Tool: Social Outcomes from Three Maritimes Hatchery Facilities
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5:10 - 5:40 PM	Closing Remarks
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5:50 - 7:00 PM	Dinner
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7:00 - 7:15 PM	Transition to Keynote Talk
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7:15 - 8:15 PM	Keynote Speaker, Elder Dr. Lorraine Whitman Elder Dr. Lorraine Whitman Using Indigenous Values set by the Seven Sacred Teachings, Two-Eyed Seeing, and the Concept of Netukulimk to Guide Sustainability
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SCHEDULE

FRIDAY, NOVEMBER 8TH
MCINNES ROOM, STUDENT UNION BUILDING, DALHOUSIE

8:30 - 9:00 AM Registration

9:00 - 9:05 AM Opening Remarks

9:05 - 10:05 AM Oral Presentations, Session Three

Kali Hines | Caught in Translation: Exploring Mi'kmaw Representation in Nova Scotia Fishery Disputes
Kevin Allan | Aboriginal Aquatic Resource and Oceans Management (AAROM) Involvement in North Atlantic Right Whale (NARW) Conservation and Management
Ojas Gital | Uncovering Synergies: Leveraging Network Analysis to Enhance Collaboration Efforts for the Conservation of NARW
Bethany Pohl | Peskotomuhkati-led Marine Conservation: Candidate Areas and Collaborations

10:05 - 10:30 AM Break

10:30 - 12:00 PM Panel Discussion

Ken Paul | Lead Fisheries Negotiator & Fisheries Research Coordinator (Wolastoquey Nation, NB), Principal/Owner (Pokiok Associates), Adjunct to the Faculty of Graduate Studies (Dalhousie University), Indigenous Advisor (Miawpukek Horizon), Special Advisor (Oceana Canada), Fisheries Advisor & Facilitator (Millbrook First Nation)
Leah McConney | Oceans Biologist, DFO
Dr. Rachael Cadman | Assistant Professor (Dalhousie University)

12:00 - 1:30 PM Lunch

1:30 - 3:30 PM Ocean Showcase & Poster Presentations

Ocean Showcase Presenters: Ocean Tracking Network (OTN), Coastal Action, Ocean Frontier Institute, Scotian Shores
Laura Bonga | Northern Cod in Nunatsiavut : The Historic and Modern Attachment to the Fishery
Georgia Cooney | Evaluating the 'Conservation Standards' as a Conservation Planning Framework : A Case Study on the Inner Bay of Fundy (IBoF) Conservation Plan
Tamara Joseph | How GIS Can Support Indigenous Storytelling Traditions : Mapping Significant Areas for FSC Fisheries in the Bras D'Or Lake
Maria Mason | Spatial-Temporal Analysis of NARW Aerial Surveillance in Relation to Whale Habitats & Regions of Human Activity in Atlantic Canada
Aidan McDiarmid | Dispersal Changes of Northern Basket Stars in Passamaquoddy Bay
Erling Rotseth | Industry Perspectives on Aquatic Marine Development as an Avenue for Capacity & Sovereignty Building in the Canadian Arctic
Gita Tsomik | Buffer Zones in Canadian MPAs: Design Process to Date and Future Recommendations
Alexandre Legault | Acadian Diaspora Connections to Nova Scotia Dykeland and Tidal Wetlands Landscapes

3:30 - 4:00 PM Closing Ceremony & Presentation of Awards

SPEAKERS

We are so grateful to have an incredible lineup of innovative and exciting individuals for you to hear from at SOC 2024!

KEYNOTE



ELDER DR. LORRAINE WHITMAN

*Grandmother White Sea Turtle Island &
President of Native Women Association Canada*

PANELIST



KEN PAUL

*Lead Fisheries Negotiator & Fisheries Research
Coordinator (Wolastoqey Nation, NB),
Principal/Owner (Pokiok Associates), Adjunct to
the Faculty of Graduate Studies (Dalhousie
University), Indigenous Advisor (Miawpukek
Horizon)*

PANELIST



LEAH MCCONNEY

*Oceans Biologist,
Fisheries and Oceans Canada*

PANELIST



DR. RACHAEL CADMAN

*Assistant Professor, Marine Affairs Program,
Dalhousie University*

ORAL SESSION 1

Abby Christopher

Harbouring Life: Examining Aquatic Ecosystems in the Halifax Harbour for Port Management

Over time, the Halifax Harbour has undergone significant alterations due to human activities, impacting sediment composition, biodiversity, species distribution, seabed morphology, and sediment transport pathways. Despite these changes, the harbour remains vital to Nova Scotia's history, culture, and economy. In 2022, the Port of Halifax contributed \$4.87 billion to the provincial economy, generating \$2.5 billion in GDP and over 25,300 jobs. As a global shipping hub linked to over 150 countries, it also serves as a vibrant arts and cultural destination. However, ongoing port activities and expansions pose risks to aquatic ecosystems, which currently lack adequate understanding and monitoring. This study addresses the urgent need to understand these ecosystems through a comprehensive review of existing literature on the harbour's geology, bathymetry, oceanography, species, and habitats. Additionally, data collected from local divers regarding habitat types and sediment conditions validated literature findings. This study aims to inform the Halifax Port Authority (HPA) on better management practices to protect key habitats and species. It identifies ecological areas and species of importance, socio-economic considerations, knowledge gaps, and proposes actionable recommendations for enhanced management and monitoring. An interactive GIS map was created for the HPA to visualize key ecological and species data, aiding in management and planning. Ultimately, this study seeks to improve ecosystem management within the Port of Halifax's jurisdiction while sustaining its essential economic and cultural contributions.

Ruth Riley

Developing an Assessment Tool for Whale Conservation: A Case Study of the Gully Marine Protected Area

The Gully Marine Protected Area (MPA) is a unique marine ecosystem east of Sable Island, Nova Scotia, which is home to diverse whale populations, including the endangered Scotian Shelf northern bottlenose whale population. Whale management within the Gully is still developing as researchers aim to understand the role that MPA conservation has in protecting whale species. The study investigates the impact of biological, governance and management factors on whale conservation within the Gully MPA with the utilisation of a new assessment tool. The role of marine spatial planning (MSP) in enhancing conservation outcomes for whales in the Gully MPA will be examined by applying two evaluation frameworks: (1) an adaptation of the Marine Mammal Management (MMMMT) self-assessment tool, developed by the European Commission, and (2) the Management Effectiveness Tracking Tool (METT), developed by World Wildlife Fund, for the creation of a new assessment tool applied in the Canadian context of MPA management. Research results highlight that the Gully scores well for most categories and demonstrates the importance of a holistic approach to address challenges and to optimise whale conservation efforts within the Gully MPA. Integrating ecological principles with planning strategies allows for comprehensive ecosystem based management, balancing ecological integrity with socio-economic interests. The findings emphasise the importance of interdisciplinary approaches to the conservation of vulnerable whale species in the Gully and across ocean management.

ORAL SESSION 1

Kayla Silver

Charting the progress on Ecosystem Based Management of fisheries in the Western Scotian Shelf: Integrated fisheries management plans through the lens of the Maritimes EBM Framework

Given the decline of key commercial stocks over the last few decades and significant changes to the overall structure and function of the marine ecosystem, it is past time to adopt an ecosystembased approach that considers ecological, economic, social/cultural, and governance objectives into management decisions, providing a more comprehensive evaluation of fisheries. These considerations are reflected in the more holistic Maritimes Ecosystem-Based Management (EBM) Framework. The EBM Framework offers an integrated management and decisionmaking support tool for all sectors of DFO Maritimes to apply an EBM approach to decisions related to fisheries, oceans, estuarine, and freshwater management. This paper examined to what degree the Maritimes EBM Framework objectives are reflected in the language used in nine Integrated Fisheries Management Plans (IFMPs) for NAFO Division 4X (Western Scotian shelf and the Bay of Fundy). The IFMPs were broken down into two parts; the first analysis grouped together the IFMP objectives, management issues, and management measures sections to form the management action analysis. Analysis two grouped all other sections of the IFMP to form the content analysis. The results showed that language used in the IFMPs varied considerably, but all IFMPs demonstrated some use of language that aligned with the objectives of the EBM framework. The IFMPs language strongly reflected the ecological second level objectives and aligned weakest with the social/cultural second level objectives for both the action and content analyses. The social/cultural and governance EBM objectives were more reflected in the content analysis than the action analysis. It is recommended that IFMPs continue to enhance their collaboration by including social science and humanities expertise and fisher and Indigenous knowledge. By doing so, it will provide a more holistic approach to include broader economic and social-cultural perspectives and promote good governance that ensures the best available knowledge is used for fisheries advice.

Brenna Noble

Failures of No Net Loss (NNL) policies to protect juvenile Pacific salmon of the Lower Fraser Estuary

This presentation investigates the case of juvenile salmon use of habitat offsets in the Fraser River Estuary (FRE). Offsetting measures, which often rely on primary productivity as a proxy for fish habitat quality, aim to compensate for habitat lost to development through the creation of equivalent habitats. However, concerns remain about the long-term effectiveness of these offset sites in supporting juvenile salmon populations.

By comparing juvenile salmon abundance at 11 offset and 10 natural reference sites throughout the 2023 salmon outmigration season, we were able to analyze relative use through time. It was found that salmon abundance was consistently higher at reference sites, with peak migration occurring in April. The GAM results further confirmed these findings, showing that salmon counts were 2.4 times higher at reference sites (p -value = 0.009). These results raise concerns about the ability of offset sites to provide equivalent habitat, suggesting that current habitat protection policies may not fully achieve NNL goals in the LFE. Recommendations for improving the management and monitoring of offset habitats will be discussed.

ORAL SESSION 2

Ireland Moro

Examining how the declining health of Atlantic Salmon (*Salmo salar*) designatable units in the Bay of Fundy has impacted management practices and strategies.

Atlantic salmon (*Salmo salar*) are a keystone species in Atlantic Canada and play an integral role in Mi'kmaq culture, however, they are in jeopardy. The looming threat of extinction of Atlantic salmon has pushed for management plans and strategies to conserve the species. With limited literature to guide management in the face of population decline, there is a need to carve new paths and evolve strategies to ensure the future of Atlantic salmon. One such solution in Atlantic Canada is the use of enhancement programs, which involve introducing or reintroducing Atlantic salmon into rivers that currently or historically supported wild populations. Nine hatcheries in Atlantic Canada participate in these programs, focusing on restoring five genetically distinct designatable units (DUs). Of these five DUs, three are listed as endangered under COSEWIC, one is listed as special concern, and one DU has been additionally listed as endangered under the Species at Risk Act (SARA). This paper will look specifically at three of these DUs that surround the Bay of Fundy (iBoF – Endangered (SARA), oBoF – Endangered (COSEWIC), SU – Endangered (COSEWIC)) and how the status and health of these populations impact the management strategies used to conserve them. Through a literature review on the history of Atlantic salmon in Atlantic Canada and the Bay of Fundy, insights into how management has adapted as populations decline will be explored. Examining the evolution of management strategies will help recommend the best approach to protect this significant species in the face of possible extinction.

Scott Schrempf

The Cost of Doing Nothing

In 2015, the Indian Ocean Tuna Commission (IOTC) assessed that the yellowfin tuna (YFT) population was both overfished and subject to overfishing, meaning the population would decline without effective management. Since then, the maximum sustainable yield of yellowfin tuna in the Indian Ocean has decreased by 17%, while the catch has remained the same. As states prioritize short-term economic benefits over recovery of Indian Ocean YFT, we look to understand how this influences the economic outlook of the fishery. To do this, we first calculated the proportions of fresh, frozen, and canned fish from the actual catch and applied the proportions to the maximum sustainable yield (MSY). Then, we multiplied the catch proportions by annual tuna prices (2022 USD/t) to get a gross economic output value per year for both actual catch and MSY. We determined that as time has progressed, the gap between the economic values of actual catch and catch at MSY continues to grow. At the same time, the IOTC has taken management actions over the last ten years, but there has been noncompliance without punishment rendering these measures ineffective. As the cost of doing nothing grows, IOTC decision-making becomes more complex as member states maximize their portion of a decreasing catch. The lack of an allocation regime, uncertainties surrounding stock assessments and catch reporting, and the effect of closure scenarios on state socioeconomics all exacerbate this issue. As states continue to debate the best course, they may risk a stock crash that causes economic devastation, particularly for coastal states. By acting now, states will bear a short-term economic cost for population recovery, but the longer they wait, the higher that cost will be.

ORAL SESSION 2

Emma Sansome

Balancing Global Goals & Local Values: Applying an Interest Convergence Lens to the Environmental Conservation Movement in Bocas del Toro, Panama

The conversation surrounding conservation is one that is based on values, personal opinions, and social constructs of how we, as a society, choose to define what nature is. It is also a conversation that has profound disagreements because most definitions are subjective and reflect a personal point of view. When thinking about conservation, in this way, a way that is rooted in cultural identity and livelihood rather than just a scientific “thing” we are trying to protect, the role of interests, power, and perceptions come into play and it adds much weight to answering the question, “how should we protect it?” This study, focused on a case study in Bocas del Toro, Panama, explores local perspectives on conservation and their relationship to multinational conservation goals. Using an interest convergence lens, the analysis investigates how these global goals manifest in local communities, how power dynamics determine control over conservation efforts, and whether these efforts align with or diverge from local conservation values in achieving equitable ocean conservation.

Michael Fabiano

Hatcheries as a Contested Management Tool: Social Outcomes from Three Maritimes Hatchery Facilities

Atlantic salmon are an important species in Canada from ecological, sociocultural, and economic perspectives. Due to numerous issues including habitat destruction, ocean mortality, climate change, and invasive species, Atlantic salmon populations in many rivers have or are experiencing a precipitous drop in the number of returning adult spawners. The use of hatcheries and stocking is one measure used to counter this decline. At one point in time, hatcheries and stocking were seen as “the” solution to decreasing salmon runs. A more recent body of literature has arisen that points to the ecological and genetic dangers of these practices. However, many hatcheries are still operational in the Maritimes today. The purpose of this paper will be to highlight and characterize the social outcomes facilitated by hatchery facilities. While certain hatchery and stocking practices may be ineffective or even detrimental or to the wild populations and environments they are aiming to preserve (as the literature suggests), they produce social outcomes to people and communities that cannot be overlooked. Through having a better appreciation of these social outcomes of hatcheries, it will allow for more informed decisions to be made regarding the future of Atlantic salmon conservation in the Maritimes, and where hatcheries fit into that future.

ORAL SESSION 3

Kali Hines

Caught in Translation: Exploring Mi'kmaq Representation in Nova Scotia Fishery Disputes

Mainstream media has the unique ability to rapidly reach an extensive audience, informing the public on local and global events. Although reporting intends to remain unbiased, the language, tone, and focus of mainstream media can easily bias the general public to certain conclusions. The acknowledgement of this fact is especially important in light of the 2020 fishery conflict in Saunnierville, NS, between Mi'kmaq and non-Mi'kmaq commercial lobster fishermen. The conflict was rife with racism and confrontations on- and off-water. Notably, media communications of the Mi'kmaq fishery conveyed a sense that Mi'kmaq were doing something “illegal” or “unauthorized” despite the 1999 Marshall decision that upheld treaty rights. This research will explore the representation of Mi'kmaq fishing in breaking news media. It is hypothesized that Mi'kmaq fishing is represented inaccurately in breaking news media through biased language, false narratives, and racist rhetoric. This research will focus on Nova Scotia's 2020 Saunnierville lobster dispute as a case study, looking to determine how power dynamics and marginalization contribute to who is featured in communications and when. Through relationality of words and narratives present across breaking news articles from mainstream media, this research asks how the language used in breaking news about lobster fishery disputes between Mi'kmaq and non-Mi'kmaq harvesters frames the narrative presented to the public. Through exploring relationality and narratives across articles, this research will look to determine how power dynamics and marginalization contribute to who is featured in communications and when. Specifically, this research asks how the language used in breaking news about lobster fishery disputes between Mi'kmaq and non-Mi'kmaq harvesters frames the narrative presented to the public. This research aims to contribute and guide larger conversations surrounding the importance of accurate and respectful portrayals of Indigenous peoples in media, demonstrating the importance of the language used and how it can shift the larger narrative.

Kevin Allan

Aboriginal Aquatic Resource and Oceans Management (AAROM) Involvement in North Atlantic Right Whale (NARW) Conservation and Management

The North Atlantic Right Whale (NARW) is a critically endangered species with fewer than 370 total individuals and fewer than 70 reproductive aged females estimated to be currently in the population. Major sources of mortality and serious injury to the population include physical strikes from vessels and entanglement in fishing gear. The Conservation Genomics of the Endangered North Atlantic Right Whale Project seeks to understand the factors contributing to NARW birth rate and mortality. The Project's GE3LS team (Genomics and its Environmental, Economic, Ethical, Legal, and Social aspects) specifically seeks to understand the different organizations involved within the NARW management and conservation network. NARW typically feed in waters in the Canadian Maritime provinces and northeastern US, and breed in waters in the southeastern states. Fisheries and Oceans Canada (DFO) have management jurisdiction for NARW in Canadian waters whereas the National Oceanic and Atmospheric Administration (NOAA) have management jurisdiction for American waters. In order to help facilitate recovery of the species, DFO and NOAA have undertaken management measures to address sources of anthropogenic mortality. Science-policy interface studies address how science and knowledge is used to inform policies and regulations including the relationship between the various actors involved. This study seeks to illustrate the science-policy interface for NARWs and evaluate its effectiveness. A literature review and interviews were conducted to establish the different components of the interface. Techniques from decision-making theory, network analysis, and SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) were used to assess the system. This study will highlight the strengths of the current system and identify areas of weakness and opportunities for improvements in the future. This research will also provide clarity to those outside of this interface who are interested in NARW management and conservation to aid in knowledge mobilization and effective decision-making practices.

ORAL SESSION 3

Ojas Gitai

Uncovering Synergies: Leveraging Network Analysis to Enhance Collaboration Efforts for the Conservation of NARW

The North Atlantic right whale (*Eubalaena glacialis*) is an endangered species and a key player in maintaining a balance in the marine Atlantic ecosystem. They help keep the marine ecosystem healthy and productive by redistributing nutrients from the ocean from the bottom to the surface through their fecal matter. It faces critical threats from entanglement in fishing gear, vessel strikes, habitat degradation, and declining reproductive success, making its conservation an urgent priority. Protecting them can mitigate climate change by increasing blue carbon capture, benefiting marine and terrestrial species alike. This research, conducted as part of the Genome Canada Right Whale (GCRW) Project, enhances conservation efforts through sophisticated social network analysis (SNA) techniques. SNA Mapping helps in understanding the collaboration dynamics among diverse stakeholders and rightsholders, improving the integration of genomic research and ultimately enhancing effective conservation strategies. The study employs a multifaceted methodology beginning with the collection of data from scientific literature, multi-stakeholder committees (governmental, non-profit, and industry representatives), and annual meetings of conservation bodies. This data is used to construct a comprehensive collaboration network matrix, incorporating names, affiliations, and years of collaboration among individuals and organizations involved in the North Atlantic right whale (NARW) conservation community. Using Cytoscape, a visual representations of the network, we identified key actors, and statistically analyzed how knowledge and influence flowed between different groups. The matrix is analyzed using centrality measures, network density, and clustering coefficients to identify key players, influential nodes, and gaps in knowledge and initiatives, including isolated entities within the network. The project's objectives include fostering better communication and cooperation among stakeholders, addressing gaps in the utilization of scientific research, and promoting evidence-based decision-making. By revealing the intricacies of collaboration dynamics, the research informs the development of more targeted and impactful conservation initiatives. The resulting map portrays the dynamics within the NARW conservation community, with the thickness of links indicating the influence between nodes, helping to understand missing collaboration trends. One of the key findings was the inconsistency in stakeholder participation over the three years. Government agencies, due to their regulatory roles, showed consistent involvement, while other groups, such as independent conservationists or Indigenous organizations, were less represented. Another significant finding was the identification of highly connected stakeholders, or central hubs, who play key roles in decision-making and policy implementation. Given the dynamic nature of this multi-stakeholder industry, where stakeholders and rightsholders tend to change over time, this preliminary research also proposes the implementation of advanced natural science methodologies, such as artificial intelligence (AI), for the next phase to keep the matrix up to date. Through this comprehensive approach, the project contributes significantly to the preservation of the critically endangered North Atlantic right whale, supporting long-term conservation efforts and enhancing the resilience of this vulnerable species.

Bethany Pohl

Peskotomuhkati-led Marine Conservation: Candidate Areas and Collaborations

The Peskotomuhkati Peoples have lived in a reciprocal relationship with the Lands, Waters, and Wildlife of the Skutik River watershed and the Quoddy Region – southwestern Bay of Fundy – since time immemorial. Wildlife populations, including Peskotom (pollock) the Peskotomuhkati's namesake, have struggled for the past two centuries (Lotze et al. 2004). The Canada-U.S. border divides the Skutik River and Peskotomuhkati territory, a meaningless border to Wildlife, but one that complicates protection and restoration of culture and habitat. The Quoddy Region is rich in nutrient upwellings, supporting a range of biodiversity (Buzeta & Singh, 2008), yet has no formal marine protection west of Musquash Marine Protected Area (MPA), in either country. With rising calls for action, yet no formal marine protection plan, there is an incredible opportunity to advance Indigenous-led marine conservation through a Water Back framework, return of Water Rights and Responsibility to Indigenous Nations (Leonard et al., 2023). Understanding that MPAs are not a silver bullet (Filbee-Dexter et al., 2024; Agardy et al., 2003), this project explores appetite for Peskotomuhkati-led marine Indigenous Protected and Conserved Areas (IPCAs) and defines elements required for collaborative ocean governance. A legislative review of conservation tools and IPCAs, interviews, and talking circles with Peskotomuhkati and non-Indigenous practitioners outlined conservation values, restoration needs, policy and management changes required to repair the health of the Bay and all relatives. Peskotomuhkati community members interviewed from Sipayik wish to see the entire Quoddy Region protected and revitalized – through Peskotomuhkati leadership. Concerns include land and ocean-based cumulative impacts, inadequate monitoring, rockweed harvesting, overfishing, gear types, a need for temporal closures, and finfish aquaculture practices. Revival of the Quoddy Region will require interdisciplinary, interjurisdictional efforts grounded in Indigenous leadership through Water Back principles. Wicuhkemine – help us. Holistic thinking, honouring Treaty integrity by addressing power imbalances, and a values shift are necessary for true effectiveness in reviving the Quoddy Region, to welcome Peskotom home.

POSTER SESSION

Laura Bonga

The Historical and Modern Significance of Cod to the Beneficiaries of the Labrador Inuit Land Claims Agreement

This study offers a perspective on Atlantic cod from the beneficiaries of the Labrador Inuit Land Claims Agreement who live in the coastal community of Makkovik. The Northern cod stock off the coast of Newfoundland and Labrador is a valuable resource widely sought after for centuries. Once thought to be an infinite resource, Northern cod eventually encountered population collapse due primarily to overfishing. As a result, a moratorium on commercial cod fishing was enforced by the Canadian government in 1992. The Northern cod population gradually increased enough to prompt the Federal Government to re-open the commercial cod fishery in June 2024. With renewed interest in cod harvesting, equitable and sustainable management is important. This research hopes to inform the management of Northern cod, including decisions regarding allocations of cod to Nunatsiavut. The project was created in conjunction with the Torngat Wildlife, Plants, and Fisheries Secretariat and supported by the Nunatsiavut Government. A qualitative methodology was used to investigate the historic and modern relationship between cod and the beneficiaries of the LILCA. Fifteen in-person semi-structured interviews with commercial and subsistence cod harvesters took place in the coastal community of Makkovik, which was historically a cod fishing community in Nunatsiavut. The results demonstrate a strong attachment to cod both historically and in modern times through themes of subsistence, culture, livelihood, family, and community. Traditional ecological knowledge regarding the Northern cod population was also summarized as results. For approximately 30 years, cod was so sparse off the coast of Nunatsiavut that the people “couldn’t even get one to eat,” but cod is finally returning, and with it is local excitement and opportunity for equitable management.

Georgia Cooney

Evaluating the ‘Conservation Standards’ as a Conservation Planning Framework: A Case Study on the Inner Bay of Fundy (IBoF) Conservation Plan Process

The Conservation Standards (CS) are a set of practices and principles for conservation planning. Despite the usefulness of this framework and its widespread use, the literature surrounding the application of the CS to conservation planning processes around the world, including evaluation of successes and challenges in practice, is limited. Using the CS as a framework, a conservation planning initiative for the Inner Bay of Fundy (IBoF) region of Atlantic Canada has been underway since March 2020. This process, led jointly by Environment and Climate Change Canada’s Canadian Wildlife Service and Global Conservation Solutions, was deemed necessary due to the ecological significance of the IBoF region. The conservation planning initiative has taken place through a series of online workshops, through which relevant rights holders and stakeholders are following the conservation planning steps of the CS. This paper explores the challenges and successes of using the CS as a conservation planning framework, using the IBoF Conservation Plan process as a case study by surveying workshop participants. Successes of using the CS in practice include knowledge-sharing, relationship-building, and enhanced understanding of the CS as a conservation planning framework. Challenges of the framework’s application include engagement and inclusion of all relevant stakeholders and rights holders and a lack of clarity on a timeline for workshop outputs. Recommendations to amplify successes include the establishment of smaller working groups within workshops to help increase efficiency and morale. Recommendations to address challenges include further communication regarding desired outputs and the timeline in which to achieve them.

POSTER SESSION

Tamara Joseph

How GIS Can Support Indigenous Storytelling Traditions: Mapping Significant Areas for FSC Fisheries in the Bras D'or Lake

Fisheries have always been an important component of Mi'kmaq culture, livelihood, and food security as they provided sustenance for thousands of years. The Mi'kmaq people devoted centuries in developing fisheries management protocols based on cultural significance. However, over time Western Science has dominated fisheries management in Canada, and now current research and management methods often unintentionally overlook culturally significant marine areas, leading to misleading and incomplete fisheries data. The purpose of this study is to explore the relationship between Mi'kmaq knowledge systems and Geographic Information System (GIS) using the Two-Eyed Seeing Approach. In doing so, this work, contributes to the development of protocols to improve Food, Social, and Ceremonial (FSC) fisheries management between the Mi'kmaq nation and the Canadian government. A map of the Bras D'or Lake, located in Cape Breton, Nova Scotia, will be created to highlight the culturally significant areas using GIS layers provided by both Western and Indigenous Knowledge Systems. By including storytelling, legends, and other culturally significant knowledge systems as data layers and as a communicative tool within GIS, this study presents a Mi'kmaq story with academic referencing and mapping to braid the two perspectives together, further demonstrating how Two-Eyed Seeing can be effectively used in science. The objectives for this study are to successfully incorporate the Two-Eyed Seeing Approach into marine management and determine gaps in current research, knowledge, and data collection in FSC fisheries.

Maria Mason

Spatial-Temporal Analysis of NARW Aerial Surveillance in Relation to Whale Habitats & Regions of Human Activity in Atlantic Canada

Consistent surveillance for North Atlantic right whales (NARW) is vital to informing management measures, triggering dynamic protections, and monitoring changing population trends and distribution. Surveillance of known and potential NARW habitats is also important to ensure that protection and knowledge are adequate throughout their range. Resources for aerial surveillance in Atlantic Canada are limited, leading to a focus on areas and times of known aggregations in the southern Gulf of St. Lawrence. Although this spatial-temporal bias in effort is widely recognized, its extent and consequences have not been quantified. This project examined the spatial-temporal coverage of Canada's dedicated cetacean surveillance program in Atlantic Canada from 2018-2022 and evaluated effort as distance surveyed using GPS-recorded track line data obtained from Fisheries and Oceans Canada. We examined the amount of effort allocated across specific areas throughout Atlantic Canada relevant to NARW protection. These areas included general NARW habitats and snow crab and lobster fishing areas during their active seasons. This evaluation of uneven surveillance effort will provide important context for interpreting our perceived knowledge of NARW distribution in Canada and the anthropogenic threats they may encounter.

POSTER SESSION

Aidan McDiarmid

Dispersal Changes of Northern Basket Stars in Passamaquoddy Bay

Understanding the habitat range shifts of benthic species is important for determining the health of marine ecosystems and can be accomplished through the use of bioindicator organisms. In this study *Gorgonocephalus* sp., *Alcyonium* sp. and *Gersemia* sp. in Passamaquoddy Bay. Little is known about the historic ranges and lifecycles of Northern Basket Stars, which impacts their potential to be listed as a SARA species. Species need to have recorded decreases in abundance to achieve COSEWIC status. This project intends to investigate many corroborating anecdotal accounts from divers, scientists, and fishers regarding this species' disappearance from the Bay of Fundy between 2012 and 2015. The first benthic baseline surveys in Passamaquoddy were completed by Art McKay in 1978, with recorded observations of basket stars in the region. This study is focused on compiling historical records from multiple data sources to help create a more comprehensive picture of how this species' range has shifted over time. Sources of data included in this study include citizen scientist observations from divers and fishers, DFO drop camera surveys, and points from GBIF, iNaturalist, and WoRMS. Based on the most recent observations of this species in Passamaquoddy Bay the Huntsman Scientific dive team will conduct benthic surveys to determine if the species is still present in these areas.

Erling Rolseth

Industry Perspectives on Arctic Marine Development as an Avenue for Capacity & Sovereignty Building in the Canadian Arctic

The Canadian Arctic is warming at a rate that could soon attract increased traffic within and the region from Canadian and foreign vessels. Any sharp increase in traffic could pose a threat to Arctic peoples, the environment, and Canada's regime and sovereignty in the North. Canada currently leads the world in Polar Code compliance and regulation. Additionally, it was the first state to publish legislation discriminating the Arctic from other maritime legal regimes, directly leading to Article 234 of the United Nations Convention on the Law of the Sea. As the Arctic warms and ice patterns change, Canada could have to again take up the mantle of leadership in Arctic waters. Canada's Arctic is already seeing an uptake in transit passages through the Northwest Passage, and it has so far adhered to Canada's regulatory practice. However, even at still-low volume, groundings and regulatory breaches occur; without the proper institutional development, incidents could arise with greater frequency and lead to large consequences. This study used industry and policy worker interviews to generate development scenarios for the Canadian Arctic from their perspectives. Scenarios were developed using the Oxford Scenario Planning Approach, and enabled the author to create policy recommendations to identify and address deficiencies in Canada's Arctic regime. Four scenarios were developed: two takes on the status quo, a security crisis, and one of unprecedented prosperity in the region. A briefing note is attached with the report summarizing policy recommendations.

POSTER SESSION

Gita Tsomik

Buffer Zones in Canadian MPAs: Design Process to Date and Future Recommendations

Marine Protected Area (MPA) practitioners and decision-makers spend a long time and substantial effort establishing an MPA. However, pressures outside of the MPA boundaries remain. Surrounding activities and edge effects can limit an MPA's conservation potential and minimize its ability to achieve conservation objectives. To mitigate the pressure of external activities and reduce edge effects, some MPA practitioners include buffer zones within MPAs. However, their design processes are not well documented in Canada nor internationally, and existing literature on buffer zones is limited. For these reasons, this project aims to determine 1) what the process has been to design buffer zones for select MPAs in Canada with buffers, 2a) if any tools exist to support the design of MPA buffer zones, 2b) if new tools could be developed to support buffer zone design in MPAs such as decision trees, frameworks, assessments, or processes, and 3) what processes or elements MPA practitioners should consider in the future when designing buffer zones within MPAs. To answer these questions, the buffer systems of three different MPAs were used as case studies and compared. The three MPAs used were the Gully MPA, the Hecate Strait/Queen Charlotte Sound MPA, and the Tarium Niryutait MPA. For each MPA, interviews with practitioners were conducted to document each design process that was used and identify the remaining knowledge gaps. Based on this information, the main recommendations outline the need for a defined process to ensure consistency between regions and development of guiding principles for buffer zone design.

Alexandre Legault

Acadian diaspora connections to Nova Scotia dykeland and tidal wetland landscapes

French settlers first arrived in Mi'kma'ki in the early seventeenth century. To increase agricultural production, their descendants (the Acadians) drained the Bay of Fundy's tidal wetlands using dykes and aboiteaux. From 1755 to 1758, thousands of Acadians were deported to British colonies and Europe, forming what is now known as the Acadian diaspora. Today, approximately 364 km of Acadian dykes remain in New Brunswick and Nova Scotia. The Nova Scotia Department of Agriculture does not currently possess the ability to maintain and raise all the dykes to withstand the projected effects of a changing climate. Several coastal adaptation options have been proposed in Nova Scotia, including managed dyke realignment, which combines coastal retreat and tidal wetland restoration. The purpose of this research is to determine whether members of the Acadian diaspora (1) remain culturally linked to the Bay of Fundy dykelands, (2) are beneficiaries of ecosystem services provided by the Bay of Fundy dykelands, and (3) are stakeholders in climate adaptation decisions in the Bay of Fundy region. Acadian diasporans were interviewed and surveyed at Grand-Pre National Historic Site and at the Congrès mondial acadien's expo in August 2024. Results indicate that Acadians residing in the homeland (Acadie) attribute more value to dykes for keeping people safe (regulating service) than diasporans living outside the homeland. French speakers overwhelmingly value dykes to protect their legacy and affirm Acadian identity and diasporans living outside the homeland value -dal wetlands significantly more than their homeland counterparts. Yet, Acadians are heavily divided over whether they believe they are stakeholders in managed dyke realignment decisions in the Bay of Fundy. Although no significant difference in stakeholder status was detected between Acadians living in and Acadians living beyond the homeland, participants' language of preference was a strong indicator

THANK YOU TO OUR SPONSORS



The SOC 2024 organizing committees would like to extend their deepest thanks to all those who have supported this conference. Thank you to the faculty and administration of the Marine Affairs Program for their encouragement throughout this process, and to the speakers, organizations, and judges who have taken the time to share their knowledge and experiences with us. Lastly, thank *you* for attending this year's conference and supporting our aspirations of an informative and inspiring sharing of research.