

SOBEY FUND FOR OCEANS

PRESENTS



SEPTEMBER 23-25, 2021

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DALHOUSIE UNIVERSITY | HALIFAX, NS

**SUSTAINABLE
OCEAN**

Sustainable Ocean Conference

September 23rd - 25th, 2021

We would like to begin by acknowledging that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People. This territory is covered by the Treaties of Peace and Friendship, which Mi'kmaq, Wəlastəkwiyik (Maliseet), and Passamaquoddy Peoples first signed with the British Crown in 1726. The treaties did not deal with surrender of lands and resources but in fact recognized Mi'kmaq and Wəlastəkwiyik (Maliseet) title and established the rules for what was to be an ongoing relationship between nations. We are all Treaty people.

The Sustainable Ocean Conference is the annual conference organized by the **Master of Marine Management** (MMM) students of the Marine Affairs Program at Dalhousie University and is supported by the Sobey Fund for Oceans. This event brings together a wide audience and is the only student-led conference of its kind in Atlantic Canada.

This year, the tenth annual conference will take place online via Hopin from Thursday, September 23rd to Saturday, September 25th. The conference will explore the theme 'Seeing Beyond the Shoreline', bringing together a diverse audience of students, faculty, members of the marine community, and the public.

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Sobey Fund for Oceans



“I have a long history with both Dalhousie and WWF. It became clear to me that collaboration between our brightest young minds and our leaders in conservation is the key to solving some of the great challenges in our oceans. And that s a goal that I share with both Dalhousie and WWF.”

Donald Sobey, The Donald R. Sobey Foundation

The [Sobey Fund for Oceans](#) 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 Oceans 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.

In March 2021 the Marine Affairs community mourned the passing of Mr. Donald Sobey (LLD’89), C.M., national business leader, celebrated philanthropist, and unwavering supporter of Dalhousie University. Mr. Sobey served on the Board of Governors, chaired the Campaign for Dalhousie in the 1980s, and was honorary chair in 2009–2012 of the Bold Ambitions Campaign Leadership Council.

The Sobey Fund for Oceans emanated from Mr. Sobey’s visionary leadership. As Marine Affairs Professor Emerita Lucia Fanning commented, it “truly reflected Mr. Sobey’s commitment to protecting our oceans for future generations.” “With his generous support, innovative ideas have come to fruition over the past decade, ideas he was convinced were needed to rebuild healthy and sustainable marine ecosystems for all.” Mr. Sobey’s exceptional contributions spanned a generation of initiatives across the entire university. In a message to the Dalhousie community, President Deep Saini noted, “The legacy Donald leaves at Dalhousie will have a profound impact on our campus, research, faculties, and students for years — even generations — to come.”

Sobey Fund for Oceans Advisory Group

Jerry Bannister

Director, Marine Affairs
Dalhousie University

Lucia Fanning

Professor Emerita, Marine Affairs
Dalhousie University

Becky Field

Administrator, Marine Affairs
Dalhousie University

Jon Grant

Professor, Oceanography
Dalhousie University



Sobey Fund for Oceans 2021-2022 Scholarship Recipients



Cailey Dyer, Master of Marine Management

I am very excited to continue my studies in Marine Management at Dalhousie this fall and to do so with the support of the Sobey Fund for Oceans Scholarship. During my studies, I hope to bring my past experiences working in policy spaces to the Marine Management program and develop interdisciplinary ways to tackle complex challenges facing the marine management community. In particular, I am interested in examining best practices for developing marine protected areas in Canada's Arctic. Using Indigenous knowledge, science, and policy, the goal of my research is to discover how to best

work with communities and incorporate local, on the ground knowledge, in what has historically been a science-led space.

Corie Rooyackers, Master of Marine Management

I am extremely grateful to be receiving the Sobey Fund for Oceans scholarship as I start my graduate studies at Dalhousie University in the Master of Marine Management program. I have an educational background in biochemistry and molecular biology, and a professional background in environmental enforcement. I have seen firsthand the common disconnect between science and policy, and the associated opportunity for improvement. I believe that one of the most successful methods to manage and protect the marine environment is through improved legislation. I am excited to explore this in my studies at



Dalhousie University, to learn about the obstacles and suggested resolutions, and to use my multidisciplinary background to help support a path forward with the ultimate goal of protecting the marine environment.



Debra Sinarta, Master of Marine Management

I am very grateful to receive the Sobey Fund for Oceans Scholarship to support my graduate studies in the Marine Affairs Program. My research will aim to assess the effectiveness of Marine Protected Areas in achieving ecological and social goals. I'm especially interested in studying climate change adaptation strategies and human well-being outcomes, which I hope will contribute practical adaptive management strategies through a multidisciplinary approach. I am also passionate about the role Indigenous governance and local stewardship plays in the planning and management of

MPAs, and I hope to explore more effective ways to incorporate local stakeholders in this process.

Hannah Solway, Master of Science, Biology

As I continue my education by pursuing an MSc, I look forward to applying my undergraduate knowledge and background in Conservation Biology to this degree. Throughout this degree, I will be continuing my undergraduate honours research, investigating the interactions between baleen whales, vessels, and entanglement in the North West Atlantic Ocean. Using Geographic Information Systems, statistical modelling, and various data sources, I will be researching where baleen whale vessel strikes and entanglement may be most likely, along with any other associated inquiries. I hope to use this



research to help implement changes in marine management and policy to help better protect baleen whales in the North West Atlantic Ocean. I am very proud and honoured to have received the Sobey Fund For Oceans Scholarship, and look forward to all that I will achieve with this support.



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Welcome

On behalf of the 2020-2021 Marine Affairs Program students, we would like to warmly welcome you to [Sustainable Ocean 2021: Seeing Beyond the Shoreline](#).

The ocean is vital to all life on our planet. It feeds us, provides the air that we breathe, links vast continents, and helps foster deeper human connections. A healthy ocean supports a healthy Earth, yet finding ways to help our ocean flourish can be challenging. This challenge is made more difficult when many people are conceptually isolated from the ocean, despite feeling the impacts.

As 2021 marks the beginning of the [UN Decade of Ocean Science](#), and the tenth anniversary of the Sustainable Ocean Conference, we aim to foster a strong connection across all sectors, including local communities, to combat global ocean issues. The conference will incorporate a variety of perspectives including those from industry, local and Indigenous communities, youth, academia, and government. The collaborative efforts and voices of all contributors will provide for a better understanding of protecting the ocean. Despite the COVID-19 pandemic, we remain connected through our work, research, and common interest, just as the ocean connects us all.

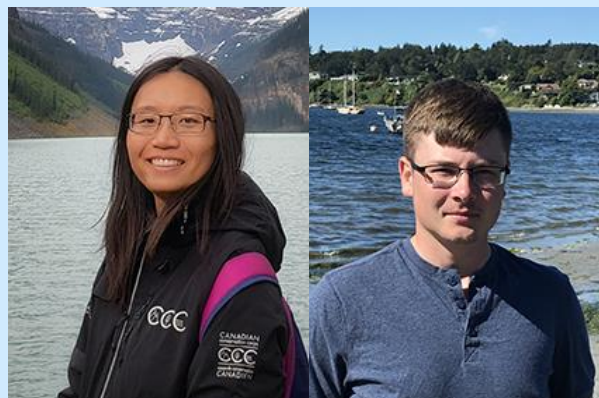
This year, we aim to encourage ocean management that goes beyond our own horizons, and beyond the shoreline. We hope to leave you with a sense of how actions impact the ocean in ways we seldom see, but also how action by local communities and individuals can have a great impact.

Through engagement with student and guest speakers, partnering with community organizations, and showcasing photography describing the connection that people have with the ocean, we hope that the presented concepts broaden the horizons of all involved, so that we can see beyond the shoreline.

Thank you for your support of our student-led initiative.

Kind regards,

Lisa Chen and David Marrack,
Conference Co-Chairs | Sustainable Ocean 2021



Introducing the MMM Class of 2020/2021

Fundraising

Leah Fulton (Lead)
Luc Bent

Logistics

James Barclay (Lead)
Jackie Franceschini (Lead)
Fadal Al-Ajdaa
Aaron Cogger
Nidhi D'Costa
Francheska Krysiak
Martin Ostrega

Conference Co-Chairs

Lisa Chen
David Marrack

Marketing & Outreach

Lisa Baxter (Lead)
Tianna Clarke (Lead)
Jillian Conrad
Katia Corral Quijada
Shuyi Li
Emma Snowdon

Submissions

Kaitlyn Curran (Lead)
Victoria Cullen
Stephen Tiller



[View the 2020/2021 Student Biographies.](#)

Conference Schedule

Thursday, September 23rd, 2021

Time (ADT)	Events
4:00-4:45 PM	Opening Ceremony
4:45-5:05 PM	Posters/Networking - Climate Change & Anthropogenic Impacts
5:05-5:10 PM	<i>Break</i>
5:10-5:55 PM	Keynote Speaker: Dr. Deborah McGregor
5:55-6:00 PM	Day 1 Recap

Friday, September 24th, 2021

Time (ADT)	Events
5:00-5:05 PM	Day 2 Remarks
5:05-5:35 PM	Oral Presentation Session 1: Fisheries Management
5:35-6:00 PM	Posters/Networking - Species & Habitat Protection
6:00-6:20 PM	Oral Presentation Session 2: Public Perceptions
6:20-6:25 PM	<i>Break</i>
6:25-7:55 PM	Panel Discussion: Strategies for Marine & Coastal Adaptation
7:55-8:00 PM	Day 2 Recap

Saturday, September 25th, 2021

Time (ADT)	Events
10:00-10:05 AM	Day 3 Remarks
10:05-10:35 AM	Oral Presentation Session 3: Technology
10:35-11:20 AM	Posters/Networking - Governance
11:20-12:05 PM	Keynote Speaker: Dr. Andrea Reid
12:05-12:10 PM	<i>Break</i>
12:10-12:50 PM	Oral Presentation Session 4: Knowledge & Representation
12:50-1:00 PM	Closing Ceremony



Panel Discussion: Strategies for Marine & Coastal Adaptation

Canada is home to the world's longest coastline, that spans 243,042 km along the ocean, supporting immense biodiversity and dynamic marine ecosystems. The ocean is a part of our Canadian identity, with valuable economic and cultural connections to the marine and coastal space. The current and anticipated impacts of climate change are expected to have far-reaching impacts on marine ecosystems and the well-being of coastal communities that derive cultural and livelihood values from the ocean. Responding to changing coasts requires collaboration and knowledge that spans across disciplines, sectors, and ways of knowing. This panel discussion will focus on factors to promote adaptation and resilience in the face of widespread oceanic changes.

Panelists:



Dr. Natalie Ban

Natalie is an associate professor in the School of Environmental Studies at the University of Victoria on the unceded territory of the lək'wəŋən peoples. Natalie's research seeks to understand how we (humans) can govern and manage the oceans to achieve biodiversity conservation and human well-being. Much of her research is co-created in partnership with Indigenous peoples, coastal communities, environmental organizations and governments.

Dorene Bernard

Dorene Bernard is a Mi'kmaq Grassroots Grandmother of 9, mother of 4, and a Water Walker and Water Protector, and cultural teacher. She draws her strength and courage from the Indigenous women in her life; Survivors of Residential School, Elders, teachers, leaders, movers and shakers who inspired her social justice work, in Child Welfare, with Survivors of Residential School, on Mi'kmaq Treaty Rights, resisting Environmental Racism and awareness of the Missing and Murdered Indigenous Women and Relatives, and the protection of the water. She was the Coady Chair on Social Justice at Coady International Institute in 2017, focusing on educating in Indigenous perspectives on Indian Residential Schools, Mi'kmaq Treaty Rights, Environmental Racism, and Protection of the Water and Climate Justice.



Bill Collins

Bill's career spans almost 40 years and evolved from success in international science to success in business on the world stage. Bill was trained as a geologist and received a Master of Science degree from Memorial University. Since moving to the Victoria area in 1994 Bill has been responsible for bringing a locally invented sonar system to the world stage including sales to more than twenty navies and government institutions. As part of the ownership group of an award-winning high tech company, Bill has filled many corporate roles including M&A activities. Bill has a passion for creating and executing sound business plans and a strong belief in Vancouver Island business growth opportunity. Bill is the Chairman of Cascadia Seaweed.

Jesslene Jawanda

Jesslene is an Arctic fisheries researcher who grew up in Unama'ki (Cape Breton, Nova Scotia). After completing a Bachelor of Science from Dalhousie University and an Advanced Diploma in Ocean Technology from NSCC, they are now working in Nunavut toward 'Decolonizing Canada's fisheries' by lobbying for increased access to resources for Nunavummiut and supporting Indigenous led research. Through their current work with Qikiqtaaluk Corporation, Jesslene is developing a new inshore fisheries research program in partnership with coastal communities in Nunavut. This program will couple cutting edge ocean technology with Inuit Qaujimagatuqangit (Traditional Inuit Knowledge). In addition, they are engaged in global marine social advocacy as an All-Atlantic Ocean Youth Ambassador.



Panel Moderator:



Elissama Menezes

MSc. Elissama Menezes is a Latina woman living in K'jipuktuk, Mi'kma'ki (Halifax, Nova Scotia). She is an associate specialist in marine shipping and conservation at WWF-Canada and a Research Assistant at Dalhousie looking at the participation of Indigenous women in the Arctic climate change science. Elissama also runs an environmental NGO in Brazil focused on ocean and climate change advocacy and engagement with socially vulnerable coastal communities through art and sports. Her work focuses on the intersection of climate crisis solutions, environmental and social justice, and building communities.



Keynote Speakers



Dr. Deborah McGregor

Professor Deborah McGregor joined York University's Osgoode Hall law faculty in 2015 as a cross-appointee with the Faculty of Environmental Studies & Urban Change. Professor McGregor's research has focused on Indigenous knowledge systems and their various applications in diverse contexts including water and environmental governance, environmental justice, forest policy and management, and sustainable development. Professor McGregor, who is Anishinaabe from Whitefish River First Nation, Birch Island, Ontario, is involved with several SSHRC-funded project and is a graduate research supervisor.

Dr. Andrea Reid

Dr. Andrea Reid is a citizen of the Nisga'a Nation and a new Assistant Professor with the University of British Columbia's Institute for the Oceans and Fisheries. She is helping to launch and lead the Centre for Indigenous Fisheries, working to build a national and international hub for the study and protection of culturally significant fish and fisheries. Her research program adopts highly interdisciplinary and applied approaches to improving our understanding of the complex interrelationships between fish, people, and place.



Poster Session 1: Climate Change & Anthropogenic Impacts

Name: Mohamad Alikhani

Title: Sustainable Development of Offshore Renewable Energy in Marine Areas in the Context of International Law and Marine Spatial Planning

Abstract: Offshore renewable energy (ORE) can play an important role in sustainable development (SD) by ensuring states fulfill their international obligations to reduce greenhouse gases (GHG). ORE has also benefits for society by creating energy security and jobs. Most states have set specific targets to reduce GHG and one way to meet this target is by focusing on renewable energy. Coastal states should enact laws and policies consistent with SD and international law. Placing ORE in the marine areas may create some conflicts with the existing or planned human activities such as shipping and fishing and with ecosystem. Marine spatial planning (MSP), which is introduced for sustainable management of such activities and protection of the environment, should set clear objectives and policies for the development of ORE in the marine areas. MSP should contain policies that prioritize proposals for the development of ORE. A review of laws and policies in the selected states (Canada/in particular Nova Scotia, UK and Denmark) shows commonalities and differences, which are based on their geographical, social, economic and environmental choices.

Name: James Barclay

Title: A Potential Tool to Support the Prioritization of Blue Carbon Ecosystems in Canada

Abstract: Globally, climate change and various anthropogenic activities have contributed to a significant decline in coastal blue carbon ecosystems over the past decades. These ecosystems can accumulate and sequester carbon and are a vital natural resource to mitigate increasing atmospheric carbon dioxide concentrations. Canada has the longest coastline of any country, and it has a responsibility to seek to protect and restore these productive ecosystems. Sea-level rise is a predominant factor influencing coastal marshes ability to remain a carbon sink in the future. A potential decision-making tool is promoted utilizing the Sea-level Affecting Marshes Model and Natural Capital Projects Coastal Blue Carbon model. Requirements to improve the accuracy of using these models in Canada are isolated, and general limitations are discussed. A high-level quantification of current and future carbon storage and sequestration in blue carbon ecosystems throughout Canada would support future coastal land-use planning decision-makers.

Name: Tianna Clarke

Title: The Canadian Maritime Sector Perception of the International Maritime Organizations (IMOs) Short-Term Measures for Greenhouse Gas (GHG) Reduction

Abstract: In April 2018, the International Maritime Organization (IMO) adopted the Initial Strategy (IS) on reduction of greenhouse gases (GHGs) emissions, contributing to global climate efforts under the Paris Agreement. The Strategy presents a framework to achieve three levels of ambition towards GHG emissions reductions and includes short-, mid- and long-term measures to be adopted by member States. Globally, the contribution of GHGs from the shipping industry is expected to increase approximately 50% by 2050, under a business-as-usual scenario. Short-term measures proposed in the IS are anticipated to only have a modest impact on decarbonization effects and have been criticized by experts. Presently, the Canadian maritime shipping industry's perception of the proposed short-term measures is unknown. This study seeks to bridge this knowledge gap through a series of semi-structured interviews. The results of this study will be used to inform future engagement with Canadian maritime stakeholders and will play a strategic role in strengthening IMO targets in Canada to better align with Paris Agreement temperature goals.

Name: Megan Fraser

Title: Assessing Impacts of Industrial Effluent on Nutrient Cycling and Food Web Length in a Coastal Marine Ecosystem using Compound Specific Isotope Analysis

Abstract: Industrial pulp and paper mills discharge organically rich nutrients in the form of effluent into receiving environments which can have negative implications on aquatic biota. Naturally occurring stable isotopes of nitrogen are a prolific, effective tool that can establish the exposure of aquatic biota to effluent by measuring the incorporation of nutrients into an organism's tissues. This research will occur along a coastal marine environment of the Northumberland Strait, formerly the receiving waters for pulp mill effluent from an adjacent wastewater treatment facility, Boat Harbour, Nova Scotia. This research will identify the spatial extent of effluent exposure to aquatic organisms and determine if exposure to effluent alters the length of food webs. Compound specific isotope analysis will be performed to identify differences in nitrogen sources along a spatial gradient and to calculate trophic position for a variety of organisms representing multiple trophic levels in the coastal ecosystem. This research will assist in quantitatively characterizing the biogeochemistry of an ecosystem impacted by effluent and assess the impacts of effluent on food web structure.

Name: Francheska Krysiak

Title: Anthropogenic Influences on Declining Reef Fish Communities in the Bay Islands, Honduras

Abstract: The Bay Islands of Honduras are home to over 500 species of fishes, and vast areas of coral reefs, seagrass, and mangroves. The Bay Islands National Marine Park [BINMP] was established in 2010; however, numerous anthropogenic impacts persist (e.g., intensive coastal development, cruise-ship tourism, over-fishing, limited wastewater infrastructure). In 2020, severe declines in commercial and herbivorous fish biomass were reported. Human pressures and continued environmental degradation threaten the well-being and livelihoods of island communities. Underwater visual surveys on SCUBA (n = 155) were used to gather abundance data of 63 fish species in shallow coral reefs (0 – 30 m), across 27 sites in the BINMP from April – June 2021. Fish biomass estimations were calculated using established Atlantic and Gulf Rapid Reef Assessment methods, then compared with past data. Anthropogenic impacts and environmental factors were quantified via literature review. Reef fish biomass, community composition, diversity, species richness, and fish density differed across sites, and across gradients of human impacts within the park. These research findings will be the basis of recommended approaches to improve current management and address ongoing anthropogenic pressures throughout the BINMP.

Name: Shuyi Li

Title: How do Marine Affairs Graduate Programs Prepare their Graduates to be Ocean Literate Citizens?

Abstract: Marine affairs graduate programs can cultivate ocean literate citizens who are equipped with ocean-related knowledge and skills. These programs can contribute to worldwide sustainable use of ocean, ocean protection and restoration, because their graduates could use their interdisciplinary knowledge and skills to manage ocean programs, solve ocean-related issues/problems and lead ocean campaigns. However, limited research has been done on how these graduate programs prepare ocean literate students and how their graduates contribute to ocean literacy development. Therefore, this graduate project will evaluate how well marine affairs graduate programs prepare their graduates to become ocean literate citizens, and explore how graduate use the skills, knowledge, and experience from the programs in their professional and personal environment. The main method of this GP is case study (on marine affair program in Dalhousie University), and a desktop analysis and a survey will also be conducted. The result will give a general understanding of the research topic, and suggestions on how to improve ocean education of these programs will be developed based on the result.

Name: Emma Snowdon

Title: Transdisciplinary Collaboration and the Co-production of Knowledge: Assessment of the Apoqmatulti'k Project as a Knowledge Mobilization Catalyst

Abstract: The concept of mobilizing knowledge is receiving increasing attention, with research efforts being allocated to an increased understanding on knowledge mobilization processes and its application to a real-world setting. The Apoqmatulti'k Project is a three-year collaborative partnership that focuses on co-producing knowledge across diverse knowledge systems: western, local, and Mi'kmaw knowledge. Adopting a Two-Eyed Seeing approach, this project has resulted in mobilizing knowledge across sectoral and cultural space, building the capacities for the Bay of Fundy and Bras d'Or Lake communities. The aims of this study are to evaluate the Apoqmatulti'k Project in its ability to bridge, co-create, and mobilize knowledge, applying these insights to further our understanding on knowledge mobilization, and expand the already growing body of literature.



Oral Session 1: Fisheries Management

Name: Jaclyn Franceschini

Title: How Decision-Making in Fisheries Management Contributes to Changes in the Fishery: A Case Study of North Atlantic Swordfish

Abstract: Fisheries management must constantly adapt to changes in stock status, shifts in effort, and national and international policy. The North Atlantic Swordfish Fishery is an interesting case study because of the migratory range of the target species, variability of the stock status, and the variety of management actions applied at national and international scales over the past six decades. Despite the dynamic nature of this fishery, there is a lack of documentation of the management history and how behaviour of the Canadian fleet changed in response to national and international agreements, new gear types, and different quota allocation schemes. The objectives of this project are (1) produce a timeline of the management changes affecting the Canadian North Atlantic Swordfish Fishery, and (2) examine for relationships between management changes and patterns in the fleet over time and space, specifically, the introduction of gear-based allocations in 2000 and the shift to an ITQ system in 2002. These outputs will support the creation of improved North Atlantic Swordfish population models and management measures that better account for fleet dynamics.

Name: Victoria Cullen

Title: Understanding Dynamics of Fisher Representation: Case Study on the Mitigation Measures to Protect the North Atlantic Right Whale

Abstract: There is growing recognition of the importance of involving stakeholders in marine governance to enable the inclusion of the interests of those whose livelihoods are directly linked to the marine ecosystems. This study aims to understand the perceptions of fish harvester organizations in the representation of the interests of fish harvesters in Atlantic Canada. It employs a case study approach, utilising semi-structured interviews to evaluate fisher representation during the development of mitigation measures to protect the endangered North Atlantic right whale. The NARW population have faced an Unusual Mortality Event since 2017, with gear entanglements and vessel strikes as the leading cause of death. This case study has been selected for the consequences on the operations of fish harvesters throughout the Gulf of St. Lawrence. It is argued that effective participation of harvesters in the design of mitigation measures can contribute to improvements, whereby fishers can contribute to measures that are reflective of local circumstances. This study will identify challenges and opportunities to improve the way that fishers' livelihoods are integrated into policy and management.

Name: Martin Ostrega

Title: Evaluating Pragmatic Strategies for Conserving Bonefish in Cuba: A Focus on Spawning Aggregation Management

Abstract: Species that congregate in large numbers for the purpose of reproduction in spatially and temporally distinct locations can be extremely susceptible to overexploitation. Many fishes, such as bonefish (*Albula spp.*) form spawning aggregations that are intentionally targeted for harvest, as fishermen can catch the largest number of fish with the least amount of effort. Bonefish are important constituents for Cuban societies, environments, and the economy, and they need effective fisheries management. By conducting a systematic literature review that evaluates effective spawning aggregation management approaches implemented globally, a management framework for bonefish pre-spawning aggregations (PSAs) and migration corridors in Cuba has been developed. This framework was presented to a panel of experts through an expert elicitation process to determine potential PSA and migration route management strategies that are feasible, achievable, and representative of local context. It is vital to link site-focused partners to actively manage and cooperatively monitor bonefish PSAs to ensure this species is conserved in Cuba and throughout the Wider-Caribbean-Region.



Poster Session 2: Species & Habitat Protection

Name: Lisa Baxter

Title: Evaluating Canada's Single-use Plastic (SUP) Mitigation Policies via Brand Audit and Beach Clean-up Data

Abstract: Single-use plastics (SUPs) represent a major threat to marine environments and require proactive policies to reduce consumption and improper disposal. A range of SUP mitigation strategies are available to deter SUP use and mitigate environmental impacts, including extended producer responsibility, deposit-return schemes, SUP bans, and public outreach and education strategies. Within Canada, current SUP management approaches are fragmented, and proposed federal approaches may be insufficient to adequately minimize SUPs. Through this study, brand audit and beach clean-up data were analyzed for multiple locations across Canada including densely populated cities and a remote island (Vancouver, Toronto, Montreal, Halifax, and Sable Island) to determine the efficacy of ongoing SUP mitigation measures in Canada. Results support that current Canadian SUP measures do not adequately address producer responsibility, and overall, current measures appear to be insufficient to address improper disposal of SUPs into the environment. Recommendations to strengthen current SUP management strategies and mitigate marine plastics are suggested with the goal of improving future Canadian SUP reduction policies.

Name: Lucas Bent

Title: The Identification of Federal Legislative Tools for Implementing Ecosystem-Based Protections of Swiftsure Bank: Lessons from a Small Ecological Reserve

Abstract: As a signatory to the Convention on Biological Diversity, Canada committed to establishing a network of marine protected areas (MPAs) that effectively conserve at least 10% of coastal and marine areas by 2020. In meeting this goal, Canada has now set its sights on preserving 25% of marine and coastal areas by 2025 and 30% by 2030. MPAs have shown they can offer real protections, however, they also run the risk of tokenism and offering little protection if placed arbitrarily, and not appropriately matched to the ecosystem or species they are designed to conserve. On the coast of British Columbia, Canada, a recurring challenge for cetacean protection is the need to identify areas large enough to be biologically meaningful, while small enough to allow for effective monitoring and enforcement of human activities. Through an assessment of Canadian legislation, and applying lessons the Robson Bight Michael Bigg Ecological Reserve as a case study, this paper identifies potential tools for cetacean conservation within ecosystem-based protections in the area of Swiftsure Bank.

Name: Aaron Cogger

Title: An Analysis of Arctic Conservation Data Gaps and Future Research Needs Assessment

Abstract: Arctic species are expected to be disproportionately more impacted by the effects of climate change than their temperate and tropical counterparts, but the true extent of by how much is unknown. While vulnerability assessments can be useful in identifying which species to prioritize in future conservation initiatives, the comparative lack of research performed in the Arctic limits their true potential until more information can be required. A literature review on the current data available for 12 Arctic species across 4 taxonomic groups was conducted, along with a comparative analysis of multiple vulnerability assessment frameworks to see which strategies are most suitable for Polar marine management research. Trait based assessments are likely more effective than other frameworks due to the lack of accurate population data, but gaps remain. Cetaceans vulnerability is easiest to assess, due to the extensive literature base for multiple species, while lesser studied species such as the Greenland Shark remain difficult to accurately assess.

Name: Nidhi D'Costa

Title: The Effects of Anti-Finching Legislation on Global Shark Mortality

Abstract: According to the IUCN Redlist of Threatened Species, around 30% of 1041 chondrichthyan (sharks, rays, skates and chimeras) species are considered to be threatened with extinction. This is mostly due to overfishing arising from both: (i) targeted and (ii) non-targeted fisheries. Sharks are targeted for their valuable parts such as: fins (shark finning), meat (fresh and dry both), liver oil and others. In many cases, fins are even retained when sharks are caught as bycatch. Coupled with an expanding market for shark finning, multi-folded increase in relative fishing pressure has caused populations of sharks and rays to decline drastically (about 71%) since 1970. To impede such declines, anti-finching legislations were imposed over many jurisdictions since the 2000s. However, shark-finching still continues in many nations due to weak enforcements and high monetary incentives associated with the fin trade. Therefore, this research aims to understand how the changes in anti-finching legislation at the Regional Fisheries Management Organizations (RFMO) and country level affected the incidence of finching, and total shark mortality over the last 20 years.

Name: Philippe Mongeon

Title: Mobilizing Research in the Public Sphere: A Case Study of Research on Sharks

Abstract: Development of effective and sustainable ocean policy and management requires a strong knowledge base and contributing to that knowledge is one of the core functions of science. Effective communication of research to stakeholders is crucial as it can shape the understanding of an issue by the public and stakeholders, and thereby inform policy and practice. Our work uses bibliometric, altmetrics and text-mining of published research on sharks to identify distinct research clusters and their associated topics. We then shed light on the varying degree of visibility that these clusters have on social media, news reports, and policy, and discuss the risks that unequal or biased attention to research can pose to the public understanding of shark-related issues and for policy development. Finally, we analyze how researchers themselves contribute to the dissemination of shark-related research on social media. The poster concludes by noting the importance of fostering engagement between stakeholders for a better alignment of research with societal needs and a more effective translation of knowledge into sustainable practices.

Name: Bruno Padovese

Title: Detection of the North Atlantic Right Whale upcall using Artificial Intelligence

Abstract: The North Atlantic Right Whale (NARW) population has been declining since 2010 in part due to collisions with ships and entanglements in fishing gear. With only ~400 individuals left, the NARW has been put on the endangered species list in Canada. The detection of the NARW upcall using acoustics is useful in determining the location of these whales e.g., to alert ships when the whales are close. Automated detection algorithms are critical for implementing such alert systems, but existing algorithms are not sufficiently accurate; they easily get confused by background noise. Previously, passive acoustic monitoring (PAM) has been used to determine the time-frequency characteristics of the NARW upcall to differentiate the upcall from other whale calls and background noise. Our work combines Artificial Intelligence with a physical model of the human auditory system in order to improve the detection algorithms.

Name: Dane Pedersen

Title: Trust, Control, and Risk in the Salish Sea: A Case Study of the Transboundary Network Governing the Endangered Southern Resident Killer Whale

Abstract: The Salish Sea is the inland body of water between Vancouver Island and the mainland of British Columbia and Washington. It is home to the endangered southern resident killer whale (*Orcinus orca*) whose management depends on the successful collaboration of multiple agencies through a transboundary governance network. Previous research suggests that different dimensions of inter-organizational trust are essential for collaboration, in addition to related dimensions of control and perceived risk. Using key informant interviews with policy actors working for different organizations in Canada and the USA, we sought to better understand how trust, perceived risk and control interact to affect interorganizational collaborative performance. Preliminary results will be shared highlighting potential network management strategies that can enhance the transboundary governance of southern resident killer whales.



Oral Session 2: Public Perceptions

Name: Lisa Chen

Title: Developing a Canadian Ocean Literacy Evaluation Framework

Abstract: With the launch of the UN Decade of Ocean Science and the Canadian Ocean Literacy Strategy (the Strategy) this year, there has been increased recognition of the need for ocean education at all levels to increase ocean literacy. According to the Strategy, ocean literacy in Canada is multi-dimensional and includes ocean knowledge, value, and action. To help guide the implementation of the Strategy and better understand the different dimensions of ocean literacy, an evaluation framework was developed using literature review and informal brainstorming discussion with subject experts. The framework was tested using online anonymous surveys with Ocean Week Canada participants as a pilot study. It was found that the short surveys have effectively captured a holistic view of ocean literacy evaluation. The outcome of the research will help guide the implementation of the Strategy to raise ocean literacy in Canada and serve as a guidance tool for other ocean literacy initiatives around the world.

Name: Tamanna Moharana

Title: Public Discourse on Open Net-Pen Salmon Aquaculture in Nova Scotia: Analysis of News Media Coverage

Abstract: Farmed salmon is a large component of the Atlantic Canada aquaculture industry. However, open net-pen salmon farming is contentious in some coastal areas of the region. Provincial government efforts to expand salmon open net-pen aquaculture in Nova Scotia have incited mixed views on the industry and multiple stakeholders have been engaged in the discussion. Public perception and community acceptance are crucial requisites to the implementation and expansion of this form of aquaculture. Since the news media are important for reporting public perception and stakeholders' views, this study examined the public discourse reported in the news media on open net-pen aquaculture in Nova Scotia. Content analysis was conducted on 60 news articles, opinion pieces, and open letters published between 2014 and 2021 to identify various stakeholders and determine public understanding and community-level sentiment about salmon aquaculture. The study sheds light on the need for improved stakeholder engagement and the importance of fostering transparency, open communication, and public trust for inclusive aquaculture development in Nova Scotia.



Oral Session 3: Technology

Name: Caelin Murray

Title: Observing the Movement Patterns and Seasonal Habitat Use of American Eel (*Anguilla Rostrata*) in the Bras D'or Lake Estuary using Integrative Knowledge Systems and Acoustic Remotely Sensed Data

Abstract: The American eel (*Anguilla rostrata*) is a single breeding long-lived catadromous species that are ecologically important in both fresh and marine environments. American eel is culturally significant to Indigenous peoples for food and sustenance and are a key species in traditional, recreational, and commercial fisheries. Due to overfishing at juvenile life stages, anthropogenic developments, and changing ocean conditions the abundance of American eel have declined. This species was once abundant in the Bras d'Or Lake estuary a unique watershed necklaced with coastal lagoons. Coastal estuaries and lagoons are highly productive and provide rearing and foraging grounds for eel. Little is known about how American eel use coastal estuaries and lagoons, and the extent they remain in these habitats. The purposed research aims to integrate Mi'kmaq Ecological Knowledge, acoustic telemetry, and acoustic remotely sensed data to gain a collective understanding of the seasonal movement patterns and habitat use of American eel in the Bras d'Or Lake. Results of this project will contribute to develop co-management recommendations towards the stewardship of eel and eel habitat.

Name: Osanna Drake

Title: Visualizing Compliance: Leveraging Big Data to Analyze Illegal Vessel Activity in Marine Protected Areas

Abstract: The push to protect 30% of the planet's lands and seas by 2030, commonly referred to as "30x30", has garnered support from governments and nonprofits worldwide, and was a major focus of the 2021 IUCN World Conservation Congress. However, the success of the 30x30 initiative and conservation areas broadly is undermined by non-compliance. This is particularly true in the ocean, where remoteness and spatial extent increase the difficulty of monitoring and enforcement. This study leverages publicly available data from the Global Fishing Watch (GFW) platform to explore how illegal fishing in marine protected areas (MPAs) has changed over time. Understanding trends in commercial vessel compliance with MPA regulations can inform targeted management strategies to reduce illegal fishing and promote the sustainable use and effective conservation of marine resources. Furthermore, these findings demonstrate the potential of GFW data to increase the accessibility of dynamic MPA management far beyond the 30x30 target.

Name: Ying Hui Lee

Title: Challenges of Electrifying Cruise Tourism in Atlantic Canada

Abstract: Cruise tourism has been an important economic source to Atlantic Canada. The region's rapidly growing cruise tourism generated CA\$129 million of direct economic impacts and thousands of jobs in 2016. With Canada's national net-zero target by 2050, cruise tourism needs immediate planning to reduce their carbon footprints. This paper aims to explore the socio-economic and governance challenges that may arise during the transition to zero-emission cruise tourism for various provinces in Atlantic Canada. Both qualitative and quantitative data will be collected primarily from publicly available sources online and processed by document analysis. The anticipated results will include possible challenges associated with different transitional stages of zero-emission cruise tourism and different aspects of obstacles that require collaboration from stakeholders. To assist Atlantic Canada to achieve its net-zero target, several recommendations will be provided for the governments in Atlantic Canada to prepare for one of the century's biggest "revolution" in cruise tourism.



Poster Session 3: Governance & Livelihoods

Name: Fadal Al-Ajdaa

Title: Safety in the Canadian Commercial Fishing Industry

Abstract: Commercial fishing is one of Canada's earliest and longest-running industries. This sector employs tens of thousands of fish harvesters, supports hundreds of coastal communities, and generates billions for the country's economy. The commercial fishing industry has undergone various changes in the past century, making it expand in some areas and collapse in others. Despite the advancements in ships technologies and construction, safety has not improved much, and the industry remains one of the riskiest industries for workers—most of the shipping accidents in Canada involve fishing vessels. Safety issues in this industry can be attributed to various factors such as the human element, unfavorable weather conditions, lack of training, inadequate operating practices, poor ship stability, improper cargo storage and distribution, and lack of adequate safety regulations and enforcement. This research explores the common causal factors of commercial fishing accidents in the Atlantic region and the underlying circumstances that directly and indirectly contribute to these accidents. The results from this research's analysis will provide a clearer picture of the safety issues in the commercial fishing industry and how they can be best addressed.

Name: Leah Fulton

Title: Untangling the Problem of Abandoned, Lost, and Discarded Fishing Gear: Effectiveness of Side-Scan Sonar as a Gear Detection Method in Clarks Harbour, Nova Scotia.

Abstract: Southwest Nova Scotia (SWNS) is considered the most productive lobster (*Homarus americanus*) fishing area in Atlantic Canada. Distributed throughout the region, abandoned, lost, and discarded fishing gear (ALDFG) may be reported; however, not always found. This study is the first of its kind in Atlantic Canada where side-scan sonar is used to locate ALDFG on the seafloor prior to ALDFG retrieval. This research contributes to the wider Collaborative Remediation of Abandoned, Lost and Discarded Fishing Gear in Southwest Nova Scotia led by Coastal Action. Focused out of Clarks Harbour, Nova Scotia, side-scan sonar survey design was developed by referencing environmental variables and lost gear hotspots. In June 2021, 24 side-scan sonar survey transects were conducted and processed to inform ALDFG retrieval. The results will identify baseline outcomes of the effectiveness of side-scan sonar as a gear detection method, bridge knowledge gaps regarding the use of side-scan sonar for gear retrieval and contribute to developing a more comprehensive understanding of lost gear distribution patterns in SWNS.

Name: David Marrack

Title: Co-Operation of Harbour Facilities in Isolated and Island Communities

Abstract: Coastal shipping is a crucial element in the survival of isolated and island communities along Canada's west coast. Marine transport ranges from fuel and food to tourism, and the commute to services unavailable in smaller communities. However, rising fuel prices and other costs can make the service to small communities marginal or unprofitable; this is especially a concern for so-called "lifeline" services, for which no alternatives exist, such as passenger service for medical reasons. While a variety of potential avenues exist to maintain these crucial services, a seldom-explored opportunity involves co-operation of harbor facilities, from maintenance work to retail and administration in situ. Using existing literature, interviews with leaders in the marine transport field, and a skill-availability analysis of select coastal communities, this paper will demonstrate the potential advantages of involving communities directly in the operation of harbor facilities, potential barriers to effective use, and adjacent concerns to such an initiative.

Name: Daniel Martinez Calderon

Title: Coming to Ocean Management: Marine Spatial Planning with Meaningful Stakeholder Engagement.

Abstract: Marine Spatial Planning (MSP) has been designed to support ocean and coastal management. One of the main critiques of global applications of MSP is tokenistic stakeholder engagement. An analysis of MSP literature has identified five key elements for effective stakeholder engagement. 1. Stakeholder inclusion results in understanding and minimization of conflicts, and legitimization of MSP processes. In contrast, exclusion generates poor communication; perceptions of deliberate exclusion; fragmentation of scale, governance, and space; and lack of specificity. 2. Application of stakeholder engagement principles include fostering empowerment, equity, trust, and learning of stakeholders; clear identification of stakeholders and objectives; use of context-based methods and highly skilled facilitators; and integration of local and scientific knowledge; 3. Stakeholder engagement should be implemented early and applied to all phases. 4. Typical engagement methods include surveys, interviews, workshops, and stakeholder committees. 5. Stakeholder engagement challenges encompass establishing a legal base for engagement, empowering stakeholders, and drawing on local government leadership. Attention to these five elements can overcome tokenistic stakeholder engagement.

Name: Monica Ragan

Title: Small Craft Harbours in Nova Scotia, Canada: Examining the Livelihoods Beyond the Commercial Fishery

Abstract: Small craft harbours (SCHs) are vital to the coastal economy of Nova Scotia. SCHs have a direct relationship with the ocean, the fishers, and the economy. However, the connection SCHs hold for communities and users is poorly understood. This research examined the role SCHs in Nova Scotia have for their users and communities by employing semi-structured interviews utilizing the sustainable livelihoods approach framework and a media analysis. Results indicate that SCHs do enhance, threaten, or in some cases, have no impact on livelihoods. Most results aligned with SCHs enhancing livelihoods in the realms of community, activity, and economy. However, a key threat participants noted was poor infrastructure, likely attributed to insufficient funding from the federal government. In contrast, the media analysis revealed the federal government was providing funds for SCHs in Nova Scotia. A key concern with a lack of funds was the impact of storms and weather events and the inability to maintain the facilities due to natural erosion, band-aid repairs, and climate change. Overall, this study indicates the value of SCHs to sustain communities beyond the economic domain.

Name: Stephen Tiller

Title: Sustainable Shipping Management in Canadian Waters - An Integrated Communal Risk Framework

Abstract: The shipping industry is a fundamental pillar in Canada's economy and identity as a coastal nation. However, an array of obstacles are present that create both risks from ships and risks to ships. Previous research has primarily focused on people and groups in Canada that involve shipping risk, and individual case-by-case risk assessments. There are numerous risk assessments for the shipping industry in Canada, but arguably too wide of a diversity which causes unreliable outcomes. In order to avoid gaps and risk redundancy, this research analyzes a potential communal risk framework for studying, evaluating, and managing shipping issues in Canada. We use data and risk criteria from various shipping methods across the globe in order to formulate a risk framework that can be used by industry, government, and recreational mariners alike. The findings indicate that there are an abundance of measurable risk frameworks that could be implemented for Canada's shipping industry, with various advantages and disadvantages of each.



Oral Session 4: Knowledge & Representation

Name: Jillian Conrad

Title: Canada's Ocean Policy: Assessing Enabling Governance Conditions for Implementation of a National Blue Economy Strategy

Abstract: An international consensus has been reached regarding the need for sustainable and equitable ocean management practices. Such practices can be implemented through diverse marine-based strategies that focus on ecological, social, and economic domain integration, broadly known as Blue Economy (BE) development. Canada is in the initial phases of developing an integrated BE strategy, both modernizing its ocean governance and reaffirming its position as an ocean leader. This study conducts a two-part federal policy and legislative analysis to determine Canada's regulatory capacity for developing a national BE strategy. First, a brief sector-based national resource assessment established a need for BE development. Second, enabling federal governance conditions were identified and categorized into unique subsets of BE pillars based on the Cisneros-Montemayor et al., 2021 framework, then assessed for governance emphasis based on the Daly et al., 2021 model. Overall, governance capacity is strong across the economic and environmental domains, though is lacking across multiple subsets of social equity. Development of equitable federal policies and legislation will optimize marine and coastal industry processes and identify new areas for expansion while recognizing diverse coastal needs.

Name: Mia Strand

Title: Integrating Indigenous and Local Knowledge in Marine Spatial Planning through Arts-Based Participatory Research

Abstract: Although the importance of integrating indigenous and local knowledge systems (ILKS) in ocean governance has been established in the literature, there are no clear answers as to how best to do this in practice. Simultaneously, there is a recognised lack of research on the cultural dimensions of ecosystem challenges, and cultural interactions with coastal environments remain poorly understood in both South Africa and beyond. Culture plays a significant role in ILKS, but also in existing ocean governance strategies more broadly, and failing to properly recognise its importance can hinder collaborative management, reduce trust and reproduce social inequalities. Acknowledging that arts-based participatory research (ABPR) have been found to support the process of identifying, recognising and analysing different ways of knowing the ocean and culturally significant areas, this project develops and utilises ABPR methods with indigenous and local knowledge holders as co-researchers to identify pathways to integrate ILKS in marine spatial planning in Algoa Bay, South Africa.

Name: Kaitlyn Curran

Title: Inclusive Marine Spatial Planning: Exploring the Health Benefits and Barriers of Accessing Coastal Spaces

Abstract: Despite the growing acknowledgement within the academic literature that human wellbeing is an important aspect of marine spatial planning (MSP), research and practice continues to neglect this concept. Specifically, the consequences of marine development and climate change on human health is absent from ocean governance processes and needs to be addressed. Human health and spatial planning frameworks may be employed in combination to investigate this issue. This study utilizes an online mapping and survey software to explore study participant's perceptions of the health benefits and barriers of participating in coastal activities within Halifax Regional Municipality, Nova Scotia, Canada. Recommendations have been made based on this study's findings to provide insight into the participatory methodology that may be used to gather human health MSP data while enabling marine managers to make more informed decisions about how to best consider social objectives within MSP. Further application of this participatory mapping approach to gather human health data, particularly to collaborate with diverse population groups is recommended.

Name: Shannon Landovskis

Title: Shared Knowledge to Identify American Lobster/Jakej (*Homarus americanus*) Movement Patterns and Habitat Use in the Bras d'Or Lake/Pitu'pok

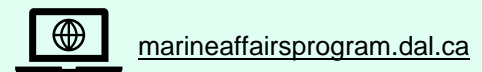
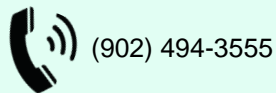
Abstract: Using Two-Eyed Seeing, this project aims to identify lobster movement and habitat use in the Bras d'Or Lake. It is part of a larger project, Apoqmatulti'k (Mi'kmaw: "we help each other"), which is a 3-year collaborative research project that will enhance aquatic stewardship through the valuing of Indigenous, local, and western knowledge. The project is made up of diverse knowledge holders who have come together to build genuine relationships and to learn from and with each other. The unique framework of the project will result in a deeper understanding of the movements and habitat use of Atlantic tomcod/punamu (*Microgadus tomcod*), American eel/katew (*Anguilla rostrate*), and American lobster/jakej (*Homarus americanus*), within two ecosystems, the Bay of Fundy and the Bras d'Or Lake. Specific to the work on lobster in the Bras d'Or Lake, the conclusions drawn will inform management in a manner that values different ways of knowing and thus enhance the stewardship of the lobster.



Marine Affairs Program

The [Marine Affairs Program](#) 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. Through its worldwide network of faculty, graduates, and associates, the research and expertise developed in the MAP program influences marine policy decisions around the globe.



WWF-Canada

[World Wildlife Fund](#) (WWF) is one of the world's largest and most renowned leaders in conservation. As part of the WWF global network, founded in 1961 and active in more than 100 countries, WWF-Canada actively contributes to the achievement of the organization's mission: to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature. WWF-Canada has an ambitious national oceans program and eight offices across the country. The Atlantic Region is home to two of them, one in Halifax, NS since 2001 and one in St. Johns, NL since 2007, both of which focus on issues pertaining to marine conservation.



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The Sobeys Fund for Oceans is based on a generous and innovative gift from the Donald R. Sobeys Foundation. The gift provides support for the development of a conservation legacy for oceans, specifically through the funding of scholarships and work placements. The Sobeys Fund for Oceans will provide the strong foundation onto which we aspire to build greater investment into the broader work of both WWF-Canada and Dalhousie's Marine Affairs Program.



The Ocean Tracking Network (OTN) is a global aquatic research, data management and partnership platform headquartered at Dalhousie University in Halifax, N.S. A global community of researchers is using OTN's infrastructure and analytical tools to track the movements and survival of more than 245 keystone, commercially important and/or endangered species including marine mammals, sea turtles, squid, crab, lobster, and fishes such as sharks, sturgeon, tuna, salmonids, and cod. OTN's mission is to inform the stewardship and sustainable management of aquatic animals by providing knowledge on their movements, habitats, and survival in the face of changing global environments.



Big Spruce Brewing - Tag! You're it!: An intensely tropical and generously hopped IPA brewed in collaboration with the Ocean Tracking Network where 50 cents from every can goes to support local and global marine animal research & education. This year funds will go to support the conservation of the critically endangered North Atlantic right whale, that relies on the plankton-rich waters of the Maritimes, yet faces dire threats from ship-strikes, fishing entanglements and climate-driven changes in food sources and habitat. OTN's aquatic robots listen for whales to alert ships of their presence and help reduce strikes.



The Marine Environmental Observation, Prediction and Response Network (MEOPAR) is a national Network of Centres of Excellence linking top marine researchers and highly-qualified personnel with partner organizations and communities. MEOPAR funds leading-edge research, overcomes barriers to collaborative research and helps to train the next generation of marine professionals.



The Faculty of Science is Dalhousie University's largest faculty, with eight departments and over 3,500 undergraduate students and 400 graduate students. Our world-class professors, graduate students and undergraduate students conducted more than \$26-million in research last year and our faculty is committed to giving students an educational experience that is filled with collaboration, skill building, and innovation. Together, our students, faculty, staff and alumni show enthusiasm for the wonder of science and a passion to share their knowledge with the world.



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Oceana Canada is an independent charity established to restore Canadian oceans to be as rich, healthy, and abundant as they once were through science-based policy change. Oceana Canada has successfully campaigned to end the shark fin trade, make rebuilding depleted fish populations the law, improve the way fisheries are managed and protect marine habitat. We work with civil society, academics, fishers, Indigenous Peoples and the federal government to return Canada's formerly vibrant oceans to health and abundance. By restoring Canada's oceans, we can strengthen our communities, reap greater economic and nutritional benefits and protect our future.



With fifty years of experience, BMR delivers structural engineering services throughout Atlantic Canada. Leaders in innovation and quality, BMR commits each project to green building and sustainability. From new buildings, to wharves and retaining walls, which has resulted in the Leadership in Energy and Environmental Design (LEED) certification.



Community-minded provider of fresh and fresh-frozen seafood, located in Nova Scotia. We are dedicated to bringing low-impact fishing traditions back to the plates of consumers.



The Canadian Sea Turtle Network is a charitable organization working to conserve endangered sea turtles in Canadian waters and beyond.

THANK YOU TO ALL OUR SPONSORS!



Acknowledgments

On behalf of the 2020-2021 cohort of Master of Marine Management (MMM) students, we would first like to thank our oral and poster presenters, our panelists, our keynote speakers, panel moderator, conference facilitator, judges, and contributors who dedicated their time and expertise to the 2021 Sustainable Ocean Conference. Your continued support, year after year, is what makes the Sustainable Ocean Conference the success it is today.

This event would not have been possible without our sponsors and supporters. Thank you to World Wildlife Fund (WWF) for their continued partnership with MMM; our gold-level sponsors: Sobey Fund for Oceans, Ocean Tracking Network & Big Spruce Brewing, Dalhousie University's Faculty of Science, the Marine Environmental Observation Prediction and Response Network (MEOPAR), and Labatt Brewing Company; our silver-level sponsor: Oceana Canada; our bronze-level sponsor: BMR; and, our prize sponsors: Afashionado, and the Canadian Sea Turtle Network. Thank you Leah Fulton for the conference logo design. Thank you Jane Sobey for presenting the Sobey Scholarship awards that financially support educational opportunities for future ocean leaders. The Sustainable Ocean Conference is made possible through the continued support of the Sobey Fund for Oceans.

We would also like to extend our gratitude to our keynote speakers, Dr. Deborah McGregor, and Dr. Andrea Reid. We are thankful for your participation in the conference, and for sharing your wealth of knowledge with the conference community. Additional thanks to our panel: Dr. Natalie Ban, Dorene Bernard, Bill Collins, and Jesslene Jawanda, as well as the panel moderator: Elissama Menezes. Your diverse backgrounds bring together a unique combination of perspectives and we look forward to a thought-provoking discussion.

Sustainable Ocean would not be possible without the hard work of the MMM class of 2020-2021. We are so thankful to every student in the class for the countless hours dedicated to making the 2021 conference a success. Special thanks to the committee leads: James Barclay and Jackie Franceschini for Logistics; Kaitlyn Curran for Submissions; Tianna Clarke and Lisa Baxter for Marketing and Outreach; and Leah Fulton for Fundraising. A further thank you to the committee leads for their patience and leadership during the planning and execution of this conference; time zones and email make for difficult communication. In addition, we would like to extend our gratitude to our conference coordinator Rachel Rickaby for her guidance throughout the conference planning.

To the Marine Affairs Program Faculty, including the Sobey Fund for Oceans Committee members, and especially Becky Field, thank you for your guidance during the planning process. To the incoming 2021-2022 Marine Affairs students, thank you for volunteering your time for the conference while trying to settle into a new program. We truly appreciate your help and enthusiasm to be involved in the conference. We wish you all the best for organizing Sustainable Ocean Conference 2022, hopefully back in-person once more!

Finally, thank you to anyone who supported us in some way and didn't see your name listed. Please know that we are eternally grateful for your support. Thank you once again to everyone for supporting this conference and allowing us to put on such a successful event.

Sincerely,

Lisa Chen and David Marrack
Conference Co-Chairs | Sustainable Oceans 2021

