

# Sobey Fund for Oceans



## 2018



September 22<sup>nd</sup> and 23<sup>rd</sup>  
Dalhousie University Student Union Building, 2<sup>nd</sup> floor

The conference is a key activity of the Sobey Fund for Oceans



# Sustainable Oceans Conference

September 22<sup>nd</sup> and 23<sup>rd</sup>, 2018  
Dalhousie University, Halifax, NS

Sustainable Oceans is an annual conference organized by the Master of Marine Management Students of the Marine Affairs Program at Dalhousie University in Halifax, Nova Scotia. In its seventh year, the Sustainable Oceans Conference is the only student-led conference of its kind in Atlantic Canada. This year, the conference aims to promote behavioural change and improve ocean literacy to help people reconnect with the marine environment and inspire ocean-positive choices in our daily lives. Inspiration for this goal will be explored through our three sub-themes: connection, innovation, and optimism.

## **Key objectives of Sustainable Oceans 2018:**

- Encourage sustainable choices
- Improve ocean literacy
- Provide a platform for student research
- Facilitate conversation between the public, academics and industry
- Bring together the community to celebrate ocean optimism



# The Sobeys Fund for Oceans

The Sobeys Fund for Oceans was made possible by a generous and innovative gift by Donald R. Sobeys 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 Sobeys Fund for Oceans is to inspire innovative multi-disciplinary approaches for creating healthy oceans and sustainable economies. The Sobeys 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



*“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 Sobeys, The Donald R. Sobeys Foundation

## Sobeys Fund for Oceans Advisory Group

**Claudio Aporta**

Dalhousie University

**Lucia Fanning**

Dalhousie University

**Becky Field**

Dalhousie University

**Jon Grant**

Dalhousie University

# Sobey Fund for Ocean Scholarship Recipient 2018-2019

“As I enter the Marine Management program at Dalhousie, I am appreciative of the support from the Sobey Fund for Oceans to pursue my research interests. With a background in nutrition and healthcare, I am passionate about creating environments that are supportive of health for all. A key component of building healthy environments is a food system meets the demands placed upon it, without harming the integrity of the ecosystems and environments that we source our food from. With a growing global population and increased pressure on our food systems, it is important to explore how we can align human health and environmental health. My



proposed research will explore how human health and environmental health can be considered together to develop nutrition recommendations for fish and seafood consumption that support environmental sustainability and optimal health for Canadians. By aligning human health and environmental health we can effect change in policy, legislation and practice to ensure sustainable food systems that feed a healthy population.”

## Bio

Holly Amos came to Nova Scotia to complete her Honours Bachelor of Science in Human Nutrition at St Francis Xavier University. While studying nutrition she became passionate about food security and food sovereignty. Holly spent the following few years practicing as a Dietitian, furthering her education on local, sustainable food systems and exploring how food systems contribute to food security and food sovereignty. This peaked her interest in addressing sustainable food system development through a lens of aligning human health and environmental health. At Dalhousie Holly plans to explore the connections between human health and environmental health and how we can support food systems that benefit both.

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# Welcome

Dear Guest,

On behalf of the 2017-2018 Marine Affairs Program students, we would like to warmly welcome you to **Sustainable Oceans 2018: H<sub>2</sub>O: Inspiring Happy & Healthy Oceans**.

Nova Scotia is Canada's self-proclaimed "Ocean Playground" yet there is often a disconnect between us and the ocean. Ocean news often focuses on negative perspectives despite many positive stories and research being conducted. We thus strive to bring optimism back to the forefront. In doing so, we explore three sub-themes that together, inspire a future of happy and healthy oceans:

**Connection:** Exploring personal, spiritual and community connections with the marine environment

**Innovation:** New and inventive approaches to addressing complex ocean issues

**Optimism:** Recognizing the positive strides and solutions to improve the health of our oceans

This year, we challenge you to think critically about the future of our oceans, while examining your own daily activities and how you can make small changes to support ocean-positive choices. We hope to leave you with a sense of optimism, and that it is not just "doom-and-gloom".

Through engaging with student and guest speakers, ocean optimism activities, and community organizations, we hope that the ideas presented spark a new connection to the marine environment within you, and instill inspiration to work together to ensure that our oceans can sustain us into the future.

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

Yours sincerely,

Alex Cole & Olivia Choi

Conference Co-Chairs | Sustainable Oceans 2018





# Conference Committees



## Co-Chairs

Olivia Choi

Alex Cole

## External Logistics Committee

*Head: Emma Giesbrecht*

Helena Cousins

Haley Welsh

## Marketing and Outreach Committee

*Head: Alexa Goodman*

Kristal Ambrose

Bryden Bone

James Crofton

Kaitlyn Harris

Seth Jenks

## Internal Logistics Committee

*Head: Andrea Mast*

Alex Desire-Tesar

Leah Sneddon

Meghan Terpenning

## Fundraising Committee

*Head: Scott McIlveen*

Ryan Maxwell

Emma Carmichael

## Submissions Committee

*Head: Lydia Ross*

Curtis Martin

Kalene Eck, MMM 2016-2017

# Judges

## Posters

Claudio Aporta  
Hussain Sinan  
Breanna Bishop

## Innovation

James Boxall  
Laurenne Schiller  
Ron MacLean

## Connection

James Boxall  
Adrian Gerhartz  
Ron MacLean

## Optimism

James Boxall  
Jenny Weitzman  
Magena Warrior





# Saturday September 22<sup>nd</sup>

Dalhousie Student Union Building, Second Floor

10:30-11:00 am: Registration

11:00-11:30 am: Welcoming Remarks, Mi'kmaq land acknowledgment

11:30 am -1:30 pm: Connection Presentations

1:30-2:15 pm: Lunch Break and Poster Presentations

2:15-4:15 pm: Innovation Presentations

4:15-5:00 pm: Break and Poster Presentations

5:00-5:30 pm: Sobey Fund for Oceans 2018-2019 Scholarship

5:30-6:30 pm: Keynote Address - **Dr. David Shiffman**

6:30-8:00 pm: Evening Reception

*The bar will be open from 4:30-7:30 pm*

*Community Fair Organizations will be at booths from 12:00-3:00 pm*



# Sunday September 23<sup>rd</sup>

Dalhousie Student Union Building, Second Floor

10:30-11:00 am: Registration

11:00-11:15 am: Welcoming Remarks

11:15 am -1:15 pm: Optimism Presentations

1:15-2:00 pm: Lunch Break and Poster Presentations

2:00-3:00 pm: Keynote Address— **Dr. Denise Herzing**

3:00-3:30 pm: Closing Remarks, Awards & Acknowledgments

*Community Fair Organizations will be at booths from 11:00 am-2:00 pm*



# Keynote Speaker Saturday September 22<sup>nd</sup>

## Dr. David Shiffman

### *Why don't people believe that sustainable shark fisheries exist?*

Sharks are some of the most threatened vertebrates on Earth, with many alarming population declines reported due to overfishing and mismanagement. Sharks are also ecologically important and culturally iconic animals, resulting in intense public interest in their conservation. Shark conservation is currently at a crossroads, with some camps pushing for sustainable fisheries management as a way to protect and recover sharks, and others calling for total bans on shark fishing and the sale of shark products. Support for the latter policies is often correlated with a belief that sustainable shark fisheries cannot and do not exist, though scientific evidence that sustainable shark fisheries can and do exist is overwhelming. In this talk, marine conservation biologist Dr. David Shiffman will summarize his interdisciplinary research focusing on the question at the heart of this important policy debate: Why do so many people believe that sustainable shark fisheries can't and don't exist?

### Bio



Dr. David Shiffman is a Liber Ero Postdoctoral Fellow in Conservation Biology at Simon Fraser University, where he studies the sustainability of North American shark fisheries. He has a Ph.D in ecosystem science and policy from the University of Miami, a Masters in Marine Biology from the College of Charleston, and a Bachelors of Science with Distinction in Biology from Duke University. He has 25 peer-reviewed scientific publications on topics ranging from feeding ecology, conservation policy, and science communication. Dr. Shiffman is also an award-winning science communicator, with bylines in the Washington Post, Scientific American, Slate, and Gizmodo, and interviews with more than 100 media outlets. He is the second most-followed marine biologist on social media and the most-followed scientist on social media in Vancouver.

Follow him @WhySharksMatter , where he's always happy to answer any questions that anyone has about sharks.

# Keynote Speaker

## Sunday September 23<sup>rd</sup>

**Dr. Denise Herzing**

***Climate-Driven Dolphin Displacement in the Bahamas: A Story of Adaptation and Resilience in Challenging Times***

Long term field studies are critical, not only to monitor animals, but to allow comparisons over time. As the climate continues to change, global impacts can have severe local consequences. Since 1985 we have studied a resident community of Atlantic spotted dolphins in the Bahamas for ~100 field days every summer. Our methods are primarily non-invasive, including no tagging or handling of the dolphins. Life history, genetics, and communication research have been our focus. Although a slower process for data gathering, the benefits of noninvasive research include: trust from the animals, safe procedures to avoid injury or death from handling animals, and intimate observations of the dolphins' society and behavior. Despite careful data collection over three decades to minimize disturbance, two consecutive years of hurricane impacts and extreme oceanographic changes eventually affected the dolphin's reproduction and residency. In 2004 and 2005, three major hurricanes had direct hits on our study area, reducing the community by 30%. Recovery was underway, albeit slowly until 2013, when 50% of our resident community moved to a second study site 100 miles away. We determined that changing oceanographic features, specifically dropping chlorophyll levels (a proxy for plankton), was the largest factor preceding displacement. We have incorporated new technology (PAM, drones) to maximize our search abilities between these two study sites. New technology and utilizing existing long-term datasets can add predictive tools to improve data collection and assessments. Sustainable coexistence with humans and nonhumans on the planet should be a goal in any ocean research.

### Bio



Dr. Denise Herzing, founder and research director of the Wild Dolphin Project, has completed over 33 years of her long-term study of Atlantic spotted dolphins inhabiting Bahamian waters. She received her B.S. in Marine Zoology; her M.A. in Behavioural Biology; and her Ph.D. in Behavioural Biology/Environmental studies. She is an Affiliate Assistant Professor in Biological Sciences at Florida Atlantic University. Dr. Herzing is a 2008 Guggenheim Fellow, a fellow with the Explores Club, a scientific advisor for the Lifeboat Foundation and the American Cetacean Society, and on the board of Schoolyard Films. In addition to many scientific articles, she is the co-editor of *Dolphin Communication and Cognition*, author of "Dolphin Diaries: My 25 years with Spotted Dolphins in the Bahamas" and "The Wild Dolphin Project". Coverage of her work with the

with the spotted dolphins has appeared in *National Geographic Magazine* 1992 and 2015, *BBC Wildlife*, *Ocean Realm*, and *Sonar* magazines and featured on *Nature*, *Discovery*, *PBS*, *ABC*, *BBC*, *NHK*, *PBS*, and *TED2013*



# Community Fair Organizations

## The Canadian Sea Turtle Network

The Canadian Sea Turtle Network is an award-winning Halifax-based environmental charity that works to study and protect endangered sea turtles that spend time in Canadian waters and beyond. Join us to learn about the biology of these amazing animals, including the giant leatherback sea turtle! We will also share the amazing story of the Nova Scotia scientists and fishermen that are working together with colleagues around the world



to study and conserve these animals. Find out more about how you can help us help sea turtles right here in Nova Scotia!

## Ocean Tracking Network

The Ocean Tracking Network (OTN) is a global aquatic research, data management and partnership platform headquartered at Dalhousie University in Halifax, Nova Scotia, Canada. Since 2008, OTN has been deploying



Canadian-made ocean monitoring equipment and marine gliders in key ocean locations and inland waters around the world. OTN has established partnerships with a global community of telemetry users to document the movements and survival of aquatic animals and how they are influenced by changing ocean environments. OTN is tracking more than 150 keystone, commercially important and endangered species including marine mammals, sea turtles, squid, snow crab, lobster, and fishes like sharks, sturgeon, eels, tuna, salmonids and cod.

## Back to the Sea Society

The Back to the Sea Society is a non-profit dedicated to sparking curiosity for marine life and inspiring a desire to protect our ocean. They operate the Touch Tank Hut, a miniature marine interpretive centre on the Dartmouth waterfront. They are also working towards opening a permanent aquarium facility with a catch-and-release philosophy.

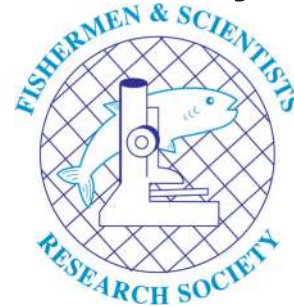


# Community Fair Organizations

## Fishermen and Scientists Research Society

The Fishermen and Scientists Research Society (FSRS), is a non-profit organization that helps to promote effective communication and partnerships between fishermen and scientists who are concerned with the long-term sustainability of the marine fishing industry in Atlantic Canada. The objective of this partnership is to establish and maintain

collaborative research and collection of relevant information between fishermen and scientific personnel to promote the conservation of North Atlantic fisheries stocks. For more information please visit [fsrs.ns.ca](http://fsrs.ns.ca)



## Bluenose Coastal Action Foundation

The Bluenose Coastal Action Foundation is a community-based charitable organization with a mandate to address the environmental concerns along the South Shore of Nova Scotia. Coastal Action's goal is to promote the restoration, enhancement, and conservation of our ecosystem through research, education, and action. The



organization has been an established member of the Lunenburg County community since its inception in December 1993. Over the past 20+ years, Coastal Action has successfully completed a number of projects in the South Shore region of the province. Project themes have included River Restoration on the Mushamush, Petite Rivière, Gold, and LaHave River systems; Water Quality Monitoring in the Petite, Gold, and LaHave River watersheds; Endangered Species Projects addressing the roseate tern, Atlantic whitefish, Atlantic salmon, and American eel; Climate Change and Pollution Prevention initiatives (i.e., Active Transportation, Water and Energy Conservation, Solid Waste Education, etc.); Environmental Education Programs; Clean Boating; and Marine Debris/Microplastic education, awareness, and research.

## Surfing Association of Nova Scotia

Established in 1987, SANS is a community-based non-profit organization dedicated to: building an inclusive, fun and respectful surf community; supporting recreational and amateur surfing; and promoting a sustainable surf culture.



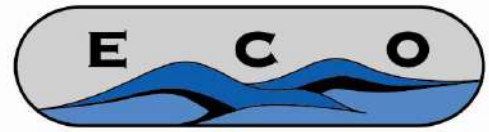


# Community Fair Organizations

## East Coast Outfitters

East Coast Outfitters (ECO) is a community based outdoor resource centre featuring premier quality guided sea kayak tours, lessons, and equipment rentals. We give visitors a chance to learn about the natural and cultural history of the area while experiencing some of the best sea kayaking

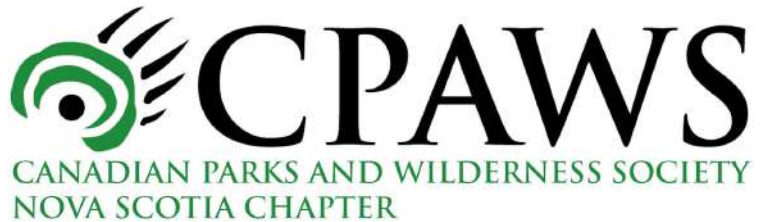
anywhere. ECO is located in the community of Lower Prospect, Nova Scotia, 45 minutes from the Halifax International Airport, and halfway between the city of Halifax and world-famous Peggy's Cove



**EAST COAST OUTFITTERS**

## Canadian Parks and Wilderness Society Nova Scotia

CPAWS-NS is a non-profit organization that works to protect the rich diversity of Nova Scotia, both on land and in the ocean. We collaborate with local communities, First Nations, scientific and academic institutions, and all levels



of government to create protected areas that work for both the wildlife and people of Nova Scotia. CPAWS-NS believes that we need to take a stronger stewardship role over our vast oceans, so that future generations may continue to marvel at our wide, blue oceans and all of the life they contain.

## Xeos Technologies

Xeos Technologies Inc has been designing oceanographic beacons since 2004. Helping customers protect and monitor their ocean assets is at the core of our business. Xeos products work in the most extreme and demanding ocean environments. Our alarm and tracking products keep moorings safe by using the latest GPS and Iridium technology. Xeos has recently developed new tracking beacons for AUV's and UUV's as well as beacons designed with special materials to prevent fouling in shallow warm waters.



# Community Fair Organizations

## Ocean Sonics

Ocean Sonics designs and builds innovative products to improve the quality and success of underwater sound measurements. The icListen Smart Hydrophone is used around the world as the standard for acoustic monitoring, streaming and hydrophone arrays. Understanding ocean sounds has never been easier with icListen and our data analysis services.



## Maritime Museum of the Atlantic

The Maritime Museum of the Atlantic is the oldest and largest maritime museum in Canada, which originally started due to a group of Royal Canadian Navy officers who wanted preserve the Canada's naval history. The museum is a valuable historical, cultural and education institution, and collects and interprets various elements of Nova Scotia's marine history. Exhibits vary from the age of steamships, local small crafts, the navy, World War II convoys, the Battle of the Atlantic, The Halifax explosion on 1917, and Nova Scotia's role in the aftermath of the Titanic disaster.



## The Tare Shop

The Tare Shop is a community-focused business opening in the North End of Halifax in fall 2018. They are a coffee shop, a bulk and zero-waste lifestyle item store, and community space! In addition they will offer workshops, speaker series and children's education programming to help further education about zero-waste living.

As they put the finishing touches on their store, they have launched an Indigogo campaign (<https://igg.me/at/thetareshop/x/19063901>) to help the Tare Shop become the first of its kind in Nova Scotia!



# Community Fair Organizations

## Geomatics Association of Nova Scotia

The Geomatics Association of Nova Scotia (GANS) is a non-profit association created to promote the Geomatics Industry in Nova Scotia, while helping to make it competitive both domestically and internationally, and increasing its contribution to the economy. Significant forces like location technology are reshaping the role of geomatics, while opening new possibilities such as complex spatial decision making and analysis across all sectors of the Nova Scotia economy.



Through a collaboration among a broad membership representing academia, government and private industry GANS provides both professional and social events, networking opportunities, a mentoring program, geospatial job postings and professional development. This year GANS is hosting the Geomatics Atlantic Conference in Halifax, Nov. 14-16 with the theme Oceans of Data, bringing together multiple sectors that deal with collecting, processing and using data related to the marine environment. Find out more at <http://geomatics.one>

# Oral Presentations

## Connection

### Lead Speaker – Boris Worm

#### ***Ocean School: Building ocean literacy through immersive media***

Ocean literacy is defined as an understanding of the ocean's influence on you and your influence on the ocean. An ocean-literate person understands: the essential principles and fundamental concepts, can communicate about the ocean in a meaningful way and is able to make informed and responsible decisions regarding the ocean and its resources. In this talk I will highlight recent research into ocean literacy and advances both in the policy and education sectors to improve ocean literacy in Canada and around the world. I will highlight how Ocean School, a new collaborative program between Dalhousie University and the National Film Board has tackled this problem and which interdisciplinary connections needed to be forged to make this vision a reality. I will close with an outlook for the role of ocean literacy in changing the way our society views and interacts with the ocean.

#### **Bio**



Boris Worm is a marine ecologist and Killam Research Professor at Dalhousie University, Halifax, Canada. His research program focuses on changes in marine biodiversity, and the effects of fisheries, climate change, and other human impacts on global ocean ecosystems. He is a frequent commentator on marine environmental issues in the media, and has won numerous awards for his scientific work and public outreach. Boris Worm has contributed to several well-known ocean documentaries, including

*Sharkwater* (2007), *End of the Line* (2007), *Revolution* (2012), and *Racing Extinction* (2015). Since 2010, he has also hosted a regular column for CBC Radio, focusing on ocean science and policy. Since 2013 he is the Scientific director of Ocean School, a collaborative ocean education initiative between Dalhousie University and the National Film Board of Canada

**Kaitlyn Harris, *Marine Affairs Program, Dalhousie University***

*Intergenerationally-blind resource management? Opportunities and obstacles for youth participation in coastal management in Nova Scotia, Canada*

Intergenerationally-blind resource management refers to management initiatives that do not consider ways that youth interact with natural resources, nor monitor impacts of management initiatives on youth populations. These management initiatives are subsequently at risk of being short-sighted, and may not reflect the desires and perceptions of the entire community they impact. This research uses a literature review to explore the extent to which Nova Scotia's coastal management initiatives have been inter-generationally blind and considers both the feasibility and impacts of overcoming this tendency. Finally, this paper concludes with a case study of youth perceptions of coastal environments; where we are at, and where we should be going, according to youth. Preliminary results from this study suggest that youth perceptions have traditionally been overlooked in coastal resource management in Nova Scotia, and this represents a missed opportunity for sourcing creative and youthful solutions to increasingly complex problems.

**Olivia Choi, *Marine Affairs Program, Dalhousie University***

*Toward sustainable Arctic shipping: Minimizing impacts on traditional harvesting in Tallurutiup Imanga through integrated coastal and ocean management*

After decades of work by Inuit to protect Tallurutiup Imanga, the final boundary for Canada's largest National Marine Conservation Area (NMCA) was agreed upon in 2017. Tallurutiup Imanga is internationally recognized for its ecological and cultural values and has been a place of sustenance for Inuit for millennia. With the continued loss of sea ice and increasing shipping activity in the region, Inuit have expressed concerns on shipping impacts and food security. As per the Nunavut agreement, the NMCA will protect Inuit harvesting rights. This research aims to identify harvesting areas and spatial and temporal interactions between shipping and Inuit land use by mapping traditional knowledge. Integrated coastal and ocean management will play an important role in park management given the strong ties Inuit have to the land and sea as part of their traditional way of life. The next steps for the NMCA are to develop an interim management plan and zoning plan, making this research both timely and significant.

**Ryan Maxwell, *Marine Affairs Program, Dalhousie University***

*Common interests and coalitions associated with salmon aquaculture: a social network analysis in Placentia Bay, Newfoundland*

Marine finfish aquaculture (hereafter referred to as aquaculture) is a contested topic mainly due to the social-ecological stressors that it can put on marine ecosystems. This research looked at a contemporary case study in Placentia Bay, Newfoundland (NL), where Grieg NL proposed a \$250 million salmon aquaculture project. After an Environmental Impact Assessment (EIA) was waived by the NL Environment Minister in July 2016, the Atlantic Salmon Federation took the Province of NL to court on their regulatory decision. Consequently, this study attempted to understand what coalitions or common interests were established as part of the Grieg NL Project case study. Throughout May 2018, 23 semi-structured interviews were completed with different stakeholders associated with the Grieg NL Project. The information collected from these interviews identified which groups coalesced in the Grieg NL case study. These coalitions exemplify how stakeholders come together to voice their common interests in marine management decisions.

# Innovation

## Lead Speaker – Stefan Leslie

### ***Innovative Approaches: Using Partnerships to Advance Ocean Research and Policy***

The concept of ‘innovation’ is often tightly linked to technological development or new ways of generating economic wealth. From that perspective, the role of the university is typically to produce STEM-trained students and to undertake fundamental research that are the building blocks for industry, with government creating the policy and regulatory environment to stimulate private investment, encourage entrepreneurship, and eliminate barriers. This presentation instead highlights ‘innovation’ as a way of getting things done, to harness the unique strengths of industry, government and academia to deliver public benefits. Two examples are used to illustrate the value of these unique arrangements. In one case, an important advance was made in marine protection, and in the other, ocean research is being conceived of and supported in a new way.

#### **Bio**



Stefan specializes in ocean policy and resource management, with an emphasis on linking scientific expertise to the needs of decision-makers and end-user communities. He is the Executive Director of the Marine Environmental Observation, Prediction and Response (MEOPAR) network in Halifax, Nova Scotia. MEOPAR funds interdisciplinary academic research that builds Canada’s capacity to anticipate and respond to marine risk, develops highly qualified personnel with expertise in marine risk and response, and connects academic

research and technology to national and international partners in government, industry, and the public sector. Prior to joining MEOPAR, Stefan was the Regional Director, Fisheries Management for Fisheries and Oceans Canada in Halifax, responsible for capture fisheries, aquaculture, aboriginal fisheries and enforcement. Previous positions include Manager, Deepwater Fisheries for the New Zealand government, and Chief, Economic Analysis, Fisheries and Oceans Canada in Ottawa. He holds a Masters of Marine Management (Dalhousie University).



**Jessie Lilly, *Masters of Biology, Acadia University***

*Use of High Residency (HR) Acoustic Tagging Technology to Predict if Atlantic Sturgeon will Spatially and Temporally Overlap with Tidal Turbines in Minas Passage*

The Fundy Ocean Research Center for Energy (FORCE) was created to test tidal turbines in Minas Passage, Nova Scotia. This is concerning, as approximately 9000 Atlantic Sturgeon, *Acipenser oxyrinchus oxyrinchus*, Mitchill 1815, from endangered and threatened populations migrate through Minas Passage to Minas Basin during the summer to feed on benthic invertebrates. Previous studies tracking the movement of Sturgeon through the FORCE test site have used coded tagging technology from VEMCO Ltd. which has limited the ability to detect all specimens at high current speeds ( $> 2.2$  m/s). To determine if Atlantic Sturgeon pass through the FORCE test site, we will be using new high residency tagging technology developed by VEMCO. Receivers placed at the FORCE site will record the unique tagging ID of Atlantic Sturgeon passing through the region. This information central to forming predictive models of the possible effects of in-stream turbines on Atlantic sturgeon.

**Emma Giesbrecht, *Marine Affairs Program, Dalhousie University***

*Acoustic Modelling to Inform Policies: Mitigating Vessel Noise Impacts on Arctic Cetaceans Within the Tallurutiup Imanga NMCA*

Vessel traffic throughout the Canadian Arctic has tripled over the past 20 years, and is not expected to decline. Vessels, including passenger, cruise, and cargo ships are the main contributors to underwater noise in the Arctic, and have been documented to impact endemic marine wildlife. With the recent announcement of the Tallurutiup Imanga National Marine Conservation Area (NMCA), the three Arctic cetacean species are protected against hydrocarbon development, but ship traffic is still permitted. By modelling the spread of underwater noise from the most common vessels transiting through the NMCA, managers can determine the potential impact anthropogenic noise can have on known whale foraging and calving areas. This study models vessel acoustic footprints and discusses the results and possible management solutions to mitigate the risks associated with the three charismatic whale species of the far North.

**Danni Harper, *Biology, Acadia University***

*Video Survey Techniques for Estimating Population Dynamics in Invertebrate Fisheries: Case Study of *Cucumaria frondosa**

With global demand for sea cucumbers increasing and tropical stocks collapsing, it has opened an economic opportunity for Atlantic Canada where sea cucumbers are plentiful. Resulting from slow growth and limited motility, sea cucumbers are highly susceptible to over-exploitation. Fisheries have been developing off Eastern Canada for years, but sea cucumber population dynamics remain largely unknown. As management decisions are influenced by population metrics, this lack of information could lead to stock instability. To properly manage these populations, abundance and biomass must be understood to allow for sustainable catch in the long term. To make these estimates, we are conducting fisheries-independent drop-camera video surveys of the fishing areas on the Scotian Shelf. Data from these surveys can be used to approximate both abundance and biomass and identify habitat preferences. Video assessment methods are not only less impactful on the environment but also provide more ecological information than standard trawl surveys.

# Optimism

## Lead Speaker – Alexandra Vance

### ***Prepare for the worst but hope for the best: How to be a marine realist and an ocean optimist***

Our oceans are in serious trouble; it seems everywhere we look there's another horrific story or study describing the perilous state of our seas. But when did negative messaging ever bring about positive change?! While acknowledging that we need to better understand and act upon the complex challenges facing our oceans on the local to global scale, we must ensure that society is not solely focusing on these issues but instead moving towards real, tangible solutions. Examples of meaningful and collaborative marine conservation projects will be explored, and together we will discuss how we can change the narrative from "doom and gloom" to celebrating each step we take towards achieving sustainable oceans, for now and the future. By sharing conservation successes and inviting an optimistic dialogue, we can inspire and connect our ocean community through hope – and through hope, change the fate of our oceans for the better.

### **Bio**



Alexandra was born and raised a true Maritimer, along the south-eastern shores of New Brunswick, Canada. Having spent her summers seaside, the Atlantic Ocean was quite literally her playground – she grew up snorkeling, swimming, boating, and playing “marine biologist” as pastimes. These early coastal experiences later shaped Alexandra’s academic and professional career pathways, while also igniting her passion of fostering ocean literacy amongst her local community. She graduated the Master's of Marine Affairs program with a focus on

Integrated Coastal and Ocean Management (ICOM) in 2014 and has been working in Halifax, NS, as a marine conservation specialist and marine scientist ever since.

**Seth Jenks, *Marine Affairs Program, Dalhousie University***

*Proactive Solutions for Atlantic salmon Management*

The Atlantic salmon (*Salmo salar*) is an anadromous fish species native to Nova Scotia that has significant value to the people of the province. Atlantic salmon have been in decline throughout the province for over 100 years due to a variety of factors. A recent moratorium on the Greenland commercial fishery which is suspected to be one of the major causes of at-sea mortality came into effect and will continue for at minimum 12 years. With one of the major barriers to at-sea survivorship rates removed, ensuring that the rivers are pristine for an increased influx of spawning adult fish is paramount to rebuilding the Atlantic salmon population in Nova Scotia. This paper aims to determine the most successful salmon restoration techniques and practices and identify on which rivers managers should focus restoration and conservation efforts.

**Riley Schnurr, *School for Resource and Environment Studies, Dalhousie University***

*Global strategies to reduce marine pollution from single-use plastics (SUPs)*

Single-use plastics (SUPs; such as plastic bags, microbeads, and straws, among others) are significant sources of marine plastic pollution that have grabbed the spotlight of environmentalism this year. They are also easily preventable via both legislative and non-legislative interventions. New research, expanding on Xanthos and Walker (2017) that reported increasing international legislation addressing marine plastic pollution from plastic bags, highlights a continued increase in these legislative interventions globally. Furthermore, this new research expands the scope of consideration for tackling the issue of SUP pollution in the marine environment, by including other SUPs (like polystyrene containers, disposable cutlery and cups, and straws). We also incorporated non-legislative interventions due to the overwhelming environmental activism seen beyond the jurisdiction of government bodies, and due to the influential ability of individual action and corporate social responsibility (both non-legislative interventions) to help reduce plastic pollution in our marine environment.

**Andrea Mast, *Marine Affairs Program, Dalhousie University***

*Bottom-Up Engagement Increases Marine Protected Area Effectiveness*

Coral reefs are important biodiversity hotspots that supply numerous ecosystem services. However, reef habitats are declining, calling for effective governance. Marine Protected Areas (MPAs) have been shown to provide benefits for biodiversity conservation, by reducing human impact and restoring fish populations. These protected areas can be established and governed in different ways, yet little is known about how these management strategies compare in terms of the protection and benefits they provide to coral reef ecosystems at a global scale. Using an extensive data set of MPA conditions for coral reefs around the world, a Bayesian hierarchical model was created to determine what factors have an effect on the reef fish biomass difference from 218 MPAs. Collaborative governance had the most positive effect on reef fish biomass difference, followed by sub-national, joint, and federal. The results of this study hope to provide results that will improve management effectiveness within coral reef habitats.

# Poster Presentations

## Poster presentations ordered by number

### **1. Meghan Terpenning, Marine Affairs Program, Dalhousie University, Connection**

#### *Stakeholder Perspectives of the Nova Scotia Aquaculture Regulations*

It has been suggested to expand aquaculture in Nova Scotia to create jobs and new economic opportunities in rural areas. However, finfish aquaculture is a controversial industry in the province. The mixed perceptions surrounding the industry prompted an independent review by two lawyers (Doelle & Lahey, 2014) who made several recommendations for a regulatory reform. In response, the provincial government introduced a new regulatory framework integrating some of the recommendations from the Doelle-Lahey Report (2014) while not implementing others. This research aims to understand how stakeholder's perspectives of the provincial government's response to the Doelle-Lahey Report (2014) in the form of the new aquaculture regulations may affect aquaculture development in Nova Scotia. By gaining further insights into stakeholder perceptions of new regulations, it may be possible to understand how the regulations may be strengthened in the eyes of different stakeholder groups and inform future policy decisions for socially acceptable aquaculture.

### **2. Lydia Ross, Marine Affairs Program, Dalhousie University, Connection**

#### *Mobilizing Values: Using Stakeholder Perceptions of Barachois Ponds in Cape Breton to Advance Informed Management*

Coastal saline ponds or 'barachois ponds' are wetland habitats created by a barrier beach that partially or fully extends to form a brackish pond. These coastal wetlands are prone to changing barrier characteristics, salinity levels, water residence time, biological makeup, and surrounding vegetation; making their management a challenge. Additional complexities arise from increased coastal development and impacts of climate change, putting these ecosystems at risk. Wetlands of Special Significance (WSS) is a provincial designation that grants protection against wetland alteration. Numerous barachois ponds in Cape Breton, Nova Scotia are both ecologically and culturally significant and warrant designation as WSS. Incorporating public perception research, in addition to natural science, is critical to informing management priorities and strategies. This study uses Q methodology to reveal dominant values of barachois ponds from five stakeholder groups to mobilize social values to advance informed decision-making and to support the designation of certain barachois ponds as WSS.

### **3. Kristal Ambrose, Marine Affairs Program, Dalhousie University, *Connection***

*Using Environmental Education as a Catalyst for Youth Activism around Plastic Pollution: A Case Study of the Plastic Pollution Education and Ocean Conservation Summer Camp*

By building a community of inquiry-based education and environmental stewardship, Bahamas Plastic Movement provides accessible science opportunities for the next generation of environmental leaders. A fundamental program ran by the organization is the Plastic Pollution Education and Ocean Conservation Summer Camp. This intensive summer program takes students on a holistic journey from the problem with plastic to solutions to this environmental crisis. This camp empowers students to become environmental leaders and tackles the issue of plastic pollution using a dynamic, creative and hands on approach. Our unique method of encompassing science, technology, engineering, art, math (STEAM) and community engagement translates a very real-world problem into tangible, realistic outcomes that youth can connect to and execute effectively. Grounded in plastic pollution threats facing our environment, this program is rooted deeper in the hopefulness that comes from engaging young people in environmental work.

### **4. Anika Riopel, College of Sustainability, Dalhousie University, *Connection***

*The Jump In Project - A thesis follow up*

What is the public's perception of the suitability of the Halifax waterfront for swimming? What is the public's feedback for an urban swimming infrastructure proposal? Using Community Based Social Marketing as a framework, intercept surveys on the Halifax waterfront determined the public's perceived barriers and benefits toward urban swimming and recommend strategies for a potential pilot. Survey results indicated that there is strong support for an urban swimming project. The survey also highlighted the public's perceived benefits (community building, accessibility and tourism) and barriers (water quality, boat traffic and emergency services). Based on these findings, the following are recommended for a potential pilot: consistent water quality testing of both organic and inorganic compounds; publicly available data on water quality testing; infrastructure design that is safe (barriers from boats) and accessible to all ages and abilities (ramps, shallow areas and safe exits and entrance points); additional facilities (change rooms, showers, lockers and washrooms); fun features (jump platform, waterslides, hot tub, sauna, beach elements, lounge chairs and shade umbrellas); and lifeguard services.

**5. Meenakshi Chaudhary<sup>1</sup>, Ken Oakes<sup>2</sup>, Rob Wills<sup>3</sup>, Tony R. Walker<sup>1</sup>, *Optimism***

<sup>1</sup> School for Resource and Environmental Studies, Dalhousie University, Halifax, NS, Canada.

<sup>2</sup> Cape Breton University, NS, Canada.

<sup>3</sup> Dillon Consulting Limited, 137 Chain Lake Drive, Halifax, NS B3H 1B3, Canada.

*Effects of industrial effluents on marine sediments and biota of Northumberland Strait*

Industrial effluents loaded with organic matter can cause environmental degradation to marine receiving environments, due to high biochemical oxygen demand, chlorinated compounds (dioxin and furans), metals and polycyclic aromatic hydrocarbons. Boat Harbour, a former tidal estuary in Pictou County, Nova Scotia has been used as an industrial waste water treatment facility for over 50 years and its remediation will begin in January 2020. After treatment, effluent is discharged into Northumberland Strait which is an important lobster fishing area. This research aimed to assess contaminants in sediments and marine biota from industrial effluents. Preliminary results indicate that most parameters, except methyl mercury in fish tissue, are below Canadian sediment and fish tissue guidelines.

**6. Scott McIlveen, Marine Affairs Program, Dalhousie University, *Optimism***

*Addressing the Canadian Shark Fin Trade at a Local Level*

Populations of shark around the world are on the decline, almost entirely attributable to impacts of humans via bycatch or shark finning. Tackling the shark finning practice can be done via fisheries management measures, or via seafood consumption measures. As of 2015, Canada ranks as the largest importer of shark fins outside of Asia (11th in the world). Local bans have emerged as a way by which communities may reduce their impact on shark populations by reducing Canada's importations. My research looks to investigate the workings of the shark fin trade in Toronto—one of Canada's main shark fin hubs. This research will use genetic testing to analyze species composition in the Toronto market, and identify legal and political barriers to the implementation of local bans. Putting a stop to illegal finning would be considerable step toward global conservation of sharks and this is a great step towards that goal.

**7. Alexa Goodman, Marine Affairs Program, Dalhousie University, *Connection***

*A Ghostly Issue: Managing abandoned, lost, and discarded lobster fishing gear in the Bay of Fundy*

Abandoned, lost, and discarded (ALD) fishing gear contributes to economic losses across fisheries and can be a significant hazard to conservation and safety at-sea. Lobster fishers (n = 32) and management agencies (n = 5) were interviewed from the Scotia-Fundy Region to determine how to estimate and mitigate ALD fishing gear. Results show that fishers across all lobster fishing areas (LFAs) regularly lost gear and that it was not always retrieved, although fishermen informally notify each other of gear that was lost and often returned gear that was found. Fishermen will, however, avoid retrieving old gear that is unidentifiable, because possession of this gear is prohibited by their licenses. New regulations to manage ALD are expected in the coming years, but through these interviews, regulatory and community-based solutions were identified that can potentially help estimate and mitigate ALD fishing gear.



## **8. Helena Cousins, Marine Affairs Program, Dalhousie University, *Optimism***

### *Ecotourism and ecological restoration on small island developing states*

Ecotourism is the fastest growing sector of tourism and is being used as a tool for sustainable development and conservation globally. As a subsection of 'sustainable tourism', ecotourism should not only act as a non-extractive industry but should contribute to the wellbeing of local people while supporting environmental conservation and education. Small island states with limited resources often rely on tourism as a major economic sector. Ashton Lagoon, located in St. Vincent and the Grenadines, is examined as a case study, where an abandoned marina development left devastating changes to the marine and coastal environment. For over 20 years, the lagoon has been left in a stagnant and unproductive state, until the proposal for its restoration was approved and initiated in 2015. Interviews were conducted to reveal local perception on ecotourism development and its ability to contribute to the success of ecological restoration projects and sustainable development.

## **9. Alex Desire Tesar, Marine Affairs Program, Dalhousie University, *Connection***

### *Science communication and the public: Navigating a changing relationship*

As traditional media wanes and research groups compete for limited public funds, it is increasingly accepted that researchers themselves must not only publish articles, but also communicate their work to the public and mobilize the knowledge they produce to useful ends. Raising public awareness of science is generally understood to be a positive societal force, providing citizens with the information and skills necessary to critically engage in science-informed decision-making. However, the extent to which scientists embrace their new role as communicators and knowledge brokers varies, as do the channels and methods of engagement they pursue. This study focuses on researchers affiliated with the Ocean Tracking Network (OTN), a global acoustic-telemetry network that collects data on aquatic animals for the purposes of informing management. Through surveys and interviews, data are being collected that will help understand the factors that encourage or discourage OTN-affiliated researchers from engaging with the public.

## **10. Leah Sneddon, Marine Affairs Program, Dalhousie University, *Connection***

### *Barriers to Implementing a Bottom-up Management Approach to Coastal Marine Protected Areas: A Canadian Case Study*

Marine protected areas (MPAs) are employed as a conservation strategy across the world, protecting species and habitats and helping to rebuild declining populations. However, proposals for coastal MPAs are often met with resistance from local communities, where reserves are perceived to lead to negative economic and social impacts. Shifting from the traditional top-down governance structure to a more community-based or "bottom-up" approach is increasingly advocated as a means to secure local support for and enhance the effectiveness of marine conservation measures. Using the Eastern Shore in Nova Scotia as a case study, this research sought to identify site-specific barriers that may limit the application of a bottom-up management approach for a coastal MPA. Using a collaborative governance framework, previous and on-going conservation initiatives in the region were reviewed and analyzed. Preliminary results suggest numerous barriers must be overcome if a community-based MPA is to succeed in the Eastern Shore.

## **11. Alex Cole, Marine Affairs Program, Dalhousie University, *Innovation***

*Modelling fishing effort displacement: an examination of the impacts to the Southern Gulf of St Lawrence snow crab (*Chionoecetes opilio*) fishery and North Atlantic right whale (*Eubalaena glacialis*) entanglement risk*

Following the large number of North Atlantic right whale (NARW) entanglements and deaths in the Gulf of St Lawrence during 2017, new management measures were established for the snow crab fishery. These measures included a large fishery closure that encompassed 90% of the 2017 NARW sightings. This raised many concerns related to the costs to the fishery and effectiveness of entanglement prevention. Using fishing data from 2005 through 2012, a model was built that predicted movement of fishing effort caused by these closures and the estimated costs. Preliminary results show that lost fishing opportunity was minimal, and estimated monthly costs increased ranging from 43% to 100%. Additionally, the displaced fishing did not create a “fishing-the-line” effect, indicating a likely real reduction in the risk of NARW entanglement. Using this model, alternative closure management strategies were evaluated to consider how to best maximize NARW conservation and minimize costs to the fishery.

## **12. Chaiti Seth, Masters of Community Development, Acadia University, *Innovation***

*Sustainable Seafood Procurement in Institutional Food Services*

My research aims to identify leverage points in shifting towards more healthy, just and sustainable institutional food systems using Acadia University as a case study. I anticipate that my results will support institutions to find innovative strategies for food systems change. Fisheries and oceans are an important piece of this puzzle. Shifting the considerable financial and organizational clout of food service providers towards sustainable seafood procurement has the potential to support the health of our oceans and the viability of local fisheries. While one institution is only a drop in the ocean, this research can potentially inform institutional procurement across the region and North America. In addition to ecological and economic benefits, this work has educational potential in engaging students, faculty and staff. This approach aims to address complex issues at both the systemic and grassroots level, pushing for food systems change as well as fostering a more conscious food culture.

## **13. Gurneet Dhani, Masters of Science, Mount Saint Vincent University & Freya Poirier, Bachelor of Design, NSCAD University, *Innovation***

*Second Wave: Venturing from Ocean to Land*

At Second Wave, we aim to support Nova Scotia’s rich farming history through sustainable resource management. Lobsters are prominent exports in the East Coast with hundreds of millions of dollars in yearly profits. However, with lobsters come shells, which have produced tonnes of wastes being dumped back into the water. This is not only an economic loss but also endangers ocean environments on an international level. Our winning initiative, Lobster Fertilizer, from the 2018 Food Hack will be derived from the waste shells to yield a sustainable fertilizer. As entrepreneurs, we bring a multidisciplinary perspective with a designer and nutritional professional focused on creative, innovative solutions to ocean sustainability. We hope to harbor the Nova Scotia connection with the fishery industry by utilizing an innovative approach to better food production from ocean to land as we look towards an optimistic future in sustainable farming practices.

#### **14. Curtis Martin, Marine Affairs Program, Dalhousie University, *Innovation***

*Science in social media: Do particular communication strategies on Twitter and Instagram encourage conversations with the public?*

Today most members of the public rely on the internet as their primary source of information. Science communication is adapting to use new media, particularly social media, which has the potential to facilitate two-way, deliberative interactions that are characteristic of effective science communication. However, recent findings suggest that science communicators struggle to reach non-scientific audiences online, leading to calls for more innovative strategies to engage the public, especially on subjects linked to important public policy issues. This project studies the Twitter and Instagram activity of four popular science communicators and three marine non-governmental organizations (local, national, and international) to determine whether they differ in their social media strategies and audience engagement in two-way conversations. Through a comparison of individual and organization communicators, we aim to identify strategies that could be utilized to more effectively communicate policy-relevant marine science to a non-scientific audience using social media.

#### **15. Emma Carmichael, Marine Affairs Program, Dalhousie University, *Innovation***

*Improving international fisheries management by prioritizing geopolitical issues & relations: A case study on Atlantic shortfin mako management*

Managing internationally-shared fish stocks is incredibly difficult and requires international cooperation. The International Commission for the Conservation of Atlantic Tunas (ICCAT) is the regulatory body responsible for managing tuna and tuna-like species in Atlantic and adjacent seas fisheries. Although ICCAT has a strong conservation mandate, the abundances of pelagic species they manage have plummeted under their oversight. Furthermore, a lack of transparency with regard to Commission meetings and the geopolitical relationships between Contracting Parties (CPCs) make understanding the ICCAT regime difficult. Semi-structured interviews were conducted with individuals from various backgrounds who had past involvement in ICCAT meetings. Interviews were then analyzed to determine how participants were perceiving what goes on during ICCAT meetings. This analysis also helped determine how geopolitical relationships could be influencing the effectiveness of the regime, with preliminary results suggesting that these relationships between CPCs do influence the management decisions being made during ICCAT meetings.

#### **16. Laura Bartlett, School for Resource and Environmental Studies, Dalhousie University, *Innovation***

*How to Save the North Atlantic Right Whale: A Comprehensive Analysis*

In 2017 the critically endangered North Atlantic right whale (NARW) experienced an unprecedented mortality event in the Gulf of St. Lawrence. With an estimated remaining population of 500 whales, the loss of 12 whales in Canadian waters and another 5 dead off the coast of Maine was a significant blow to this species. Using an interdisciplinary approach we analysed the social, biophysical, and legal factors contributing to this tragedy and provide a series of recommendations for Canada to better protect the NARW under Canada's Species at Risk Act and Recovery Action Plan. By integrating knowledge from a variety of specialties, we hope to move from reactive to proactive protection measures to reduce the number of anthropogenic caused deaths of the NARW.

**17. Helen Packer<sup>1,2</sup>, Wilf Swartz<sup>3</sup>, Megan Bailey<sup>1</sup>, Yoshitaka Ota<sup>4</sup>, Innovation**

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*Corporate sustainability in the wild seafood industry: from commitment to action*

Corporate sustainability in the seafood industry is on the rise. Because of increasing public awareness and NGO campaigns, seafood buyers such as wholesalers, brand owners, retailers and hotel and restaurant chains have made various commitments to sustainable sourcing for their wild seafood products. As a result, many seafood companies whether involved in fishing, processing and/or importing have developed their own corporate sustainability programs in order to meet their customers' sourcing requirements. Our study reviewed the websites and sustainability reports of the 25 largest seafood companies that deal with wild seafood products. Our results analysed the sustainability issues these companies aim to address through their corporate social responsibility (CSR) programs as well as the various activities and practices put in place to deal with those issues. Based on our results, we discuss the strengths and weaknesses of current CSR programs with regards to their credibility and contribution to improved environmental and social aspects of wild seafood sustainability.

**18. Bryden Bone, Marine Affairs Program, Dalhousie University, Innovation**

*Threats to marine conservation in the eastern Canadian Arctic*

The Canadian Arctic Ocean is a vast, under-studied seascape with many biological, cultural, and environmental features that warrant protection; however, few designated marine protected areas exist. Climate change is affecting the Arctic at a rate experienced in few other places on Earth which has modified the industrial outlook of the region. My research is investigating the current status of threats to marine conservation efforts in the eastern Canadian Arctic, ranging from tourism to increased commercial shipping, and how they might evolve in the near future. A risk assessment will attempt to quantify the extent to which seven threats will be detrimental to the marine health of the territory. It is anticipated that climate change will manifest as the greatest hazard, while commercial shipping will also play a significant role. The current and future state of oceanic conservation will be discussed.

**19. Haley Welsh, Marine Affairs Program, Dalhousie University, Innovation**

*Managing Canada's Endangered: An Analysis of Canada's Efforts to Mitigate Shipping Impacts on North Atlantic Right Whales*

North Atlantic Right Whales are vulnerable to anthropogenic impacts from commercial shipping and fishing practices. After the 2017 NARW season, that left 17 NARWs killed in Canadian and U.S waters, the U.S defined the situation as an "unusual mortality event". Necropsies confirmed that a large proportion of dead NARWs showed evidence of blunt force trauma, a trauma experienced through lethal whale-vessel interactions. In the past, management measures have been put in place to address ship strikes and NARWs, however due to an unexpected presence of NARWs in the Gulf of St. Lawrence these management measures have been deemed ineffective. This research project involves the implementation of dynamic ocean management (DOM) in the Gulf of St. Lawrence for the protection of NARWs. This analysis measures the effectiveness of previous measures, the challenges in implementing DOM and how the Government of Canada can protect NARWs in the years to come.

## **20. James Crofton, Marine Affairs Program, Dalhousie University, *Innovation***

### **Halifax Harbour Integrated Response Plan for Marine Oil Spills**

The current approach to oil spill response in Canada relies on National planning standards across the country despite certain regions transporting a disproportionate amount of oil. New approaches are being developed that consider site-specific geographic characteristics and local environmental and socio-economic sensitivities. The Halifax Harbour is the busiest port in Atlantic Canada, yet no official oil spill management plan exists for the harbour. This project looks at the main shipping routes into the harbour, how many ships call into the harbour's facilities annually, and the amount and type of ships entering the harbour to help identify where a spill is most likely to occur. As opposed to the National Chapter Contingency Plan, this plan provides a detailed and localized geographic focus to inform the Coast Guard, all relevant government agencies, and local authorities the needed steps to mitigate impacts of an oil or HNS spill to environmental and socio-economic sensitivities.

## **21. Rachael Cadman, School of Information Management, Dalhousie University, *Innovation***

### ***Marine conservation and collaborative governance: How non-governmental organizations are re-shaping environmental decision-making***

In 2015, the Canadian federal government convened a meeting for Environmental Non-Government Organizations (eNGOs) to enlist their help in achieving their target to protect 10% of Canada's territorial waters by the year 2020. This engagement was unprecedented for many Canadian eNGOs, and is indicative of a broader trend in environmental governance towards collaborative networks of stakeholders that participate in decision-making.

A case study of two eNGOs: World Wildlife Fund Canada (WWF), and the Ecology Action Centre (EAC), examined the strategies and the collaborative relationships eNGOs employ in pursuit of their objectives. The study focused on the efforts of WWF and EAC on the implementation of three MPAs: Laurentian Channel, the Haddock Box, and Scott Islands. This research highlighted major strategies that eNGOs use at the interfaces between science, policy and society to build capacity in policy development, and makes recommendations for effective collaborative work within the Atlantic eNGO community.

## **22. Diana Castillo, Master of Library and Information Studies, Dalhousie University, *Connection***

### ***Connecting Information and Users: Assessing Usage of the Aquatic Sciences and Fisheries Abstracts Database***

Today, a large quantity of scientific information about coastal and ocean environments is available to researchers and decision-makers in a wide diversity of formats. Although the information may be accessible, sizeable volumes may be unknown despite its benefits to many groups. Since 1971, the Aquatic Sciences and Fisheries Abstracts (ASFA) database, overseen by the Food and Agriculture Organization of the UN, has been an important global information resource, particularly for grey literature, on the science, technology, and management of marine and freshwater environments. ASFA is currently being evaluated in light of today's rapidly evolving information landscape. Does ASFA meet the information needs of potential users or are better alternatives available? What direction should this service pursue? This poster will report on research, pursued collaboratively with FAO, about how ASFA is accessed and used around the world. The results from interviews, a survey, and longitudinal usage data will be presented.

# 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 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.

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## 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. John's, NL since 2007, both of which focus on issues pertaining to marine conservation. [www.wwf.ca](http://www.wwf.ca)



# Acknowledgements

On behalf of the 2017-2018 class, we would like to first, sincerely thank all of the student oral and poster presenters, sub-theme guest speakers, our two keynote speakers, judges, community fair participants, and contributors who dedicated their time and expertise to the 2018 Sustainable Oceans Conference. Your continued support, year after year, is what makes Sustainable Oceans the success it is today, as well as what made Sustainable Oceans 2018 such a great event.

This event would not have been possible without our sponsors and supporters throughout the past 11 months of planning and organizing. Thank you to Dalhousie University's College of Sustainability, Labatt's Brewery, Ocean Tracking Network, and the Marine Environmental Observation, Prediction and Response Network, NEXUS Coastal Resource Management, Ocean Frontier Institute, and Scotiabank for your support through sponsorship. Thank you to East Coast Lifestyle, 4Ocean, Laughing Whale Coffee, Anchored Coffee, Halifax Surf School, All for Knot Rope Weaving, East Coast Beach Sand, Miss Foxine Couture, Making Waves Creations, Jane Whitten, The Tare Shop, Call of the Ocean, Murphy's on the Water, A is for Adventure, Carmen van Dongen, and Laura Carmichael for your generous donations to our various fundraising activities that helped us to continue to allow Sustainable Oceans to be a free event.

Additionally, we would like to thank Oceans Week HFX, Trips by Transit, Patagonia Halifax, and Seacology by Kayak for their collaboration which allowed us to spread awareness about the conference to an even wider audience.

To Mr. Rob Sobey, thank you for your ever kind remarks and for presenting the Sobey Scholarship award that financially supports educational opportunities for future ocean leaders. Sustainable Oceans is made possible through your continued support.

We would also like to extended our greatest gratitude to our two inspirational keynote speakers: Dr. David Shiffman and Dr. Denise Herzing. We are thankful for your belief in Sustainable Oceans and for sharing your insight and knowledge. In addition, we would like to thank our three sub-theme guest speakers: Dr. Boris Worm, Mr. Stefan Leslie, and Ms. Alexandra Vance. Your passion is what Sustainable Oceans strives for.

This year, we included a community fair to help facilitate more engagement between the attendees and organizations that are actively working towards healthy oceans. To the Back to the Sea Society, Bluenose Coastal Action Foundation, Canadian Sea Turtle Network, East Coast Outfitters, Fishermen and Scientist Research Society, Geomatics Association of Nova Scotia, Maritime Museum of the Atlantic, Ocean Tracking Network, Surfing Association of Nova Scotia, Xeos Technologies, Canadian Parks and Wilderness Society – Nova Scotia Chapter, the Tare Shop, Ocean Sonics and Parks Canada, thank you for your participation in our newest addition to the conference. Your participation facilitated community connection through the amazing work you contribute to the future of our oceans.

Finally, as a student-led conference, Sustainable Oceans would not be possible without the hard work and teamwork of the planning committee made up of the 2017-2018 cohort. We are thankful for every student in the class for the countless hours dedicated to making the 2018 conference the vision we had many months ago. A special thanks to the committee heads, Emma Giesbrecht – External Logistics, Alexa Goodman – Marketing and Outreach, Andrea Mast – Internal Logistics, Scott McIlveen – Fundraising, and Lydia Ross – Submissions, for their leadership and commitment to ensuring our vision of the conference came to fruition. In addition, we would like to extend our gratitude to Kalene Eck, for your support and guidance in the early stages of the conference planning.

To the Marine Affairs Program Faculty, including the Sobey Fund for Oceans Committee members, Dr. Claudio Aporta, Dr. Lucia Fanning, and Becky Field, thank you for your unparalleled support and guidance during the planning process. Thank you for believing in our ideas and for your tireless effort to make it a reality. Finally, to the incoming 2018-2019 Marine Affairs students, thank you for allowing us to bombard you with constant updates and events to support the conference. We greatly support your unconditional help and for getting involved with the 2018 conference. We wish you all the best for organizing Sustainable Oceans 2019.

Thank you once again to everyone for supporting Sustainable Oceans and allowing us to put on such a successful event. If your name is not listed, but you supported us in some way, please know we are forever thankful for your contributions.

Sincerely,

Alex Cole & Olivia Choi

Conference Co-Chairs | Sustainable Oceans 2018



# NOTES

# NOTES

# NOTES

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## Contributors

East Coast Beach Sand, Call of the Ocean, Making Waves Creations, Jane Whitten, Carmen van Dongen, Laura Carmichael, All for Knot Rope Weaving



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Shop



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