



OCEAN
CANADA

Dedicated to building resilient and sustainable oceans on all Canadian coasts and to supporting coastal communities as they respond to rapid and uncertain environmental changes.

2018/2019 PARTNERSHIP UPDATE

April 1, 2018 to March 31, 2019

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Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Canada



INTRODUCTION AND BACKGROUND

OceanCanada continues to analyze social, cultural, economic and environmental knowledge about the Arctic, Atlantic and Pacific through:

- taking stock of current knowledge of Canada's coastal-ocean regions;
- building scenarios of possible futures for our coastal-ocean regions;
- creating a national dialogue to build a shared vision for the future.

Our six Working Groups (WGs) linked to three Cross-Cutting Themes (CCTs) are continuing to work in tandem: Atlantic, Arctic, Pacific, Knowledge Mobilization (KM), National Data and Integrated Scenarios (NDIS), Law and Policy WGs; and Access to Resources, Changing Oceans, and Governance CCTs. This structure has enhanced communication between our members to address the overarching issue of ocean health and community well-being in all three regions.

We held our second conference in Halifax in August 2018 at Dalhousie University from August 27 to 30, with over 60 of our members in attendance, including partner representatives. Several presentations were made about past and current projects we have been involved in throughout the country, ten of which can be viewed here. We also collectively created a plan for the remainder of the partnership to March 2020, which largely involves the publication of a book tying together the research of our Working Groups through the Cross-cutting Themes of Access to Resources, Changing Oceans, and Governance. The book has been accepted by UBC Press for publication. Initially we had envisioned using previously published material for the volume, but after consultation with UBC Press it was decided to develop new chapters based on our work through the CCTs, around which the book is organized:

Part One: Setting the Stage (Rashid Sumaila, editor)

Part Two: Changing Oceans (William Cheung, editor)

Part Three: Changing Oceans, Changing Access to Resources (Megan Bailey, editor)

Part Four: Changing Oceans, Changing Governance (Derek Armitage, editor)

Since 2014, we have produced 289 publications, 10 working papers, 6 policy briefs, and 17 research reports, and 8 blog posts and online resources related to our mandate. Our members have given 375 presentations and the KM WG has developed 13 films. We have been mentioned or have appeared 387 times in various popular media, and held several workshops and meetings. In addition, we have trained or are in the process of training a significant number of HQP and early-career scholars whose research interests align with *OceanCanada*'s mandate. We initiated a public speaker series in 2017 which has continued through Year 5, and achieved awards for our research. Other key knowledge mobilization accomplishments include the development of a new website and *OceanCanada* atlas, using social media platforms (Facebook and Twitter), and continuing our DMP through the use of Dataverse at UBC, which are all designed to give *OceanCanada* a public presence.



We have also continued with the development of the Aquanomics app, to provide the public with greater access to information about Canada's oceans in specific regions. In January 2019, the app was a project in the Capstone Design Project program at UBC, in which undergraduate students in Electrical and Computer Engineering developed the platform and interface as part of their final year of studies. We plan to apply for the Designing for People (DFP) program next year, in which graduate students from different disciplines work on projects together. Here is a description of the program from its website:

DFP aims to address complex human-facing design problems by accelerating creativity at the nexus of social and technical problem-solving. We promote intensely interdisciplinary teamwork and methods, strive to understand the diverse abilities, needs, and values of users, create high-value resources for DFP researchers, and find new paths to societal impact by working closely with partners - users, domain experts, communities and companies.

We will continue to pursue funding options to get the app up and running.

Partners (20)

ARCTICConnexion
Canadian Rivers Institute
Carleton University
Dalhousie University
Ecotrust Canada
Fisheries and Oceans Canada
Friends of Port Mouton Bay
Living Oceans Society
McMaster University
Oceana Canada
Saint Mary's University
Simon Fraser University
T. Buck Suzuki Environmental Foundation
United Nations University Institute for Water, Environment and Health (UNU-INWEH)
University of British Columbia (host institution)
University of Victoria
University of Waterloo
University of Winnipeg
Ocean Wise Conservation Association
World Wildlife Fund-Canada



In Year Five we added one new collaborator, Professor Philippe Tortell of UBC Earth, Ocean and Atmospheric Sciences. Dr. Tortell is a sea-going oceanographer with broad interests in marine biogeochemical cycles. Current work in his research group focuses on understanding the biological, chemical and physical factors regulating oceanic primary productivity and the concentration of climate active gases

We actively collaborate with our partners. In 2018 we held two speaker series events with partners:

- **Conserving our Shorelines, World Wildlife Fund Canada, Sidney, BC, April 17, 2018;**
- **Coastal Community Action, T. Buck Suzuki Environmental Foundation, Vancouver, BC, June 18, 2018.**

We are moving forward with the UBC-Dalhousie University collaboration on Transboundary Fisheries Management, which will result in a special issue of Ecology and Society.



OVERVIEW OF WORKING GROUP ACTIVITIES FOR 2018/2019

National Working Groups

National Data and Integrated Scenarios

NDIS continues to align new and on-going work with the Changing Oceans Cross-cutting Theme. The initiatives carried out by NDIS for this period include:

1. Transboundary fisheries governance between USA and Canada under changing oceans.

NDIS continued its collaboration with the Law and Policy WG to evaluate how changing fish stocks distributions and abundance that are shared between USA and Canada would challenge existing international treaties and agreements between the two countries. We planned and worked towards a set of papers for a special issue in a peer-review journal, and will hold a session in the Integrated Marine Biosphere Research (IMBER) Open Science conference in June 2019 on this topic. This work was presented at the *OceanCanada* conference in Halifax in August 2018. This research includes PIs from the two WGs as well as postdocs (2 in Dalhousie) and a PhD student (1 in UBC).

2. Development of Canadian Oceans Scenario and Pathway.

We continue to develop the Canadian Oceans Scenario and Pathway in collaboration with members from the Pacific and Atlantic WGs. A draft manuscript describing multi-scale scenarios for Canadian oceans is to be developed by June 2019, and will also form part of the Changing Oceans chapter in the *OceanCanada* book.

3. Arctic Monitoring and Assessment Program (AMAP) report.

NDIS member Nadja Steiner coordinated the drafting of a chapter for the new AMAP report to which members of the NDIS in UBC (and other OCP WGs) contributed. The chapter linked biophysical changes in Canadian Arctic oceans with social-economic impact assessment and implications for laws and policies. This chapter, considered a main output of the Changing Ocean CCT, was published in 2018.

Law and Policy

Research and planning continued on the project, “Transboundary Fisheries Governance in an Era of Changing Oceans” (in cooperation with NDIS). A panel session has been accepted for the Integrated Marine Biosphere Research (IMBeR) Open Science Conference in Brest France, 19-21 June 2019 where project papers will be presented. Papers are expected to be finalized by mid-July with submission to a special issue of Ecology and Society due in September. Olga Koubrak and Cecilia Engler continued as HQP/research assistants on the project.

The Law and Policy working Group co-organized an international conference, “Changing and Dynamic Oceans: Gauging Law and Policy Responses” at George Washington University Law School, 9-10 November 2018. In collaboration with the



Environmental Law Institute, Oceana, NOAA and the GW Law School, the conference brought together leading law and policy experts and practitioners to address the challenges of managing offshore renewable energy and oil and gas developments, international fisheries conservation, marine mammal protection, deep seabed mining and the conservation of marine biodiversity beyond national jurisdiction.

MELAW hosted the *OceanCanada* Conference in August 2018 (August 27-30). MELAW staff provided local coordination and logistics assistance under the direction of HQ staff.

Knowledge Mobilization

Over the past year, Master's student Natalie Baird, PostDoc Vincent L'Hérault, and Dr. Ian Mauro of the Knowledge Mobilization Working Group made progress on their collaborative research projects in the Arctic (Pangnirtung), Atlantic (Magdalen Islands), and Pacific (British Columbia) regions of Canada, respectively. Nearing the end of OCP, the Knowledge Mobilization Working Group has achieved its objective of conducting community-based and multi-media focused social sciences research on all coasts of the country. This marks a major milestone for the Working Group and OCP as a whole.

Natalie Baird has been working toward defending her thesis in summer 2019 in order to complete her Master of Environment degree at the University of Manitoba. Natalie's thesis is entitled *Visualizing Changing Oceans: Participatory Video and Inuit Knowledge in Pangnirtung, Nunavut*. In July-August, Natalie spent five weeks in Pangnirtung, working with community-based filmmaker and co-director David Poisey to finalize the video products with community members. Natalie has been sharing the videos and results of her thesis at conferences and gatherings across North America and has won numerous awards for this work. Nearing the end of her program, Natalie has continued to build relationships with community members, local organizations, not-for-profits (e.g. ARCTICconnexion), and the federal government to build youth-centred programs that continue the momentum of her Master's research. This ensures long-term impacts from *OceanCanada* that bring together scientific monitoring, Inuit Knowledge, and filmmaking in the Pangnirtung region.

Dr. L'Hérault uplifted our Atlantic research phase into core activities. In close partnership with local stakeholders and a Québec film producer, Vincent designed and initiated in spring 2018 a participatory research and documentary film project, *Le Peuple de la Mer*, with the coastal community of the Magdalen Islands located in the middle of the Gulf of St-Lawrence. In June and November 2018, and again in March 2019, L'Hérault and his team travelled to the Magdalen Islands to document and interview over 30 key players in the fisheries industry, including shellfish fishermen, plant owners, plant employees, fishermen associations, the Québec Fisheries Association, distributors, DFO scientists, as well as Québec's Deputy Minister of Fisheries, and Québec's Minister of Agriculture and Fisheries. L'Hérault also attended two conferences during winter 2019: the Annual conference of the Québec Fisheries Association in Québec, and the Seafood Expo North America in Boston. L'Hérault has been active in thinking through and developing a Chapter Outline for the OCP Book



project. Chapter 4, Knowledge Mobilization and Participatory Communities for Ocean Sustainability, will address the contribution of new approaches for knowledge sharing and community engagement in the context of a large-scale ocean research partnership.

Dr. Mauro has been supporting Baird and L'Hérault's work and has been highly active with his own contributions. On April 4, 2018, Dr. Mauro and the Prairie Climate Centre (PCC) at University of Winnipeg launched its flagship product—Climate Atlas of Canada—at the Royal Ontario Museum (ROM) with Environment and Climate Change Minister Catherine McKenna. The event included a demo and a conversation between Dr. Mauro and Minister McKenna, which was livestreamed on Facebook to thousands of viewers. Mauro also completed and launched the film *Beyond Climate* with Dr. David Suzuki and they have since toured it across Canada and British Columbia engaging thousands of Canadians in person and millions more via print, broadcast, and social media. Mauro, L'Hérault and the team at PCC have developed short films on fishing and aquaculture from their previous field work in the Magdalen Islands while a larger feature-length version is in production. In conjunction with the OCP meetings in Halifax, Mauro, L'Hérault and Baird have shot a short film about offshore oil and gas development on the East Coast that is now in production. Mauro has given numerous presentations on this research program, generated significant media, and also supported expert panel processes on climate change, oceans, and other related issues.

Regional Working Groups

Arctic

The Geomatics and Cartographic Research Centre (GCRC) at Carleton University has continued to work actively developing its partnership with Arctic groups over the past year, and this has included negotiating and consolidating funding for on-going atlas maintenance and technological development work, and for training and development.

Our key Northern partners include Government of Nunavut; Nunavut Coastal Resource Inventory (now Nunavut Coastal Inventory), which includes 22 communities, with whom a new Memorandum of Understanding with GCRC, Carleton University has been developed and signed (March 2019); and several northern communities and organizations including the Kitikmeot Heritage Society of Cambridge Bay, Inuit Tapiriit Kanatami, Clyde River, Slave Lake Coalition, Sahtu and Gwich'in.

GCRC participated in the *OceanCanada* Annual Conference in August 2018, and presented the Arctic Ocean Atlas. It conducted a Nunaliit training workshop with Kitikmeot Heritage Society and the Danish National Museum to develop the Fifth Thule Expedition Atlas in June 2018, this being part of a SSHRC International Partnership Development Grant approved in 2017. Mike Jaypoody of the Ittaq Heritage and Research Centre and Illisaqsvik Society launched the Clyde River Knowledge Atlas at the ArcticNet Conference in Ottawa in December 2018, and it is featured in a February 5, 2019 Nunatsiaq News article. Taylor, Hayes, and Oikle of the GCRC and Pulsifer of ELOKA (Exchange for Local Observations and Knowledge of the Arctic) supported the development of the atlas, and funders include TidesCanada, Crown-Indigenous



Relations, and Northern Development Canada Indigenous Community-Based Climate Monitoring Program.

The GCRC also secured considerable funding for its upcoming five-year cycle of work from the Canadian Foundation for Innovation (CFI) and from the Ontario Research Fund (ORF) to advance the work of the Canadian Consortium for Data Interoperability, including the further development of the Nunaliit Cybercartographic Atlas Framework, and addition of new functionalities. This will contribute to northern environmental/water research.

Its collaboration with other Carleton University partners as follows complements its Arctic work: Towards a Suitable Fishery for Nunavummiut (School of Public Policy and Administration); and Pilot Atlas of the Inuit Language in Canada (School of Linguistics and Language Studies).

The Arctic Working Group has also commenced work on its contribution to the forthcoming *OceanCanada* book (2020), with Indigenous partners leading the research work plan.

Pacific

In the past year, the main activities of the Pacific WG have continued to mainly focus on supporting work on the topic of access through the work of post-doctoral fellow Dr. Nathan Bennett. While several of the smaller projects of past years have been completed, progress on analysis, writing, outreach and publishing the results from them continues. In particular, two of our HQP (Rachelle Beveridge and Charlotte Whitney) have continued to advance their PhD research and dissertations, and several other members (Edward Gregr and Tom Okey) have published recent papers stemming from their work. We will also be hosting a final workshop focused on MPAs involving members of the Pacific WG. Many members of the Pacific WG attended the *OceanCanada* annual conference in Halifax in August 2018, as did our NGO partner, Ecotrust Canada, who has likewise focused on the theme of access within the context of community well-being. They completed the multi-year report “Just Transactions, Just Transitions” and published the Proceedings Report from the 2018 Fisheries for Communities Gathering. They continued to bring forward issues around, and barriers to, access in forums and presentations.

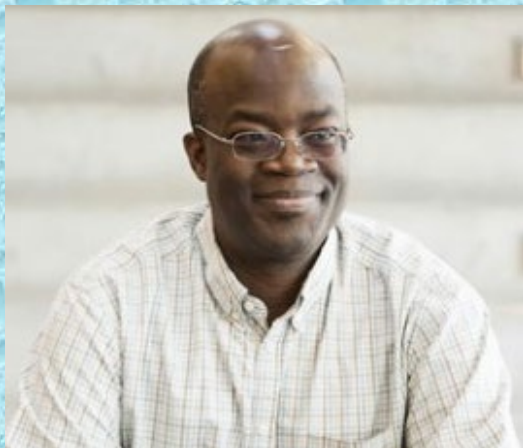
Atlantic

The Atlantic WG is continuing work from previous years with no new projects initiated. Two new HQP, Shannon Hicks and Libby Dean, joined Anthony Charles as part of his *OceanCanada* projects at Saint Mary's University.



2018/2019 OCEANCANADA RESEARCH COMMITTEE

Dr. U. Rashid Sumaila, Project Director and National Data and Integrated Scenarios Working Group Co-Lead



Dr. Sumaila is Professor and Director, Fisheries Economics Research Unit and the *OceanCanada* Partnership at the University of British Columbia. He specializes in bioeconomics, marine ecosystem valuation and the analysis of global issues such as fisheries subsidies, illegal fishing, climate change and oil spills. Sumaila has authored over 215 journal articles, including in *Science*, *Nature* and the *Journal of Environmental Economics and Management*. He is winner of the 2017 Benchley Oceans Award in Science, the 2016 UBC Killam Research Prize, the 2013 American Fisheries Society Excellence in Public Outreach Award, the

2009 Stanford Leopold Leadership Fellowship and the 2008 Pew Marine Fellowship. Sumaila was named a Hokkaido University Ambassador in 2016. He has given talks at the UN Rio+20, the WTO, the White House, the Canadian Parliament, the African Union, the British House of Lords and the St. James Palace on the invitation of Prince Charles. His research has generated a great deal of interest, and has been cited by, among others, *The Economist*, *The Boston Globe*, *New York Times*, *The Globe and Mail*, *The Wall Street Journal* and *Vancouver Sun*.

Dr. William Cheung, National Data and Integrated Scenarios Working Group Co-Lead Changing Oceans CCT Lead

Dr. Cheung is Associate Professor at the UBC Institute for the Oceans and Fisheries, head of the Changing Ocean Research Unit (CORU) and co-Director of the Nippon Foundation-UBC Nereus Program. He has published more than 100 articles on the vulnerability and responses of marine ecosystems and fisheries to climate change, fishing and other human stressors, and studies the scope, options and effectiveness for mitigation and adaptation to these impacts. Specifically, he develops empirical and numerical simulation models to examine the impacts of climate change on marine biodiversity and fisheries, globally and in various regional seas. Dr. Cheung's research group hosts a large quantity of data on gridded observed (past and current) and projected (future) ocean environmental, biodiversity and fisheries data particularly in the context of global change studies.





Phillip Saunders, Law and Policy Working Group Co-Lead



Dalhousie University Schulich School of Law Associate Professor Phillip M. Saunders, Q.C., is cross-appointed to the School for Resource and Environmental Studies and is a Research Fellow at the Centre for Foreign Policy Studies. He is a Member of the Nova Scotia Bar. His teaching and research interests are in international marine and environmental law, maritime boundary delimitation, tort law, judicial remedies and international fisheries law. Professor Saunders was formerly with the International Centre for Ocean Development as Senior Policy Advisor and as Field Representative, South Pacific. He was Dean of Law at Dalhousie from 2005 to 2010.

Dr. David VanderZwaag, Law and Policy Working Group Co-Lead



Dr. VanderZwaag is Professor of Law and Canada Research Chair in Ocean Law and Governance at the Marine & Environmental Law Institute, Schulich School of Law, Dalhousie University. He teaches international environmental law and serves as Associate Director of the Marine & Environmental Law Institute. He is past Co-director of Dalhousie's interdisciplinary Marine Affairs Program (1986-1991). His educational background includes PhD (1994, University of Wales, Cardiff), LL.M. (1982, Dalhousie Law School), J.D. (1980, University of Arkansas Law School), M.Div. (1974, Princeton Theological Seminary), and B.A. (1971, Calvin College). He is a member of the International Council of Environmental Law as well as the IUCN World Commission on Environmental Law (WCEL). From 2004-2018, he co-chaired the WCEL's Specialist Group on Oceans, Coasts and Coral Reefs. He is a co-founder of the Australian-Canadian Oceans Research Network (ACORN) and has extensive research and lecturing experience in South and Southeast Asia, the South Pacific, Europe, and the Caribbean. He serves on the editorial boards of various journals including *Ocean and Coastal Management*, *Marine Policy*, *Ocean Yearbook* and the *Yearbook of Polar Law*. Author of over 150 papers in the marine and environmental law field, his most recent co-edited book publications are *Aquaculture Law and Policy: Global, Regional and National Perspectives* (Cheltenham, UK: Edward Elgar, 2016), *Routledge Handbook of National and Regional Ocean Policies* (London & New York: Routledge, 2015), *Polar Oceans Governance in an Era of Environmental Change* (Cheltenham, UK: Edward Elgar, 2014); *Recasting Transboundary Fisheries Management Arrangements in Light of Sustainability Principles: Canadian and International Perspectives* (Leiden: Martinus Nijhoff, 2010), *Towards Principled Oceans Governance: Australian and Canadian Approaches and Challenges* (London: Routledge Press, 2006), and *Aquaculture Law and Policy: Towards Principled Access and Operations* (London: Routledge Press, 2006).



Dr. Ian Mauro, Knowledge Mobilization Working Group Co-Lead



Dr. Mauro is Associate Professor in the Department of Geography at the University of Winnipeg. He is a community-based researcher and filmmaker and has pioneered the development of multi-media methodologies for the social sciences. He uses participatory video to collect, communicate and conserve local and indigenous knowledge, an approach that allows people who live on the land to tell their own stories, in their own language, and within the landscapes where their knowledge has been generated.

Eric Solomon, Knowledge Mobilization Working Group Co-Lead

Eric Solomon is Director of Arctic Programs at Ocean Wise Conservation Association, the nonprofit organization that runs the Vancouver Aquarium among several other initiatives. He leads Ocean Wise's Arctic research, conservation and education initiatives, and works with Arctic Indigenous communities, researchers, policy-makers, educators and the general public to improve knowledge of and dialogue on this important region. He has dedicated much of the last decade toward working with Arctic Indigenous communities and scientific researchers to facilitate co-creation of research that addresses issues of local concern. A Laureate of the Arctic Inspiration Prize, Eric was a co-creator and oversees the operation of *Ikaarvik: Barriers to Bridges*, a program that works with northern Indigenous youth to be the bridge between scientific research and Arctic communities. He holds a bachelor's in Psychology, a master's in Marine Ecology and advanced graduate studies in Science Education, none of which compares to what he has learned while working with Indigenous communities across the North.





Dr. Nancy Doubleday, Arctic Working Group Co-Lead



Dr. Doubleday is Hope Chair in Peace and Health at McMaster University. She has expertise in ecological sciences, holds an LLB from Osgoode Hall, was called to the Bar of Ontario in 1982, and is a member of the Law Society of Canada. As a lawyer she has contributed to development of international and domestic law embracing human rights, health and the environment. Her experience includes establishing conservation easements, environmental impact assessment, and development of co-management under comprehensive claims; amending the Canadian Constitution; contributing to the establishment of the Northern Contaminants Program; linking Inuit interests to the

international Arctic Monitoring and Assessment Program; and participating in the University Consortium in Support of the Secretariat for the Convention on Biodiversity. She participated in the Working Group on Indigenous Peoples (Geneva), the Conferences of the Parties to the International Union for the Conservation of Nature and Natural Resources (Costa Rica, Ottawa), the International Whaling Commission (New Zealand, USA), the Finnish Initiative leading to the Arctic Environmental Protection Strategy, and the Arctic Council. She works at the interface of human rights and social justice, resilience and health to develop new strategies for peace and health, good governance and knowledge integration. She completed an International Polar Year research project addressing impacts of a changing tree line to better understand change and adaptive capacity in social-cultural-ecological systems, and chairs the Cold Region Environments Commission of the International Geographical Union.

Dr. D. R. Fraser Taylor, Arctic Working Group Co-Lead

Dr. Taylor is Chancellor's Distinguished Research Professor of International Affairs, Geography and Environmental Studies and Director of the Geomatics and Cartographic Research Centre (GCRC) at Carleton University, and a Fellow of the Royal Society of Canada. In 2013, he received the Carl Mannerfelt Gold Medal from the International Cartographic Association, and in 2014 the Killam Prize in the Social Sciences. His main research interests are in the application of geospatial information management to the analysis of key socio-economic problems in national and international contexts and the presentation of results in innovative new cartographic forms. A member of the United Nations Expert Group on Global Geospatial Information Management, he introduced and continues to develop the new paradigm of cybercartography. His interests in cartography and international development issues are often inter-related, including development studies with special reference to Africa, China and Latin America; regional and rural development theory and practice; sustainable development and indigenous development strategies; and technology transfer in the field of geomatics. Current research includes the use of cybercartography to create a series of atlases with Inuit communities and organizations, such as the Inuit Siku (sea ice) Atlas and the Nunavut Coastal Research Inventory Atlas. He is also actively involved in the Belmont Forum Pan-Arctic Options Project.





Dr. Natalie Ban, Pacific Working Group Co-Lead



Dr. Ban is Associate Professor in the School of Environmental Studies at the University of Victoria where she leads the Marine Ethnoecology Research group. Trained in geography (B.A. and M.A. in geography from McGill University), resource management and environmental studies (PhD from UBC Fisheries Centre), Dr. Ban draws upon many disciplines from natural and social sciences in her work. Through funding from both SSHRC and NSERC, as well as other granting agencies, her research interests span ethnoecology, conservation biology, marine spatial planning, conservation planning and implementation, and evaluation and mapping of cumulative impacts, mainly in marine and coastal systems.

With over 60 peer-reviewed journal publications, Dr. Ban's current research focuses on identifying options for management and conservation of biodiversity while respecting people's needs and uses of resources. She served as a member of the science advisory committee of the Marine Protected Area Technical Team, and is currently involved in the research management committee of the Marine Environmental Observation, Prediction and Response (MEOPAR) Network. She is an associate director of the Canadian Council on Ecological Areas (CCEA), and a member of Canadian Healthy Oceans Network (CHONe) II.

***Dr. Nathan Bennett, Pacific Working Group Co-Lead
Access to Resources CCT Co-Lead***



Dr. Bennett is currently cross-appointed as Postdoctoral Fellow with the OceanCanada Partnership at the University of British Columbia and the FishMPABlue2 Project at the University of Nice. As a broadly trained environmental social scientist, he chooses to primarily focus on research projects that interrogate various aspects of the complex relationship between the environment and human society with a solution-oriented lens. His research interests are broad – with projects focusing on such topics as marine protected area governance in Mexico, responses of fishing communities to environmental change in Thailand, indigenous community perspectives on conservation in Canada, marine conservation planning initiatives in North America, and the human dimensions of large-scale marine protected areas. Previously, he was a Banting Postdoctoral Fellow and Fulbright Visiting Scholar at the University of Washington and a Liber Ero and SSHRC Postdoctoral Fellow at UBC. For his doctoral research, supported by a Trudeau Scholarship and a SSHRC Joseph Armand Bombardier Canada Graduate Scholar Award, he worked with Dr. Phil Dearden as part of Project IMPAACT and the Marine Protected Areas Research Group at the University of Victoria. His dissertation focused on various aspects of the relationship between marine protected areas, climate change, and local livelihoods on the Andaman coast of Thailand. His Master's research with Dr. Harvey Lemelin at Lakehead University focused on the role of a Canadian national park in the social, cultural, political, and economic development of the Lutsel K'e Dene First Nation in the Northwest Territories, Canada. He was given the Canadian Association of Geographers Robin P. Armstrong Award for his thesis. Recently, the Society of Conservation of Biology recognized him with an early career conservation social scientist award for his contributions.



**Dr. Derek Armitage, Atlantic Working Group Lead
Governance CCT Co-Lead**

Dr. Armitage is Professor in the School of Environment, Resources and Sustainability at the University of Waterloo, where he leads the Environmental Change and Governance Group. His research focuses on the human dimensions of environmental change and the formation of adaptive, multi-level governance systems. The problem of 'fit' is a central interest – how governance systems and institutions can better match the dynamics of biophysical systems, with a primary focus on coastal and ocean contexts.

His publications have appeared in such journals as *Frontiers in Ecology and the Environment*, *Global Environmental Change*, *Ecology and Society*, and *International Journal of the Commons*. He is co-editor (with Fikret Berkes and Nancy Doubleday) of *Adaptive Co-Management: Collaboration, Learning and Multi-Level Governance* (UBC Press, 2007) and co-editor (with Ryan Plummer) of a volume on the relationship between adaptive capacity and environmental governance (Springer-Verlag, 2010), and most recently, co-editor (with Tony Charles and Fikret Berkes) of *Governing the Coastal Commons: Communities, Resilience and Transformation* (Routledge, 2017). He has



served as a consultant on a variety of projects for government agencies in Canada (Environment Canada, Fisheries and Oceans Canada, Ontario Ministry of Natural Resources, Alberta Environment), the Global Environmental Facility (World Bank), Asian Development Bank and Inter-American Development Bank. He currently serves as an editor for *Conservation Letters* and *Ecology and Society*. He is also a member of the Independent Science Panel for the Government of New Zealand's 'Sustainable Seas' initiative.



Dr. Megan Bailey, Access to Resources CCT Co-lead



Dr. Bailey is Assistant Professor with the Marine Affairs Program at Dalhousie University and Canada Research Chair in Integrated Ocean and Coastal Governance. Her work focuses on finding solutions at the intersection of markets and states to promote sustainable fishing and sustainable seafood consumption. She studies fisheries access and allocation in Nunavut and the Indian Ocean and the effectiveness and legitimacy of eco-labels and seafood traceability, and works on a number of interdisciplinary collaborations, for example, Canadian Healthy Oceans Network, Ocean Tracking Network, and *OceanCanada* Partnership. She received her PhD from the UBC Fisheries

Centre in 2012, where she sought solutions to global tuna governance through the lens of game theory and economics. She then spent three years as a Postdoc with the Environmental Policy Group at Wageningen University in the Netherlands. During this time, she helped to launch IFITT, one of the world's first full-chain seafood traceability initiatives. Megan serves on the Scientific and Technical Advisory Committee for the International Pole and Line Foundation, and is on the Board of Directors for the Fishermen and Scientists Research Society.

Dr. Carie Hoover, Governance Co-lead

Dr. Hoover is a post-doctoral Fellow at Dalhousie University. Her research project spans the Canadian Arctic addressing issues related to access and management of marine resources, including how a changing Arctic will impact access and management. Research projects in the Inuvialuit Settlement Region (western Arctic) are collaborative with the Fisheries Joint Management Committee (FJMC) and Fisheries and Oceans Canada (DFO) focusing on the Tarium Niryutait Marine Protected Area and the surrounding ecosystem to assess ecosystem indicators to be used in monitoring. These primarily revolve around belugas, the MPA focal species, but extend to



assessing multiple long-term datasets for their effectiveness as indicators, and suiting the needs of communities and management goals. In the eastern Arctic, she has been working in collaboration with the Nunavut Wildlife Management Board (NWMB) and other commercial fisheries stakeholders to update the Nunavut Commercial Fisheries Allocation Policy. In developing this policy, which aims to outline access to commercially harvested species, she has employed a consensus-based approach involving multiple Inuit organizations. She works in collaboration with researchers at Dalhousie University, University of Manitoba, DFO, Natural Resources Canada, FJMC, and the NWMB in developing research programs to identify key factors important in accessing commercial fisheries.



ADVISORY BOARD, MANAGEMENT COMMITTEE, AND RESEARCH COMMITTEE

The *OceanCanada* Advisory Board provides arm's length independent intellectual advice and support. It monitors the Partnership's progress, and provides guidance in such areas as attracting new funding, improving knowledge mobilization and extending the scope of research. Board members for Year Five were:

Rosemary Ommer (Chair), University of Victoria
Fikret Berkes, University of Manitoba
Christopher Harvey, MacKenzie Fujisawa LLP
Russ Jones, Haida Nation

OceanCanada's Management Committee is comprised of Project Director Rashid Sumaila, Working Group leads Derek Armitage and Phillip Saunders, and Russ Jones. The Management Committee monitors research progress, addresses challenges, plans collaborative initiatives, and reviews budgets.

The *OceanCanada* Research Committee includes the Project Director and all Working Group and CCT leads (see descriptions above), and a representative from the Department of Fisheries and Oceans. It provides the overall intellectual vision for our work as well as guidance on training and skills development of students, research assistants, and postdoctoral fellows.

Together, these committees provide direction to the Partnership, ensuring a dynamic approach to research, training, mentorship and knowledge mobilization across all activities. WG and CCT leads are responsible for group coordination and integrating Partnership activities.



OCEANCANADA PARTNERS AND COLLABORATORS

OceanCanada has established partnerships with a large number of universities, organizations and faculty members from across Canada, and has added one collaborator over the past year.

OceanCanada Partners

ARCTICConnexion
Canadian Rivers Institute
Carleton University
Dalhousie University
Ecotrust Canada
Fisheries and Oceans Canada
Friends of Port Mouton Bay
Living Oceans Society
McMaster University
Oceana Canada
Ocean Wise Conservation Association
Saint Mary's University
Simon Fraser University
T. Buck Suzuki Environmental Foundation
United Nations University Institute for Water, Environment and Health
University of British Columbia
University of Victoria
University of Waterloo
University of Winnipeg
World Wildlife Fund – Canada

OceanCanada Collaborators

Claudio F. Aporta, Dalhousie University
Fikret Berkes, University of Manitoba
Kai Chan, University of British Columbia
Ratana Chuenpagdee, Memorial University of Newfoundland
Kevern Cochrane, Rhodes University
Herb Dhaliwal, Parliament of Canada
Sidney Fels, University of British Columbia
Robyn Forrest, Fisheries and Oceans Canada
Sumeet Gulati, University of British Columbia
Christopher Harvey, MacKenzie Fujisawa LLP
Jeffrey Hutchings, Dalhousie University
Russ Jones, Council of the Haida Nation
Coleen Moloney, University of Cape Town
Gordon Munro, University of British Columbia
Grant D. Murray, Vancouver Island University
Rosemary E. Ommer, University of Victoria
Yoshitaka Ota, University of British Columbia
Ian Perry, Fisheries and Oceans Canada
Jennifer Silver, Guelph University (new)
Robert Stephenson, Fisheries and Oceans Canada
Trevor Swerdfager, Fisheries and Oceans Canada
Philippe Tortell, UBC Earth, Ocean and Atmospheric Sciences.
Duncan Wilson, Port Metro Vancouver



SUMMARY OF OCEANCANADA ACTIVITIES 2017/2018

OCEANCANADA CORE AND RELATED PUBLICATIONS (OCP members highlighted)

Core publications:

Alava JJ, Cisneros-Montemayor AM, Sumaila UR, Cheung WWL. 2018. Projected amplification of food web bioaccumulation of MeHg and PCBs under climate change in the Northeastern Pacific. *Scientific Reports*. 8(1):13460.

Bennett NJ. 2018. Navigating a just and inclusive path towards sustainable oceans. *Marine Policy*. 97:139-146.

Brueckner-Irwin I. 2018. Implications of marine protected areas on social-ecological wellbeing in the Bay of Fundy, Canada. [dissertation]. [Waterloo (ON)]: University of Waterloo. <https://uwspace.uwaterloo.ca/handle/10012/12802>

Cisneros-Montemayor AM, Cashion T, Miller DD, Tai TC, Talloni-Álvarez N, Weiskel HW, Sumaila UR. 2018. Achieving sustainable and equitable fisheries requires nuanced policies not silver bullets. *Nature Ecology & Evolution*. 2(9):1334.

Coffin MRS, Courtenay SC, Knysh KM, Pater CC, van den Heuvel MR. 2018. Impacts of hypoxia on estuarine macroinvertebrate assemblages across a regional nutrient gradient. *FACETS*. 3: 23-44.

Coffin MRS, Courtenay SC, Pater CC, van den Heuvel MR. 2018. An empirical model using dissolved oxygen as an indicator for eutrophication at a regional scale. *Marine Pollution Bulletin*. 133: 261-270.

Cullain N, McIvor R, Schmidt AL, Milewski I, Lotze HK. 2018. Potential impacts of finfish aquaculture on eelgrass (*Zostera marina*) beds and possible monitoring metrics for management: a case study in Atlantic Canada. *PeerJ* 6:e5630; DOI 10.7717/peerj.5630.

Epstein G, Andrews E, Armitage D, Foley P, Pittman J, Brushett R. 2018. Human dimensions of ecosystem-based management: lessons in managing trade-offs from the northern shrimp fishery in Northern Peninsula, Newfoundland. *Marine Policy*. 97:10-17.

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McIvor R, Loucks R, Smith R. 2018. Estimating nitrogen loading and far-field dispersal potential from background sources and coastal finfish aquaculture: a simple framework and case study in Atlantic Canada. *Estuarine, Coastal and Shelf Science*.



205:46-57.

Milewski I, Loucks RH, Fisher B, Smith RE, McCain JSP, Lotze HK. 2018. Sea-cage aquaculture impacts market and berried lobster (*Homarus americanus*) catches. *Marine Ecology Progress Series* 598:85-97.

Okey TA. 2018. Indicators of marine ecosystem integrity for Canada's Pacific: an expert-based hierarchical approach. *Science of the Total Environment*. 645:1114-1125.

Punt A, Okamoto D, MacCall A, Shelton O, Armitage D, Cleary J, Davies I, Dressell S, et al. 2018. When are estimates of spawning stock biomass for small pelagic fishes improved by taking spatial structure into account? *Fisheries Research*. 206: 65-78.

Sala E, Mayorga J, Costello C, Kroodsma D, Palomares MLD, Pauly D, Sumaila UR, Zeller D. 2018. The economics of fishing the high seas. *Science Advances*. 4(6): eaat2504.

Saunders P. 2018. The role of international environmental law in Canadian courts. In: Ingleson AE, editor. *Environment in the courtroom*. Calgary: University of Calgary Press. p. 152-162.

Sumaila UR. 2018. How to make individual transferable quotas work economically, socially and environmentally. *Oxford Research Encyclopedia of Environmental Science*.

Sumaila UR, Schuhbauer A. 2018. A simple application of bioeconomics to fisheries subsidies. In: Seijo JC, Sutinen JG, editors. *Advances in Fisheries Bioeconomics*. London: Routledge. p. 115-129.

Tai TC, Robinson JPW. 2018. Enhancing climate change research with open science. *Frontiers in Environmental Science*. 6:115.

VanderZwaag DL. 2018. Governance of the Arctic Ocean beyond national jurisdiction: cooperative currents, restless sea. In: Oral N, Scheiber H, Kwon N, editors. *Ocean law debates: the 50-year legacy and emerging issues for the years ahead*. Leiden: Brill/Martinus Nijhoff. p. 401-418.

VanderZwaag DL, Steiner N, Larsen JR. 2018. Examples of global and regional laws and policies relevant to addressing the potential impacts of climate change and ocean acidification. In: AMAP, editor. *Arctic Monitoring and Assessment Programme (AMAP), AMAP Assessment 2018: Arctic Ocean Acidification*. Tromso, Norway: Box 1.1 at p. 2.

Voss R, Quaas MR, Schmidt JO, Stoeven MR, Francis TB, Levin PS, Armitage DR, Cleary JS, Jones RR, Lee LC, Okamoto DK, Silver JJ, Siple MC, Thornton TF, Dressel SC, MacCall AD, Punt AE. 2018. Quantifying the benefits of spatial fisheries management: an ecological-economic optimization approach. *Ecological Modelling*. 385(10):165-172.



Related publications:

Alava JJ, Ross PS. 2018. Pollutants in tropical marine mammals of the Galapagos Islands, Ecuador: an ecotoxicological quest to the last Eden. In: Fossi C, Panti C, editors. Marine mammal ecotoxicology: impacts of multiple stressors on population health. London, UK: Elsevier/Academic Press. p. 213-234.

Alexander S, Epstein G, Bodin Ö, Armitage D, Campbell D. 2018. Participation in planning and social networks increase social monitoring in community-based conservation. Conservation Letters. e12562.

Álvarez-Romero JG, Mills M, Adams VM, Gurney GG, Pressey RL, Weeks R, Ban NC, Cheok J, Davies TE, Day JC, Hamel MA, Leslie HM, Magris RA. 2018. Research advances and gaps in marine planning: towards a global database in systematic conservation planning. Biological Conservation. 227:369-382.

Andrachuk M, Armitage D, Hoang HD, Le NV. 2018. Building blocks for social-ecological transformations: identifying and building on governance successes for small-scale fisheries. Ecology and Society. 23(2): 26.

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Belhabib D, Dridi R, Padilla A, Ang M, Le Billon P. 2018. Impacts of anthropogenic and natural “extreme events” on global fisheries. Fish and Fisheries. 19(6):1092-1109.

Bennett NJ, Roth R. 2018. Realizing the transformative potential of conservation through the social sciences, arts and humanities. Biological Conservation. <https://doi.org/10.1016/j.biocon.2018.07.023>

Bennett NJ, Satterfield T. 2018. Environmental governance: a practical framework to guide design, evaluation, and analysis. Conservation Letters, e12600. DOI: 10.1111/conl.12600

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Blythe J, Silver J, Evans L, Armitage D, Bennett N, Moore M, Morrison T, Brown K. 2018. The dark side of transformation: latent risks in contemporary sustainability discourse. *Antipode*. <https://doi.org/10.1111/anti.12405>.

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Young OR, Webster DG, Cox ME, Raakjær J, Blaxekjær LØ, Einarsson N, ... Pinkerton E, et al. 2018. Moving beyond panaceas in fisheries governance. Proceedings of the National Academy of Sciences. 115(37):9065–9073.

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Epstein G, Andrews E, Armitage D, Foley P, Pittman J, Brushett R. 2018. The impacts of species portfolios and democratic rulemaking on fisher support for addressing ecosystem trade-offs in fisheries: lessons from Northern Peninsula, Newfoundland. *OceanCanada Working Paper Series #2018-1*; Vancouver, BC.

Reports:

Bellerby R, Anderson LG, Osborne E, Steiner N, et al. 2018. Arctic Ocean acidification: an update. In: Arctic Monitoring and Assessment Programme (AMAP), editor. AMAP assessment 2018: Arctic Ocean acidification. Tromsø, Norway. p. 3-14.

Cashion T, Alava JJ, Teh LSL, Cheung WWL, Sumaila UR. 2018. Global change and the fate of the East and South China Seas. Report prepared for ADM Foundation, Hong Kong.

Ecotrust. 2018. Fisheries for communities gathering, February 23, Vancouver, BC. Proceedings report. Ecotrust.

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Blog posts and online resources:

Eger S. 2018. Girls gone water: meet the women.

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Ross L. 2018. Port Mouton Bay Asset Map. Online digital story map exploring Port Mouton Bay's community assets.

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PRESENTATIONS

Toronto, ON. March 28, 2019. VanderZwaag, David.

Navigating the international legal and political seascapes of the Northwest Passage: conflict, cooperation, questions. Canadian Roundtable on Northern Low Impact Shipping Corridors and the Proposed Arctic Seaway Authority.

Paramaribo, Suriname. March 19-21, 2019. Koubrak, Olga.

Protecting sea turtles in the wider Caribbean: an observer's experience with the SPAW protocol. Wider Caribbean Sea Turtle Conservation Network Annual General Meeting.

Fort Garry, MB. March 15, 2019. Baird, Natalie.

Shifting our lens: engaging youth in oceans and climate change research through participatory video. Rising Up, A Graduate Students Conference on Indigenous Knowledge and Research, University of Manitoba.

Vancouver, BC. March 15, 2019. Sumaila, Rashid.

Is there a pathway to a sustainable ocean's economy? MP Joyce Murray's series Breakfast Connections.

Kuala Lumpur, Malaysia. March 13, 2019. Teh, Louise; Teh, Lydia.

Economic and social research in small-scale fisheries. Universiti Malaya.

Belfast, Northern Ireland. March 6, 2019. Eger, Sondra.

Learning from experience to advance the operationalization of integrated coastal and marine management. Queen's University.



Ottawa, ON. February 28, 2019. Mauro, Ian.
Restorying climate change: Indigenous knowledge, storytelling, and mapmaking. National Climate Change Science and Knowledge Priorities Workshop, Environment and Climate Change Canada.

Winnipeg, MB. February 25, 2019. Mauro, Ian.
Climate, cinema, and cartography: science, storytelling, and the future of adaptation. Manitoba Water and Wastewater Association Annual Conference.

Bamfield, BC. February 23-24, 2019. Ban, Natalie.
People in ecology. Pacific Ecology and Evolution Conference.

Perth, Australia. February 19, 2019. Sumaila, Rashid.
How to achieve a sustainable blue economy. Institute of Advanced Studies, University of Western Australia.

Vancouver, BC. February 14, 2019. Bennett, Nathan.
Using perceptions as evidence in sustainability science. Institute for the Oceans and Fisheries Seminar, UBC.

Winnipeg, MB. February 8, 2019. Mauro, Ian.
Climate, cinema, and cartography: science, storytelling, and the future of planning. Atmosphere Conference, University of Manitoba Faculty of Architecture.

Victoria, BC. February 2-3, 2019. Ban, Natalie.
Marine conservation research on BC's central coast: Indigenous-academic partnerships. Outer Shores Expeditions Symposium.

Vancouver, BC. February 1, 2019. Bennett, Nathan.
In peopled seas: catalyzing insights from the marine social sciences in the ocean sustainability agenda. Institute for the Oceans and Fisheries Seminar, UBC.

Vancouver, BC. January 25, 2019. Cashion, Tim.
Dispelling the myths of farmed fish. Beer Battered Fish n' Chips Seminar, Institute for the Oceans and Fisheries, UBC.

Accra, Ghana. January 18, 2019. Sumaila, Rashid.
Illicit trade in the marine resources of West Africa. University of Ghana.

San Diego, CA. January 11, 2019. Sumaila, Rashid.
Interdisciplinary collaborative ocean economics research with examples from the 'ocean trenches.' Center for Marine Biodiversity and Conservation (CMBC), Scripps Institution of Oceanography 6th Annual Knowlton-Jackson Distinguished Speaker Lecture Event.



Vancouver, BC. January 11, 2019. Harper, Sarah.
Who owns fishing licences in BC? Biodiversity Legendary Internal Seminar Series (BLISS), Biodiversity Research Centre, UBC.

Ottawa, ON. December 14, 2018. Murasugi, Kumiko; Taylor, Fraser; Hayes, Amos.
A Nunaliit atlas of the Inuit languages in Canada. ArcticNet Conference.

Haikou, China. November 16, 2018. VanderZwaag, David.
International law and marine biodiversity conservation: tangled currents, foggy future. China-ASEAN Academy on Ocean Law and Governance 4th Program, National Institute for South China Sea Studies.

Haikou, China. November 16, 2018. VanderZwaag, David.
The precautionary approach on coastal/ocean governance: beacon of hope, seas of confusion and challenges. China-ASEAN Academy on Ocean Law and Governance 4th Program, National Institute for South China Sea Studies.

Toronto, ON. November 15, 2018. Sumaila, Rashid.
Indo-Pacific fisheries as a key to security and cooperation. The Indo-Pacific: Security Governance and Peace, second in the Series of Annual Workshops on The Geotechnical Politics of Ocean Frontiers, York University.

Washington, DC. November 10, 2018. Koubrak, Olga.
Marine mammal protection. Changing and Dynamic Oceans: Gauging Law and Policy Responses, George Washington Law School.

Washington, DC. November 10, 2018. VanderZwaag, David.
Governance of BBNJ in the Central Arctic Ocean: cooperative currents, foggy future. Changing and Dynamic Oceans: Gauging Law and Policy Responses, George Washington Law School.

Washington, DC. November 10, 2018. VanderZwaag, David.
Regional case studies (Sargasso Sea, Arctic). Changing and Dynamic Oceans: Gauging Law and Policy Responses, George Washington Law School.

Washington, DC. November 9, 2018. Saunders, Phillip.
Offshore renewables (tidal energy, wind). Changing and Dynamic Oceans: Gauging Law and Policy Responses, George Washington Law School.

Tokyo, Japan. November 8, 2018. Sumaila, Rashid.
Fisheries subsidies and the sustainable supply of seafood. Emerging Opportunities for Marine Sustainability in Japan. Pew Fellows Program in Marine Conservation, University of Tokyo.



Bali, Indonesia. October 30, 2018. Sumaila, Rashid.
The current landscape of global fisheries subsidies. A Closed-Door Breakfast on Fisheries Subsidies, Pew Charitable Trusts.

London, UK. October 17, 2018. Sumaila, Rashid.
Can subsidies work for fish and for people? Fish Night 5, International Institute for Environment and Development.

Ottawa, ON. October 12, 2018. Taylor, Fraser; Hayes, Amos.
Nunaliit Atlas framework and digital atlas development at GCRC. Canadian Foundation for Innovation (CFI), Carleton University.

Rovaniemi, Finland. October 10, 2018. VanderZwaag, David.
Implications of the UN high seas negotiations for the Central Arctic Ocean: cooperative currents, foggy waters. Panel on Biodiversity in the high seas of the Central Arctic Ocean: advancements in scientific understanding and future management, Arctic Biodiversity Congress.

Vancouver, BC. October 5, 2018. Tortell, Philippe.
A new generation of ocean observing approaches to link plankton dynamics to fisheries science and management. Institute for the Oceans and Fisheries Seminar Series, UBC.

Aguascalientes, Mexico. October 2, 2018. Taylor, Fraser.
Geoinformation in the 21st century: challenges and opportunities for national mapping and statistical agencies. INEGI National Statistics and Mapping Agency, President and Senior Leadership.

Aguascalientes, Mexico. October 1, 2018. Taylor, Fraser.
The importance of geoinformation and mapping in the age of location. Geography and INEGI National Statistics and Mapping Agency, Environmental Programs Directorate.

New York, NY. September 20-21, 2018. VanderZwaag, David.
Sustaining wild salmon in the North Atlantic: progressions and depressions. Common Currents: Examining How We Govern the Ocean Commons Conference, Columbia University.

Halifax, NS. September 19-21, 2018. Sumaila, Rashid.
Is the Paris Agreement good for fish, fishers, seafood workers, and consumers? Frontiers in Ocean Sustainability: Co-designing Research and Solutions, National Research Council of Canada.

St. John's, NL. September 18, 2018. Sumaila, Rashid.
Managing the seas for people and nature. Taking Stock Dialogue, Memorial University.



Copenhagen, Denmark. September 17-18, 2018. VanderZwaag, David.
Governance of the Central Arctic Ocean: cooperative currents, foggy waters. Second International Conference on Transatlantic Maritime Emissions Research Network (TRAMEREN), Frontiers of Ocean Governance: Private Actors, Public Goods, University of Copenhagen.

Kiel, Germany. September 3-7, 2018. Sumaila, Rashid.
Fish, ocean oxygen depletion and the food security of current and future generations. Ocean Deoxygenation: Drivers and Consequences, Past, Present, Future.

Washington, DC. July 26, 2018. Sumaila, Rashid.
Environmental issues in the South China Sea. Panel member at 8th Annual South China Sea Conference.

St. Augustine, Trinidad and Tobago. July 25-27, 2018. Koubrak, Olga.
The Caribbean legal seascape for shared marine living resources: treaty obligations, examples of implementation and suggestions for the course forward. Latin America and Caribbean Congress for Conservation Biology.

Kuching, Sarawak, Malaysia. June 28, 2018. Sumaila, Rashid.
MPAs are like retirement accounts: leakages undermine them. 5th International Marine Conservation Congress.

Gothenburg, Sweden. June 25-29, 2018. Sumaila, Rashid.
Marine plastic pollution in a circular perspective. Policy session, World Congress of Environmental and Resource Economists.

Paris, France. June 21, 2018. Gaill, Françoise; Sumaila, Rashid; Roberts, Callum.
High seas: why we must act now. Roundtable, The High Seas: What's at Stake?

Washington, DC. June 5, 2018. Cheung, William.
Exploring future seafood sustainability under scenarios of climate change and socio-economic development. 4th International Symposium on the Effects of Climate Change on the World's Oceans.

Halifax, NS. June 4, 2018. VanderZwaag, David.
The precautionary approach in coastal/ocean governance: beacon of hope, seas of confusion and challenges. IOI Summer Course on Ocean Governance: Policy, Law and Management.

Washington, DC. June 4, 2018. Cheung, William.
Vulnerability of deep-sea fishes to climate change. 4th International Symposium on the Effects of Climate Change on the World's Oceans.



João Pessoa, Brazil. June 3-8, 2018. Koubrak, Olga.
An elusive safety net: a review of conservation and management of vulnerable elasmobranchs under the Species at Risk Act and the Fisheries Act in Atlantic Canada. Sharks International 2018.

Kunshan, China. June 3, 2018. Sumaila, Rashid.
Case analysis on sustainable fishery. 2018 Blue Pioneer Program, Duke Kunshan University.

Kunshan, China. June 2, 2018. Sumaila, Rashid.
We need the ocean more than the ocean needs us. International Symposium on Blue Economy and Marine Conservation, Duke Kunshan University.

Halifax, NS. May 26-30, 2018. Bennett, Nathan.
The enablers and barriers to local environmental stewardship. Communities, Livelihoods and Conservation Conference.

Vancouver, BC. May 25, 2018. Sumaila, Rashid; Seitzinger, Sybil; Lopez-Correa, Catalina.
How can Canada's three oceans be part of the solution in addressing climate change challenges? Panel, Peter Wall Institute, University of British Columbia.

Montreal, QC. May 23, 2018. Fortier, Martin; Burgess, Henry; Mauro, Ian.
Enhanced research-technology and policy cooperation. Panel at Arctic Sustainability Summit.

Dalian, China. May 20-21, 2018. VanderZwaag, David.
Governance of the Central Arctic Ocean: fishy focus, foggy future. Fifth Sino-Canadian Exchange on the Arctic, Dalian Maritime University Law School.

Newport, RI. May 18, 2018. Sumaila, Rashid; Svensson, Lisa; Rolfe, Jason.
Setting the scene: how plastic pollution is affecting ocean health. Ocean Summit.

Southampton, Bermuda. May 9, 2018. Baughman McLeod, Kathy; Sumaila, Rashid; Niehörster Falk; Way, Mark.
Natural capital and ecosystem services. Interactive working group, Ocean Risk Summit.

Galicia, Spain. May 2, 2018. Sumaila, Rashid.
The role of climate change, fisheries subsidies and large scale high seas protection on the conservation and fair sharing of the global ocean. Keynote address at Martec 18, International Conference on Advances in Marine Technologies Applied to Discard Mitigation and Management.

Singapore. April 27, 2018. Sumaila, Rashid.
Doomsday analysis – the economic, social, and food security outcomes of IUU fishing. APEC Experts Workshop on Illegal, Unreported and Unregulated Fishing.



Vancouver, BC. April 12, 2018. **Sumaila, Rashid.**
Turn the high seas into a fish bank for the world? Nature Vancouver, Vancouver
Natural History Society-Marine Biology Section.

Seattle, WA. April 4, 2018. **Bennett, Nathan.**
Coastal and Indigenous community access to marine resources in Canada. Salish Sea
Ecosystem Conference.

NEW VIDEOS (<http://oceancanada.org/resources/video/>)

- Beyond Climate (BC), Documentary full feature film (2018, 49:00)
- Inuit Coastal Culture and Environment, Documentary Video project (in-progress full feature film)
- Maruuniik silarjuanik aturqsimalirtunga / I've Lived Two Worlds Now (2018)
- Fishing with Our Hands (2018)

MEETINGS, WORKSHOPS, WEBINARS

Rashid Sumaila was a guest speaker at MP Joyce Murray's series Breakfast Connections at Aphrodite Restaurant, with the talk, "Is there a pathway to a sustainable ocean's economy?"; Vancouver, March 15, 2019.

In 2018-2019 Ian Mauro toured the film Beyond Climate with David Suzuki in BC and held Q & A sessions in Vancouver (Congress of the Humanities and Social Sciences, June 4, 2019; National Indigenous Guardians Gathering, also with Frank Brown, March 13; and Vancouver International Mountain Film Festival, March 1), Victoria (Ideafest, University of Victoria, March 9), Kamloops (Thompson Rivers University, March 8), Kelowna (UBC Okanagan, March 7). He also did opening remarks and Q & A sessions for the film showing at the Winnipeg Cinematheque February 15, 16, and 17, 2019; and with David Suzuki at the Gimme Some Truth Film Festival (Winnipeg, November 2, 2018), and Planet in Focus Film Festival (Toronto, October 26, 2018).

Rashid Sumaila participated in meetings as a member of Norway's international high-level panel on sustainable ocean economy at the World Ocean Summit 2019; Abu Dhabi, UAE, March 5-7, 2019.

William Cheung, Rashid Sumaila, and Andrés Cisneros-Montemayor led workshop discussions at Towards an Inclusive Blue Economy, an international event to discuss how to develop a marine economy that is fair and sustainable. The event was hosted by the International Institute for Environment and Development (IIED); London, UK, February 25-26, 2019.

Rashid Sumaila taught a two-day masterclass in fisheries economics at the University of Western Australia; Perth, February 18-19, 2019.



William Cheung and Rashid Sumaila participated in the workshop Oceans and the Future of Food, at Stanford University; Stanford, CA, January 29-31, 2019.

Cecilia Engler was an invited law and policy specialist to the first meeting of the ICES Working Group on Environmental Interactions of Aquaculture (WGEIA); Copenhagen, December 11-14, 2018.

Cecilia Engler was a participant to the Nippon Foundation-University of British Columbia Nereus Program Workshop on Developing Future Scenarios for Marine Aquaculture; Vancouver, BC, December 3-4, 2018.

Sarah Harper was part of the webinar “No hidden catch: mainstreaming small-scale fisheries in national accounts,” hosted by the International Institute for Environment and Development (IIED). Other presenters included Michael Bordt of UN ESCAP Statistics Division, and Ina Porras, senior researcher for IIED’s Shaping Sustainable Markets research group; November 20, 2018.

Amos Hayes and Robert Oikle did a training presentation on the Nunaliit Atlas framework for academic researchers from Ottawa, Montreal, Toronto, and Quebec at Carleton University; Ottawa, ON, October 22-24, 2018.

Amos Hayes presented “Nunaliit Atlas Framework and Digital Atlas Development at GCRC” to work/study students at Carleton University; Ottawa, ON, October 15, 2018.

Natalie Ban participated in Embedding social considerations in conservation planning at the CCEA National Workshop on Conservation planning; Toronto, ON, October 1-5, 2018.

In September 2018, Rashid Sumaila was invited to be on the Expert Group of the High Level Panel on Building a Sustainable Ocean Economy. The Panel consists of thirteen heads of government with support from the UN Secretary General’s Special Envoy for the Ocean.

David VanderZwaag participated on the IUCN delegation to the first negotiation session at the UN for a legally binding instrument on the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction; New York, NY, September 4-17, 2018.

William Cheung participated in the workshop Climate Change and Fisheries, CONICET; Buenos Aires, Argentina, August 3-4, 2018.

Rashid Sumaila participated in a Small-Scale Fisheries and Technology Workshop at Stanford University, hosted by Stanford Center for Ocean Solutions and Environmental Defense Fund; Stanford, CA, June 11-12, 2018.



William Cheung participated in the Pacific Institute for Climate Solution Seminar, Simon Fraser University; Burnaby, BC, May 3, 2018.

Cecilia Engler was appointed to the Expert Panel established under the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean in April 2018. The panel's mandate was to review the objection filed by Ecuador against a conservation measure adopted by the South Pacific Regional Fisheries Management Organization (RFMO).

Louise Teh participated in Implications of subsidy exemptions and disciplines on small-scale fisheries. ICTSD Seminar on Fisheries Subsidies, International Centre for Trade and Sustainable Development; Geneva, Switzerland, April 10, 2018.

Natalie Ban presented to the federal panel on Marine Protected Area standards; Ottawa, ON, April 7, 2018.



MEDIA COVERAGE

2019

- March 31. [Choisir entre la protection des océans ou sa destruction](#). Le Parisien.
- March 13. [Trust more important than ecology to gain local support for conservation](#). EurekAlert!
- March 11. [Perbudakan ABK dan Illegal Fishing di Laut Lepas](#). Darilaut.
- March 8. [Suzuki joins environmental filmmaker for TRU presentation](#). CFJC Today.
- March 8. [What to do in Kamloops this weekend](#). Infotel.ca.
- March 8. [David Suzuki implores young to act on climate change](#). Times Colonist.
- March 8. [Globally renowned fisheries economist Professor Rashid Sumaila visits UWA](#). University of Western Australia News.
- March 7. [Tata Kelola Perikanan Laut Lepas Harus Diperbaiki Menyeluruh](#). Medcom.
- March 7. [Indonesia Kaji Tata Kelola Perikanan di Sela World Ocean Summit](#). Tempo.
- March 6. [Have your say in how city supports the arts](#). The Daily Courier.
- March 5. [David Suzuki to speak in at UBC Okanagan](#). Kelowna Capital News.
- March 5. [Mehr Klimaschutz brächte Fischerei Milliarden](#). SonneSeite.
- March 5. [East China Sea fish stocks hit hard by global warming](#). China Dialogue Ocean.
- March 4. [Heatwaves sweeping oceans 'like wildfires', scientists reveal](#). The Guardian.
- March 4. [If you don't like eating fish, you might be a fan of global warming](#). Popular Science.
- March 3. [Ideafest: what a warmer climate means to you](#). Times Colonist.
- March 1. [Il riscaldamento globale sta già danneggiando la pesca in tutto il mondo](#). Green Report Italy.
- March 1. [Mehr Klimaschutz brächte Fischerei Milliarden](#). Wallstreet Online Germany.
- March 1. [Global warming decimating world fisheries—and studies warn it's on track to get worse without urgent action](#). Common Dreams.
- February 28. [58 things to do in Metro Vancouver on Friday, March 1](#). Georgia Strait.
- February 28. [The world is losing fish to eat as oceans warm, study finds](#). The New York Times.
- February 28. [Earth's fish are disappearing because of climate change, study says](#). CNN.
- February 28. [Scientists warn global warming could destroy fish stocks and spark migration](#). The National.
- February 28. [Scientists warn global warming could decimate fish supplies and fuel migration](#). The Japan Times.
- February 27. [Film 'Beyond Climate' features issues that are impacting BC](#). Global News BC.



- February 27. [Achieving Paris climate target could net additional billions in fisheries revenue](#). UBC Science.
- February 26. [Five events we're looking forward to most at Vancouver International Mountain Film Festival](#). Inside Vancouver.
- January 24. [Perairan Dikuasai China, Ghana Hanya Peroleh 5% Keuntungan](#). Matamata politik.
- January 22. [Pool resources to tackle illegal, unreported fishing](#). Ghanaian Times.

2018

- December 12. [Pesquerías pueden reducir pérdidas con gestión más sostenible](#). SciDev.Net
- December 10. [What will be the last fish?](#) Popular Mechanics.
- December 7. [¿Cómo afectará el cambio climático las pesquerías del mundo?](#) Ecoticias.
- December 5. [UBC study identifies destructive fisheries](#). The Cordova Times.
- December 4. [Cómo afectará el cambio climático a la pesca en México y el mundo](#). Tu interfaz de negocios.
- December 3. [¿Cómo afectará el cambio climático las pesquerías del mundo?](#) El Punto Critico.
- November 27. [Research shows inefficient fishing costs global companies over \\$51bn annually](#). Undercurrent News.
- November 19. [Apparently no one knows how much an oil spill on Salish Sea would cost](#). Sightline Institute.
- November 19. [Ending harmful fisheries subsidies could reverse decline in fish stocks](#). Pew.
- November 15. [Ocean shock: big aquaculture bulldozes Borneo](#). VOA News.
- November 14. [Climate change and the oceans](#). Yale Climate Connections.
- November 8. [How nutritious is that fish? To find out, ask its relatives](#). Oceana.
- October 31. [Too many fishers in the sea: the economic ceiling of artisanal fisheries](#). Science Daily.
- October 31. [Ocean shock: big aquaculture bulldozes Borneo](#). Malay Mail.
- October 19. [Climate change will exacerbate pollutant woes for southern resident orcas](#). The Ubysey.
- September 18. [Managing the ocean](#). CBC Radio.
- September 10. [Warming seas, falling fortunes: stories of fishermen on the front lines of climate change](#). Center for American Progress.
- September 10. [Wait, so how much of the ocean is actually fished?](#) The Atlantic.
- September 6. [Fishing on the open ocean is rarely profitable, and comes with a huge list of environmental issues](#). Vue Weekly.
- September 3. [High seas need to get fishy again](#). The Pioneer.
- September 2. [The rule of law on the high seas](#). Cyprus Mail.
- August 30. [Négociations à l'ONU pour protéger la haute mer](#). Le Monde.
- August 30. [Treaty to regulate fishing on high seas laudable](#). The Province.
- August 29. [Establishing the rules on the high seas](#). Merritt Herald.
- August 28. [How the U.N. should regulate high-seas fishing](#). Japan Times.



- August 23. [The South China Sea's marine environment in decline amid territorial spats](#). Radio Free Asia.
- August 9. [Are wealthy nations hoarding the world's fish supply?](#) Pacific Standard.
- August 5. [Rising water temperatures have sharks moving north away from Florida](#). WPLG Local 10.
- August 4. [Sharks are changing where they swim, breed and hunt along American coasts, say experts](#). ABC News.
- August 3. [Rich and poor divide: which nations benefit from global fishing?](#) News Deeply.
- July 19. [Scientist sees harmful fisheries subsidies taking toll on global fish stocks](#). Pew Trusts.
- July 12. [Sharks honoured on new Canadian postage stamps](#). The Star Vancouver.
- July 1. [High seas fishing would go broke without 'massive' subsidies: study](#). The Siasat Daily.
- June 28. [Je propose de transformer la haute mer en banque à poissons](#). Le Temps.
- June 25. ['Fish Wars' loom as climate change warms waters](#). Truth Dig.
- June 21. [Sistemas de ordenamiento pesquero deberían reflejar realidades del cambio climático](#). Fish Information and Services.
- June 19. [Stock ittici: si spostano più veloci delle normative per la loro allocazione](#). Regione Ambiente.
- June 18. [El cambio climático ha aumentado los conflictos pesqueros entre los países](#). Diario Financiero.
- June 17. [El cambio climático acrecienta los conflictos entre países por la pesca](#). Eco Diario.
- June 17. [Third of Gulf's marine life could be extinct by 2090, study finds](#). The National (UAE).
- June 15. [El cambio climático fomenta los conflictos entre países por la pesca](#). Diario Siglo XXI.
- June 15. ['Fish Fights' could erupt as climate change drives species across borders](#). Ecowatch.
- June 15. [Researchers say out-of-date regulatory system hasn't kept up with the realities of global warming](#). Tunisie Soir.
- June 14. [Climate change has fish moving faster than regulations can keep up](#). Science Daily.
- June 11. [Government subsidies play key role in profitability of high sea fishing](#). The University of Western Australia News.
- June 8. [Rashid Sumaila discusses sea use in Africa](#). CGTN America.
- June 7. [Much of high seas fishing industry would be unprofitable without government subsidies](#). Eurasia Review.
- June 7. [La mayoría de la pesca en alta mar ya no es rentable sin subvenciones](#). Europa Press.
- June 6. [Study on economics of fishing on the high seas](#). Phys.org.



- June 6. [High seas fishing would go broke without 'massive' subsidies](#). France 24.
- June 6. [High seas fishing would go broke without 'massive' subsidies: study](#). Breitbart.
- June 6. [More than half of industrial fisheries aren't turning a profit: study](#). The Star Vancouver.
- June 6. [High seas fishing isn't just destructive — it's unprofitable](#). National Geographic.
- June 6. [Study on economics of fishing on the high seas](#). EurekAlert.
- May 26. [Ecologistas urgen al comisario de Pesca a acabar con la sobrepesca antes de 2020](#). La Opinión A Coruña.
- May 25. [Calls to end wasteful EU overfishing](#). Food Ingredients First.
- May 24. [EU fisheries commissioner urged to 'seize the moment' to end overfishing](#). Undercurrent News.
- May 24. [Karmenu Vella recebe apelo para terminar com a sobrepesca na Europa](#). Jornal da economia do mar.
- May 24. [Nueve medioambientalistas instan a Karmenu Vella a poner "la casa en orden"](#). Industrias Pesqueras.
- May 23. [Nine ocean leaders urge for an end to EU overfishing](#). Safety4Sea.
- May 23. [Ocean Summit sponsored by the Volvo Group spotlights the problem of plastic in the world's oceans](#). Recycling Product News.
- May 23. [Global ocean leaders urge Commissioner Vella to end EU overfishing](#). European Supermarket Magazine.
- May 23. [Global ocean leaders urge Commissioner Karmenu Vella to end EU overfishing](#). The Shift.
- May 18. [It pays to invest in biodiversity](#). National Post.
- May 17. [It pays to invest in biodiversity](#). The Conversation.
- May 14. [Insurance turns to coral reefs and mangroves as ocean risks surge](#). Reuters.
- May 8. [Bill C-68 enshrines human dimensions in Canadian fisheries law](#). Policy Options.
- May 6. [With warmer water, fish need more oxygen than their gills can supply](#). Sentinel Source.
- May 3. [Should nations close the high seas to fishing?](#) Re.Think.
- April 28. [Warm water could mean less oxygen, smaller fish](#). Panama City News Herald.
- April 24. [Cientistas alertam que aquecimento global vai deixar peixes nanicos](#). Gazeta do Povo.
- April 30. [Climate change could deplete fish stocks without better data, international agreements, researchers say](#). The Star Vancouver.
- April 23. ["Malos y feos", subsidios a pesca](#). Cuarto Poder.
- April 23. [Beberapa terumbu karang kuat hadapi gelombang panas](#). Republika.
- April 20. [Heat waves are roasting reefs, but some corals may be resilient](#). Science News.
- April 18. ["Bad and ugly," fishing subsidies](#). El Universal.
- April 10. [Fishers uncertain future; are subsidies to blame?](#) Modern Ghana.



