Lessons for assessing and building adaptive capacity of coastal social ecological systems

Charlotte Whitney and Nathan Bennett

On November 19-20, 2015, the OceanCanada Pacific Working Group hosted a workshop on adaptive capacity to climate change, a theme with application to specific OceanCanada research objectives within both the Pacific region and nationally. The workshop brought together several researchers from across the OceanCanada Partnership, including Natalie Ban, Ian Perry, Nancy Turner, Jessica Blythe, Derek Armitage, William Cheung, Elena Finkbeiner, Eddie Allison, Maery Kaplan-Hallam, Rashid Sumaila, Kai Chan, and Lily Yumagulova.

Researchers discussed the application of adaptive capacity research to coastal social-ecological systems. The main objectives of the workshop were to explore the variety of approaches used to understand the socio-economic and biophysical changes that are occurring in coastal social-ecological systems and the adaptive capacity of coastal communities. These different approaches to analyzing adaptive capacity have benefits and drawbacks, but to the best of our knowledge, there has not been a comprehensive review of the different methods that can be used to assess adaptive capacity. We explored the strengths, drawbacks, and insights of the range of approaches for analyzing adaptive capacity, and discussed how might these different approaches be applied to analyze the adaptive capacity of linked social-ecological systems.

The outcomes and follow-up from this workshop are twofold: First, we are preparing a paper describing the diversity of assessment tools for studying adaptive capacity, with a set

of best practices and considerations, with linked examples and case studies. Second, we intend to develop a decision tool for managers, researchers, and communities that can be applied across regions to further the goals of OceanCanada – namely, to enhance our understanding of the threats facing Canada's oceans and proactively work towards building adaptive capacity to climate change and associated impacts to coastal social-ecological systems.

James Simonee, sampling fish in Pond Inlet, where local youth are assessing the impact of shipping on marine resources.

OceanCanada supports launching of new ocean-focused and community-based initiative in Pond Inlet, Nunavut

Vincent L'Hérault, ARCTIConnexion

Four years have passed since I first met James Simonee, who was then a student at the Environment Technology Program, Nunavut Arctic College. James is a prolific young hunter who has a deep connection to his culture, a natural curiosity for science and a global vision on the modern challenges that threaten the environment and the marine resources he and his community rely on.

When I met James again in Pond Inlet in 2014, our discussion rapidly led to a mutual

interest in working together. Together, we have worked hard to develop a research project that can assess the pressing issue of marine shipping and its impact on the marine resources: whales, seals and fishes, in particular. We have developed a novel paradigm, one in which a young local researcher can take the lead and continually explore and increase research skills while being mentored and supported by a team of researchers.

By spring 2015, we raised enough support to get started on a first trial for the monitoring of Arctic char's ecology and contaminants in the vicinity of Pond Inlet, along the shipping route utilized for the exportation of ore outwards towards the Eclipse Sound. James has since participated in local training delivered by the Government of Nunavut, Department of Environment, and Nunavut Research Institute, captured and sampled fishes, and worked with local fishers and elders. James is also now participating in data-analysis training with OceanCanada partner, ARCTIConnexion, in Québec City and we are planning our next winter trip for fish sampling scheduled for February 2016.

Our project envisions a fresh definition of partnership and knowledge production in the field of ocean research, by and for local actors. It is designed to advance OceanCanada's core goal of developing a Canada-wide vision of our three oceans with integrated knowledge and contribution of local stakeholders.

Winter 2015 OceanCanada Core and Related Research

Doubly lucky: Economic impact of the English Bay bunker oil spill of April 2015

An estimation of the economic impacts of the 2015 English Bay, BC, oil spill on Metro Vancouver's marine-related economic activities, including commercial fishing and tourism activities.

Taking stock and projecting the future of South China Sea fisheries

An application of OceanCanada's "taking stock" framework for assessing the economic, social and ecological status of fisheries in the South China Sea.

Canada at a crossroad: The imperative for realigning ocean policy with ocean science

An analysis of the gap between Canada's ocean policy and management activities and ocean science, with key recommendations for Canada's next government.

Winter 2015 OceanCanada Activities

OceanCanada Director and National Data and Integrated Scenarios Co-lead Rashid Sumaila presented at international forums, including: Congressional Briefing on the fisheries subsidies provisions in Environment Chapter of the Trans-Pacific Partnership Agreement in Washington D.C., November, 2015; Royal Society of Canada Symposium on *Social license and marine biodiversity* in Victoria, November, 2015.

Communications and Outreach Working Group Co-lead, Eric Solomon, recently conducted workshops in four communities: Kugluktuk, Gjoa Haven, Cambridge Bay and Pond Inlet. These workshops were geared to identifying priority environmental issues of concern to local communities.The workshops explored the strengths of Inuit Qaujimajatuqangit (Inuit Traditional Knowledge) and science, focusing on ways to combine the two to address environmental issues of concern to the communities.

Vina Brown, Heiltsuk woman from Bella Bella visited The University of Winnipeg. She is developing a participatory documentary film in collaboration with the Communication and Outreach Working Group Co-lead Ian Mauro and OceanCanada Master's student, Hillary Beattie: *Tribal Journeys*. Started in 1993 by Heiltsuk leader Frank Brown, the gathering has inspired the revival of canoe culture, and now each year communities across the Pacific coast carve canoes and travel to various regions of the coast to engage in cultural sharing and discussions regarding cultural and ecological sustainability.

Phillip Saunders helped organize a panel on International Law and Resource Management at the Canadian Council on International Law in November, 2015. He presented a paper titled, *Management of Highly Migratory Species; Coherence, Chaos and Creative Conflict,* based on research on ICCATT and other RFMOs research conducted last summer.

Members of the OceanCanada Law and Policy Working Group participated in a Canadian Fisheries Research Network workshop in Halifax in November, 2015.

Paige Olmstead, OceanCanada Master’s student, presented at the Canadian and US Societies for Ecological Economics Conference in Vancouver in October, 2015. The presentation was titled, *Enhancing stewardship through monetary mechanisms? A new approach for conservation finance.*

OceanCanada PhD Student Charlotte Whitney and Postdoc Nathan Bennett organized a workshop on adaptive capacity of coastal communities at The University of British

Columbia, November 19-20, 2015.

OceanCanada Atlantic Working Group sponsored Dr. Ratana Chuenpagdee, Memorial University, to deliver a presentation on the governability challenge of small-scale fisheries at the University of Waterloo in November, 2015.

The Atlantic Working Group held several meetings over the fall of 2015 to develop a research framework and bowtie analysis of cumulative effects monitoring and policy for Northumberland Strait. Participants in these meetings included representatives of the Canadian Fisheries Research Network, the Canadian Water Network, St. Mary's University, and Fisheries and Oceans Canada.

D.R. Fraser Taylor, Theresa Scassa and Amos Hayes, members of the Arctic Working Group, delivered several presentations at the International Polar Data Forum II at the University of Waterloo, October 2015: Legal and Ethical Norms for Incorporating Traditional Knowledge in Polar Data Infrastructures (Taylor and Scassa); Using Nunaliit for Diverse and Distributed Knowledge Management (Hayes); Data Rescue and Preservation (Taylor).

Arctic Working Group Co-lead D.R. Fraser Taylor and Amos Hayes visited the National Museum of Denmark, Copenhagen, to deliver a series of presentations on cybercartography and Traditional Inuit Knowledge.

Amos Hayes, Arctic Working Group member, demonstrated the new Nunaliit platform in several venues in fall 2015: for members of the OceanCanada Scientific Committee; at a community-mapping symposium at Concordia University and for the Geographical Names Board of Canada.

Members of the National Data and Integrated Scenarios Working Group continues to hold monthly workshops and meetings for its members.

The first version of a living database has been developed by the National Data and Integrated Scenarios Working Group. A series of cross-Partnership meetings were held in November 2015 to develop a platform for data sharing within the OceanCanada Partnership and with external stakeholders.

OceanCanada in the News

Our researchers have received great media coverage this winter. Please visit our website for links to interviews, articles and pictures.

For more information please visit our website and follow us on twitter.