



Message from the Executive Director



While the main theme emerging from the [global climate talks in Bonn](#) was slow, steady progress, Canada noticeably exerted its presence at the international level.

With its inclusion in the Ministerial on Climate Action coalition, which is also comprised of the European Union and China, Canada helped corral ministers and high-level representatives from 34 economies that are part of the G20 and other invited countries to meet in the fall in Montreal. Canada and the United States are also leading the 27-partner [Powering Past Coal Alliance](#), aimed at accelerating clean growth and achieving the rapid phase-out of traditional coal power.

The Pacific Institute for Climate Solutions (PICS) welcomes this action in the global arena, but we also know considerable work still needs to be done at home. It is clear that it will take a colossal effort for Canada to take steps to cut greenhouse gas (GHG) emissions and achieve its Paris Agreement obligations. We will also need to prepare for the climate change that we cannot avoid. For PICS, the world event affirmed that the complexity of the challenge requires multi/inter-disciplinary research collaboration, and sharing of knowledge among all nations.

What does that mean for us? We will continue to enhance the local, national and global reach of our evidence-based, policy- and technology-neutral solutions research, which pools expertise from across the province's four research-intensive universities: University of Victoria (UVic), University of British Columbia (UBC), Simon Fraser University (SFU) and University of Northern British Columbia (UNBC). We strongly believe engagement with government, industry and other key

stakeholders keeps our research relevant.

Looking to the future, PICS is identifying ways to increase the use of our research by policymakers and industry in BC, Canada and around the world. The [PICS Strategic Plan \(2017-2022\)](#), released this fall, defines our renewed vision, mandate, objectives and principles. It focuses on three strategic areas that will strengthen our impact: conducting collaborative research, communicating climate change solutions and enhancing organizational development. At the heart of this plan is a research approach that will feature integrated project planning, collaboration, communication and evaluation by stakeholders, from beginning to end.

In October, I was appointed to the BC government's Climate Solutions and Clean Growth Advisory Council, a 22-member body that will provide strategic advice to inform government's climate action that aligns with economic growth. By having a seat at this table, we can ensure PICS' collaborative research is front and centre with government, industry and other diverse stakeholders. In November, PICS welcomed Ged McLean as our new associate director. I'm excited for Ged to apply his vast experience as an academic and industry expert in clean energy systems, and his keen interest in finding solutions to mitigation and adaptation as PICS seeks to expand our global reach.

This is an exciting time for PICS and our team looks forward to implementing a strategic plan that will enhance our operations and governance so that we can continue to build on the substantial climate-solutions research that we have accomplished since our inception.

Sybil Seitzinger

Executive Director of PICS

'PICS' collaborative research model goes hand-in-hand with communicating climate solutions. Our aim is to ensure communication and engagement between relevant stakeholders at the outset of any research initiative to optimize results.'

-Sybil Seitzinger

Collaborative Research Model

Climate change adaptation for buildings

In September, the PICS' community attended the Livable Cities Forum, organized by the City of Victoria and ICLEI Canada. Planners, policymakers and other professionals across Canada discussed ways to build cities equipped for current and future climate change impacts. A main research area for PICS is the Energy Efficiency in the Built Environment project, which aims to develop practical strategies and policy recommendations to increase energy efficiency in BC's built environment. PICS believes the energy performance of these systems of cities, towns and neighbourhoods is shaped by factors such as building design, behaviour of inhabitants, as well by building infrastructure.

PICS interns, who contribute to our broader strategic focus of improving

BC communities, conducted research on cities and adaptation to climate change. At the forum, Anika Bell (UVic) showcased her research in 2016 at the BC Climate Action Secretariat, which was used to develop an infographic featuring different climate risks such as flooding, extreme heat and drought, and potential measures for adapting to each risk factor. Riley Richardson's (UVic) work on mapping climate variability for Island Health facilities was also showcased at the forum during a presentation. Richardson completed a customized climate change resiliency assessment toolkit for Island Health, as well as a series of climate projection maps overlaying facility locations and local climate projections based on Pacific Climate Impacts Consortium regional analysis tool. His work demonstrates

how public-sector organizations and governments across Canada can support each other in building low-carbon resilient communities.

Cher King-Scobie (UBC), through her work with the Fraser Basin Council, studies global, novel approaches to flood management and seeks to apply these assessments to the social, economic and ecological conditions to inform the Lower Mainland's flood management strategy. For the City of Surrey, Tjasa Demsar (SFU) developed a heat map that showed temperatures during various times throughout the day to identify where residents are at the highest risk for heat-related health impacts.



The Wood Innovation Research Lab (WIRL), under construction in Prince George, BC, will be used by UNBC's master of engineering in integrated wood design to analyze the environmental load of processes and products used for the new lab. The PICS-supported project will produce life cycle analysis and energy models for four design variations of the building. The research for this project is being conducted by Stephanie Wall (MEng), and supervised by program chair Guido Wimmers.

Green Resilience Workshop

PICS collaborated with SFU's Adaptation to Climate Change Team (ACT) and Green Resilience Strategies to conduct a workshop at the Livable Cities Forum. The focus was on "low carbon resilience" or "green resilience," synergies in climate change mitigation and adaptation. About 40 representatives from government, city planners, engineers, consultants and academics participated in a green resilience matrix exercise that integrated mitigation and adaptation strategies, as well as exploring other variables such as funding mechanisms, to optimize the benefits of integrated climate change solutions. Participants identified key green resilience focus areas including research and analysis, capacity building and technical assistance and policies. A [report](#) highlighting the workshop outcomes was published in November.

Forestry's contribution to climate change mitigation

The Forest Carbon Management (FCM) project, one of PICS' Big 5 Projects, examines ways forest management can contribute to reductions in GHGs. In May, at a workshop attended by government, industry and other stakeholders, FCM released research findings showing that BC's forestry sector can potentially make a major contribution toward meeting the province's climate targets. This can be done through a mix of regionally-specific harvest and stand management techniques, bioenergy investments and creating more long-lived wood projects. Led by Werner Kurz of Natural Resources Canada's Pacific Forestry Centre in Victoria, FCM suggests these practices could contribute 35 percent of BC's 2050 carbon-emissions reduction target at costs below \$100 per tonne of carbon dioxide equivalent (CO₂e).

In its third year of a five-year project, FCM collaborators are currently incorporating feedback on the initial analyses to refine assumptions and input data, improve estimates of mitigation outcomes and assess how climate change impacts on forest growth and mortality may impact scenario results. In the fall, provincial and federal representatives participated in a project update. FCM is currently assessing policy options for decision-makers, as well as financing and stakeholder views. Findings from the stakeholder surveys, which seek to understand the public's support for eight proposed forest mitigation strategies, are slated for release in the new year.

Communicating Climate Solutions

In September, Kurz delivered a [keynote speech](#) at the International Union of Forest Research Organizations conference in Freiburg, Germany on the potential contribution of the forest sector to climate change mitigation. He highlighted recent signs of the earth's system responding to climate change that are consistent with scientific predictions. Kurz noted BC's unprecedented fire season this summer with 1.2 million hectares of forest burned, producing emissions three times greater than all other BC sectors over a period of several weeks. Kurz raised the need for a "systems" approach to forest carbon management and he presented 10 options for forest sector mitigations.



10 Steps Toward Forest Mitigation:

- Grow more trees, faster, to increase carbon stocks
- Avoid land-use change (deforestation)
- Use harvested trees first for long-lived harvested wood products (HWPs)
- Maximize carbon retention in HWPs and reduce wood waste at every stage
- Maximize avoided emissions through wood use
- Do not burn residues or waste unless energy is captured
- Conserve forests in areas of high conservation value and of low risk of natural disturbance
- Anticipate climate change impacts and align mitigation and adaptation objectives
- Monitor consequences of carbon management actions
- Obtain public support to use forest sector in climate change mitigation strategies

In focus: COP 23

Sara Muir Owen, PICS' program manager at UBC, joined global stakeholders at COP 23 to observe Bula Zone meetings on facilitation of pre-2020 action, loss and damage, international stock-take, and other Paris Agreement-related topics. Muir Owen participated in a number of side events, which included debates on "quick technofixes" like nuclear, carbon capture and storage, bioenergy to "transformational pathways" around behavior, lifestyle, gender equality, and just transitions to meet our global climate goal. There is a growing recognition of the critical role non-party stakeholders—including PICS, indigenous communities, local and regional governments, businesses, professional associations and universities—will play in implementing the Paris Agreement.

The Octopus' Garden

In collaboration with SFU's ACT, the Pacific Water Research Centre, City of Vancouver and Vancouver Aquarium, PICS held a five-part series on sea level rise. Regions around the world are experiencing climate change impacts such as droughts, floods, wildfires, and heat waves, while planning for the long-term effects of sea level rise and coastal storms.



In the wrap up event in November, PICS executive director Seitzinger spoke about the need for stakeholders around the world to derive innovative approaches to address sea level rise. She highlighted the work of PICS fellow Ben Pelto (UNBC), whose field research in the Columbia River Basin involves using airborne laser altimetry to measure change in glacial mass. Changes in glacial mass around the world contribute to sea level rise. In four years, Pelto found there has been an equivalent of about a

four-metre-loss of water, which contributes to our understanding of river flows and potential changes in the future. Jackie Yip (UBC), who is developing robust impact patterns to study the impact of sea level rise, assessed future coastal flood scenarios for Vancouver and modelled 14 flood impacts including environmental, economic and social variables. Using machine learning, she reduces the range of situations to about 16 from over 300 scenarios to reduce uncertainty for planners. Previous sessions

focused on local issues and solutions with Angela Danyluk from the City of Vancouver, John Readshaw, manager of coastal engineering at SNC-Lavalin, and Andy Yan, SFU City Program, as well as First Nations stories with Squamish Chief Ian Campbell and Haida elder Captain Gold. Henk Ovink, special envoy on water for the Netherlands, and Tamsin Lyle of Ebbwater Consulting and Deborah Carlson from West Coast Environmental Law addressed challenges and solutions and global policy responses.

Careers in BC Clean tech

In October, the Immigrant Services Society of BC (ISSofBC), Vancouver Public Library and Vancity, hosted the Connect to the Future: Careers in BC's Cleantech conference in downtown Vancouver. The event connected new immigrants to a range of individuals including engineers, computer scientists, researchers, project managers, product manufacturers and senior executives. Companies such as Loop Energy, Delta-Q Technologies, Ecotagious and Axine Water Technologies, shared information about their respective industries, research and other activities.

The event followed, in part, from a PICS-hosted public panel discussion in downtown Vancouver in June aimed at highlighting the importance of BC's growing cleantech sector and climate change solutions. PICS played a key role in linking the ISSofBC with BC's cleantech industry experts.

United Nations Sustainable Development Goals

In June, PICS Executive Director Seitzinger spoke at a UN conference in New York coinciding with World Ocean Day, which focused on oceans and SDG 14: conserve and sustainably use the oceans, seas and marine resources. She spoke about the topic of nutrient pollution to the coastal oceans from land-based activities and the impact of climate change on those inputs, and some solutions to address this issue. Muir Owen presented a paper *Pacific Institute for Climate Solutions: British Columbia's Universities Collaborating on Climate Change* at the International Conference on Sustainable Development 2017, held in September in New York City. She explained how PICS assists the BC government with climate change challenges through research on mitigation and adaptation solutions. She won a best paper award at the event, which draws professionals from the private sector, academia, government, and civil society, alongside students from the world's top universities.

Global Climate Observing System (GCOS)

In September, Seitzinger attended a GCOS steering committee meeting in which a new ad hoc task force was struck. GCOS is a unit of the UN's World Meteorological Organization. In the past, GCOS has primarily focused on observations to understand the physical climate system. The task force will explore observations for climate mitigation and adaption. GCOS will help countries develop, track and report on the efficacy of these plans.