Ryerson University | Geoffrey F. Bruce Fellowship in Canadian Freshwater Policy

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To: House of Commons Standing Committee on Environment and Sustainable Development

From: Dr. Carolyn Johns, Ryerson University
Professor, Department of Politics and Public Administration
Chair, Geoffrey Bruce Fellowships in Canadian Freshwater Policy
Member, International Joint Commission Water Quality Board
Member, Ryerson Urban Water

Re: Submission to the House of Commons Standing Committee on Environment and Sustainable Development Study on Freshwater in Canada

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Thank you for providing the opportunity to provide input in the form of brief responses to several questions posed by the Standing Committee on Environment and Sustainable Development committee's study on freshwater in Canada.

1. Introductory information

a) Which issues related to protecting and managing freshwater does your organization work on?

Ryerson University has many different research projects and programs for researchers and students focused on freshwater.

My own work and research focuses on water governance and policy, with a particular focus on the Great Lakes region. I have been conducting research on water policy in Canada for 25 years. I am the Chair of the Bruce Fellowships in Canadian Freshwater Policy, a program established by a private donation from Erika Bruce to fund Canada's next generation of water policy leaders. I am a member of the International Joint Commission's (IJC) Water Quality Board and involved in several projects with the IJC. I am also a member of Ryerson Urban Water, an interdisciplinary research centre at Ryerson University that focuses on a wide range of freshwater research projects.

2. Interaction and collaboration with federal departments and agencies

a) Does your organization interact with federal departments and/or agencies on freshwater issues? If so, on which issues and with which departments and/or agencies?

Ryerson University has several partnerships with federal departments related to research on freshwater issues. Some of my research projects focus on interaction and collaborations with the International Joint Commission and Environment and Climate Change Canada. The primary focus of my research is on water governance and policy implementation challenges related to the Great Lakes Water Quality Agreement and several federal, provincial and municipal policies.

b) Do the specific freshwater issues targeted by your organization fit within the mandate of a given federal department and/or agency or do they relate to more than one department and/or agency? If more than one, have you been able to identify a lead department and/or agency with which to engage?

c) Have you encountered notable successes in engaging with the federal government on freshwater issues? If so, please specify. If you have not had success in doing so, what in your opinion is the reason (e.g., no program available tailored to your needs, no identifiable service or unit within a department and/or agency with which to engage)?

I have worked collaboratively on several projects with the International Joint Commission, including placement of summer students in internships with the IJC and collaborative research projects. I have previously partnered with Environment and Climate Change Canada on Social Science and Humanities Research Council of Canada research grants and grant proposals.

d) Do you foresee engaging with the new Canada Water Agency? If so, in what way? What are your organization's expectations with respect to the Agency?

I have already engaged with the public consultation on the new Canada Water Agency through a submission as part of the public consultation with the Bruce Fellows and have participated in the national and regional consultation forums. I also hosted an online session with Environment and Climate Change Canada for the Bruce Fellows and a group of graduate students at Ryerson related to the Canada Water Agency. A new Canada Water Agency presents engagement opportunities for scholars, researchers and students on several fronts. I expect my own engagement with the Canada Water Agency will primarily focus on social science and policy research involving collaborative research design and projects that engage graduate students and Bruce Fellows in collaborative research projects, internship opportunities, and postdoc partnership opportunities for Canada's next generation of water scientists, practitioners and leaders.

3. Federal water legislation, policies and regulations

a) Does your organization interact with federal departments and/or agencies on policies, legislation, regulations, or funding programs related to freshwater? If so, please specify.

I work on several projects with the International Joint Commission related to the Great Lakes Water Quality Agreement. I am co-leading the Great Lakes Regional Public Opinion Poll project, co-leading the Great Lakes Horizons project examining trends and threats in the region over the next 20-50 years in the context of climate change, a post-carbon and circular economy. I am also a member of the work group on a Great Lakes Early Warning System and a member of the work group developing a decadal science plan for the Great Lakes region that includes a social science and policy research agenda.

b) Can you identify any current gaps in federal water legislation, policies, regulations, and/or initiatives, or in general across jurisdictions? If so, please specify.

The major legislative gap is the lack of a modern federal statute related to Canada's most valuable natural resource. Modernization of the *Canada Water Act* (1970, 1985) and the Federal Water Policy (1987) is long overdue. A modern national water statute is needed, one that integrates water quality and quantity regimes, surface water and groundwater in the context of climate change. A national priority needs to focus on data integration and national water data infrastructure based on intergovernmental and multi-sector partnerships. The decline of the National Water Research Institute and Canada Centre for Inland Waters over the past 30 years and the devolution of water science to universities has resulted in a serious lack of national data on freshwater and groundwater. Although there are many funding initiatives for water science, there is also a critical gap in socio-economic research related to freshwater. Indigenous, peoples, communities and knowledge related to water is another major gap in federal water policies that must be addressed and be an important foundation of Truth and Reconciliation. Other major gaps relate to groundwater, droughts and next generation water infrastructure.

c) Do you feel the federal government could play a more effective role in protecting watersheds in Canada? If so, which watersheds and how?

There is significant scientific and community engagement work ongoing in most major watersheds in Canada. Many of Canada's watersheds are home to universities and intergovernmental, public-private, community and watershed-based partnerships. The federal government does play a role in many of these watersheds including the Great Lakes-St.Lawrence basin, MacKenzie River basin, Lake Winnipeg, Lake Simcoe and other watersheds, however federal leadership, strategic investments and the potential for partnerships is underdeveloped. The federal government could play a much more strategic water policy and watershed protection role by playing a leadership role

investing in watershed-focused partnerships; stimulating private sector and municipal investment in leading-edge water technologies, innovation and infrastructure; working with environmental, water and community organizations; and engaging Indigenous peoples and communities in water stewardship across Canada.

d) Are there areas of freshwater policy, legislation and/or regulation where you feel the federal government should play a greater role?

The consultations related to the Canada Water Agency have highlighted and documented that there are numerous areas of freshwater policy where the federal government must play a greater role. The scholarship on water governance and policy indicates Canada is lagging behind other jurisdictions in freshwater policy and innovation. Below are just some of the critical areas of need:

- addressing water inequities by recognizing Indigenous water rights and fulling implementing the Safe Drinking Water Act for First Nations Act and associated regulations
- engaging in international water forums (Canada is virtually absent on the global stage related to major freshwater programs and initiatives)
- national water data (data on water quality, quantity and water use will be critical to Canada's economic, environment and social future; standardized data, a national water monitoring strategy, and policies related to open data that incorporate water security risks are critical)
- water security (access to clean water for vulnerable domestic and global populations; security from cyber threats and attacks on water systems)
- water technology and innovation (countries with leading edge water policies, technologies and water industrial policies will be the most sustainable and prosperous in the coming decades)
- blue-green infrastructure (aging infrastructure and opportunities for shifting investment from grey to blue-green water infrastructure are critical)
- regulation of toxic contaminants, plastics and other materials that threaten human-health
- public education, engagement and behavioural change (water citizenship)
- champion a new water values and ethics charter in Canada

e) Are there areas of freshwater policy, legislation and/or regulation that you feel the federal government should vacate and leave to another level of government or to the private sector?

Canadian freshwater policy cannot be a jurisdictional or public-private issue. Water as a human right, intergovernmental policy approaches and public-private partnerships need to be starting points and foundational in new federal water policy. All water is transboundary, all levels of government, public, private and non-profit sectors should be involved, and federal leadership is critical. In addition to federal leadership, the scope, mandate, and work of the Canadian Council of Ministers of the Environment should prioritize a focus on freshwater and have Indigenous and municipal representatives. A new Canada Water Agency must have an intergovernmental management board, Indigenous leadership/involvement, and a diverse board including leading representatives from science, environment and technology sectors. The board should also include diverse representation that has traditionally been excluded from water policy leadership including Black, Indigenous, people of colour, and youth.

f) Are you aware of instances where federal freshwater policy, legislation, regulations, and/or initiatives have clearly benefitted from your organization's input?

My own research and engagement of university students in research projects over the past two decades has supported work of the International Joint Commission and involved research partnerships with practitioners including presentations, reports, and submissions.

4. Collection of information and data

a) Do you believe that there is sufficient data collected and made available publicly about freshwater in Canada?

There is not sufficient freshwater data in Canada. There are many different universities, government departments at the federal, provincial and local levels and community organizations collecting various types of data on water quality and quantity but there is no national data set or water census. The data is particularly insufficient related to groundwater.

b) Do you believe there should be improvement in freshwater-related data-sharing?

Data standardization and sharing are critical to Canada's future water governance and transition to a post-carbon and circular economy. This should be an important national priority as water security becomes a more pressing issue globally in the context of climate change.

c) Is there any specific type of data or information you would like the federal government to provide to freshwater stakeholders?

Standardized, national, longitudinal data on key water quality, quantity and water uses that is publicly available would significantly strengthen Canada's knowledge of its most precious resource. The federal government does not need to be the primary or only collector of water data. There is a critical need for the federal government to use a 'government as a platform', open data approach to high quality, standardized data through well-developed partnerships with provinces, municipalities, universities, water boards, conservation authorities, water organizations, and community groups. Indigenous communities should have their own authority over their water data and be full partners in data sharing partnerships that include Indigenous ecological knowledge and data.

d) Has your organization experienced challenges obtaining well-organized data from the federal government on issues relating to freshwater?

The lack of accessible, geospatial, national water quality and quantity data seriously limits research and evidence-based decision making. This lack of national and regional water data is particularly acute related to many social, economic and environmental research questions. The International Joint Commission and ECCC have some very good regional data related to the Great Lakes but even in this region there is a lack of social, economic and environmental data related to water quality, quantity and water uses.

e) Is the lack of standardized data or information across government jurisdictions a problem or challenge for your organization in accomplishing its objectives with respect to protecting and managing freshwater?

There is no standardized data related to basic policy goals such as swimmable, fishable, drinkable waters across jurisdictions in Canada and in transboundary basins. Some good national data does exist on boil water advisories that has been standardized. Some national environmental organizations have been working to standardize important water data such as beach advisory data and make it publicly available online and via mobile apps. There is also some standardized data on basic water quality measures for some watersheds. Lack of standardized data will become more of a problem in the future with respect to protecting and managing freshwater as data increasingly underpins water management systems.

5. International and business issues

a) Should Canada play a greater role internationally in helping find solutions, either through government and/or the private-sector involvement, to the challenge of global freshwater security?

As noted above, Canada is virtually absent from global water forums. There is some Canadian presence in university-based UN University Institute for Water and Global Water Futures projects but when attending global water forums and reading global water publications, Canada is often not included. For example, Canada is virtually absent at the World Water Forums, the OECD's Water Programme, the Global Water Partnership etc.

b) Do you feel Canadian private-sector companies, including financial institutions, can and should play a role internationally?

The private sector is very aware of the critical role and future value of water in business, agriculture, and many industries. There is also a critical role for the private sector in Canadian water standards in drinking water, stormwater management, water asset management, etc. Through efforts of the Canadian Standards Association, ISO-14000, and other partnerships similar national standards that could be developed through intergovernmental cooperation under the Canadian Council of Ministers of the Environment. Canada's financial institutions, particularly RBC, had water as a national priority for a decade. Other financial institutions, the insurance sector, and the real estate/development sector recognize the critical value of water and risks associated with poor water management systems. These are critical sectors to engage.

c) What role can the federal government play in better supporting freshwater-related academic research, R&D, businesses, products, and services?

The federal government can play a critical role in investing in freshwater-related academic research that is based on partnerships between universities, colleges, schools, research institutes, industries, businesses, environment, agriculture, water organizations, and local communities. In the past the federal government has provided university-based research funding for water science and engineering, innovation, and technology development. There has been limited funding and investment in water governance, policy, social science, economic, industrial water policy, water security, and behavioural research. There is also a need for more strategic investments in freshwater-specific research funding programs and future-oriented research on critical topics such as integrated and closed water management systems, water re-use policies and technologies, blue-green infrastructure, water security and cyber threats, drought and flood monitoring, and risk management systems.

Investments in research also need to be viewed as an investment in human capital, knowledge and expertise. Canada needs a new, diverse, generation of water scientists, researchers, practitioners, and industry leaders. The federal government can play a critical role in funding student research and youth water challenges related to innovation but also by providing internship opportunities through a water opportunities internship fund for private and non-profit sector organizations, the Canada Summer Jobs fund, and by hosting student co-op/interns in all federal departments with water mandates.

Thank you for the opportunity to provide input into the House of Commons Standing Committee on Environment and Sustainable Development Study on Freshwater in Canada.