Field	Response
1. Contact Information | Name	John Johnston
1. Contact Information | Department	Earth and Environmental Sciences
1. Contact Information | Email	jwjohnston@uwaterloo.ca
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1. Contact Information | Phone	519-888-4567 ext. 33234
2. Please indicate the alignment of your research expertise to one or more of the following GWF objectives/ deliverables:	Improve disaster warning – develop scientific knowledge, monitoring and modelling technologies, and national forecasting capacity to predict the risk and severity of extreme events Predict water futures – use Big Data to make informed decisions, better models to assess change in human/natural land and water systems
3.1 Please indicate the alignment of your research expertise to the GWF Science Pillar 1 – Diagnosing and Predicting Change in Cold Regions:	Hydrometeorology and Climate Change – improve understanding and prediction of how climate change influences water availability and extreme events Hydrology and Terrestrial Ecosystems – improve understanding and prediction of hydrological and terrestrial processes and watershed hydrology and how processes and systems will evolve and interact under a changing climate Human-Water Systems – address the human dimensions that will determine water futures, including governance, policy, communities, border, and water resources management
3.2 Please indicate the alignment of your research expertise to the GWF Science Pillar 2 – Developing Big Data and Decision Support Systems:	Decision Support Systems – predictive and diagnostic modelling system development and deployment for hydrology, water quality and water resources

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3.3 Please indicate the alignment of your research expertise to the GWF Science Pillar 3 – Designing User Solutions:	Water Environment – ecosystem health and conservation, water management Other Industry – Including Insurance, Finance, Measurement and Engineering sectors Indigenous Communities
4. Please indicate the alignment of your research expertise to one or more of the following user needs:	Projects to improve environmental monitoring, including sensors, drones, satellites, river basin observatories, lake buoys, software development, chemical fingerprinting, real-time monitoring, citizen science, and integration of Big Data platforms for Cold Region water science. Model development to support climate change impact assessment, including regional climate change modeling, hydrological and ecological modeling, specifically involving improvements in forecasting and predictive capacity, downscaling, and scenario development of water futures. Merging Indigenous traditional knowledge with science for more effective climate adaptation, risk management, water governance, and sustainable development. Studies of environmental change and long-term, generational impacts of economic development on First Nations ecosystems and water resources.
5. Please list regions of Canada and the biomes (e.g. mountains, boreal forest, Great Lakes-St Lawrence), watersheds, and/or river basins where you are interested in conducting research for GWF:	The coastal zone adjacent to Canada's largest lakes. 1) Mackenzie River Watershed – Lake Athabasca and adjacent Peace-Athabasca River Delta and Great Slave Lake and adjacent Slave River Delta. 2) Great Lakes-St. Lawrence Watershed – lakes Superior, Huron, Michigan, Erie, Ontario.

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6. Please list any other expertise or recent experience (subjects, river basins, technology) not covered by above query that could help us in assessing your alignment with the GWF programme:	Unique expertise to define the coastal zone in three dimensions required to determine the Dynamic Beach Hazard Limit and Interaction between Ground and Surface Water. Developed a novel method to reconstruct the most detailed record of lake levels, glacial isostatic adjustment, outlet conveyance and climate that extends from the instrumental record back to 6 millennia with a multi-decadal resolution. This long-term framework allows us to 1) identify natural patterns and trends, 2) place historical events into context, and 3) predict future realistic scenarios. I am currently testing this novel method of extracting preserved clues from ancient shorelines, for the first time in the Mackenzie River Watershed, specifically in the Peace-Athabasca Delta with a University of Waterloo Water Institute Seed Grant.