

Field	Response
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2. Please indicate the alignment of your research expertise to one or more of the following GWF objectives/ deliverables:	<p>Improve disaster warning – develop scientific knowledge, monitoring and modelling technologies, and national forecasting capacity to predict the risk and severity of extreme events</p> <p>Predict water futures – use Big Data to make informed decisions, better models to assess change in human/natural land and water systems</p> <p>Inform adaptation to change and risk management – propose governance mechanisms, management strategies, and policy tools to reduce the risk of water threats, design adaptive strategies, and enhance economic opportunities</p>
3.1 Please indicate the alignment of your research expertise to the GWF Science Pillar 1 – Diagnosing and Predicting Change in Cold Regions:	<p>Water Quality and Aquatic Ecosystems – improve understanding and prediction of how climate changes in climate, hydrology, and land use impact water quality and the health of aquatic ecosystems</p> <p>Water and Health – determine how changes to climate, extreme events, hydrology and water quality will affect human health in urban, rural and Indigenous communities</p>
3.2 Please indicate the alignment of your research expertise to the GWF Science Pillar 2 – Developing Big Data and Decision Support Systems:	<p>Big Data for Water – sensors, sensing, instrumented river basins, data analysis systems</p> <p>Decision Support Systems – predictive and diagnostic modelling system development and deployment for hydrology, water quality and water resources</p>

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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 Urban and Rural Communities
4. Please indicate the alignment of your research expertise to one or more of the following user needs:	<p>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.</p> <p>Risk reduction and analysis tools, including forecasts of floods, droughts, wildfires, and freezing rain (and other weather and climate extremes); water quality assessments; disease risk analyses; and integrated assessments. These tools alert industry and government to potential problems and allow cost/benefit analyses for potential risk mitigation.</p> <p>Knowledge mobilization for decision support, including the facilitation of communities of practice, stakeholder engagement with science, visualization and Decision Theatres, development of place-based solutions for climate adaptation, and evidence-based decision making.</p>
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:	<p>I have specific experience in Alberta (Oldman, Bow, and Athabasca watersheds) and Ontario (Grand River, Lake Ontario, and Ottawa River).</p> <p>Communities that I have worked with include: Calgary, AB; Fort McMurray, AB; Pincher Creek, AB; Victoria, BC; Region of Waterloo, ON; Windsor, ON; Toronto, ON; Ottawa, ON.</p> <p>I would be interested in focusing research in AB in the Montane Cordillera and Boreal Plain ecozones.</p>

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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:

Uldis Silins (University of Alberta) and I are the Co-PIs of the Southern Rockies Watershed Project (<http://srwp.ualberta.ca/>). The broad goals of the Southern Rockies Watershed Project are to:

1) Develop a better understanding of connections between the climatic, hydrological, and ecological factors regulating this key headwater landscape (including natural and human related disturbance pressures) and,

2) Link this information with the condition of downstream water resources at larger basin scales, including implications for municipal water supplies for drinking water. The project is unique in bringing together a highly diverse team of water and natural resource scientists spanning headwaters hydrology, disturbance ecology, large basin-scale river processes, water treatment engineering, and natural resource sociology and economics to generate information needed for the protection and sustainable management of these critical water resources. This research spans a range of scales from smaller watersheds in the headwaters of the Oldman River basin and the Elbow River to larger river basin scales.

in 2016, we served as part of the Horse River (Fort McMurray) Wildfire Response Team and conducted a watershed assessment and supported response strategies for the Fort McMurray drinking water treatment plant at the start and during the peak of the wildfire. We are now supporting the Regional Municipality of Wood Buffalo in preparing an application for disaster relief. Notably, we are developing a risk assessment framework to support decision-making related to the balance between grey and green infrastructure investment.