Field	Response
1. Contact Information | Name	Jonathan Grandy (Prof. Janusz Pawliszyn Research Group)
1. Contact Information | Department	Chemistry
1. Contact Information | Email	jgrandy@uwaterloo.ca
1. Contact Information | University	University of Waterloo
1. Contact Information | Personal Web Page	https://uwaterloo.ca/pawliszyn-group/
1. Contact Information | Phone	519-888-4567 x31266
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:	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 Water and Health – determine how changes to climate, extreme events, hydrology and water quality will affect human health in urban, rural and Indigenous communities
3.2 Please indicate the alignment of your research expertise to the GWF Science Pillar 2 – Developing Big Data and Decision Support Systems:	Big Data for Water – sensors, sensing, instrumented river basins, data analysis systems
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 Agriculture – including farming, food processing, country foods Energy & Natural Resources – including mining and hydroelectricity

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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. 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. 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.
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:	As we are a large research group focused on Environmental Analytical Chemistry with multiple collaborations we are fairly open to conducting research in varied regions throughout Canada with a more specific focus on water quality monitoring solutions. Our local and ungoing research projects in the field are generally conducted within the Great-Lakes region and multiple local river systems such as the Grand River, Credit River, and Boyne River to name a few. However we have also conducted collaborative water quality research in other regions of Canada such as an assessment of the biochemical impacts on fish species located in oil/tar sand affected watersheds in Alberta and Assessment of xenobiotic accumulation in top aquatic predator tissue (Muskellunge) in the Ottawa River and Lake St. Clair. Essentially we

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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:	Our main focus is on the development of environmentally friendly, portable sample preparation technologies for the extraction and detection of small molecules from multiple environmental systems (surface water, drinking water, ground water, soil, and air) and in-vivo biological systems (fish tissue, human tissue, biological fluids etc...) Generally speaking we focus on distinct sample preparation technologies tailored for specific applications. Some applicable examples would include: High surface area thin film solid phase microextraction (TF-SPME) for deployment with both benchtop and portable GC-MS instrumentation for the on-site determination of pesticides in surface waters, bio-compatible SPME needles and compressed spring delivery system for the minimally invasive sampling of live fish tissue, drone based air samplers, a diver operable self sealing SPME sampler and even a submersible ROV operable self sealing SPME sampler which has been successfully deployed for the sampling of deep ocean hydrothermal vents (CSSF ROV-ROPOS and Woods Hole Oceanographic Institution). In relation to our ungoing research we also possess our own analytical facilities and various instrumentation (HPLC-Orbitrap, HPLC-Q-TOF, 4x HPLC-MS-MS, GCxGC-TOF, 3x GC-MS, hand portable GC-MS, and many other lesser instruments) which could aid in conducting research related to the GWF project.