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May 7, 2020

Mike Durant  
Chair of the Board  
PEI Watershed Alliance

**Regarding: Invitation to partner on sustainable potato agriculture research**

Dear Mike:

As per our conversation, I have prepared a letter outlining the UPEI research project that is under discussion with various partners including the PEI Government and the potato industry. The intent is to seek funding from the Natural Sciences and Engineering Research Council of Canada (NSERC), the primary funding body for academic science related research. Such an application would be made through an Alliance Grant. Alliance grants “encourage university researchers to collaborate with partner organizations, which can be from the private, public or not-for-profit sectors. These grants support research projects led by strong, complementary, collaborative teams that will generate new knowledge and accelerate the application of research results to create benefits for Canada.” More information can be found at [https://www.nserc-crsng.gc.ca/Innovate-Innover/alliance-alliance/index\\_eng.asp](https://www.nserc-crsng.gc.ca/Innovate-Innover/alliance-alliance/index_eng.asp).

As you can see, these grants emphasize partnerships in order to encourage research relevant to Canada. The PEI Watershed Alliance would be an essential partner in the research I describe below. I am fortunate to enjoy many such research partnerships with watershed groups and the PEI Watershed Alliance. While cash money is essential from partners, not all partners need contribute funding, as would be the case for the Watershed Alliance. I would imagine such a partnership would involve contribution to the research design, planning, and the assistance of watershed groups in executing the research. Other partners may include the PEI government, Agriculture Industry, AAFC, and DFO. By including all parties as a team in the research process, ownership and participation in the research leads to confidence in the integrity of the research. This is an ingredient which I am sure you agree is critical to the current venture. Partnership in the research does not in any way endorse the practices that are being studied, but implies that we all are part of science-based decision making. As has been an ongoing policy of government, you can't make decisions without the scientific information required. Deciding on the full nature of the research project would need to involve all partners. However, as we need to start somewhere, and the current framework is described below.

The potato industry on PEI faces challenges environmentally and economically. There is a requirement to reduce the environmental footprint of the industry while increasing yield and profitability. While this would seem a tall ask, there is a plausible hypothesis that supplemental irrigation, if performed carefully with regard to our finite water resources, could indeed help to do both. I have been involved in pointing out and studying the ‘problems’, largely sediment and nutrient-related, for 15 years as have many others. Indeed, I have often been bluntly vocal on the

subject (<https://www.cbc.ca/news/canada/prince-edward-island/pace-on-p-e-i-nitrate-pollution-glacial-1.907818>). There has been progress, particularly since watershed groups became very active, but such progress has been incremental. I am excited to finally be involved in a research project that could be transformational, rather than incremental. It has been frustrating pointing out problems without being part of the solutions. Solutions however, require working together in partnership. That was not possible 15 years ago, but it is now.

While there are numerous scientific questions, there are two major ones. Nitrogen in our ground and surface waters is a major environmental issue for PEI. As potatoes only take up nitrogen efficiently if they have enough moisture, supplemental irrigation has the potential to enhance nitrogen uptake efficiency. Thus the scientific question is one of whether we can reduce nitrogen leaching to ground and surface water through supplemental irrigation/fertigation. The second major question, is what level of supplemental irrigation can our watersheds sustain without environmental damage to the organisms living in our streams? Related to this is the question of what reduction in streamflow will cause measurable environmental damage. It should also be emphasized that the agricultural component is part of a larger program on environmental flows/climate change that includes all types of water extraction. A provincially funded research project on the impacts of the new Coles Creek wellfield that provides Charlottetown with some of its water, and what will change in the context of climate change, has been ongoing since 2016, and will continue as part of this expanded project (an extension to 2024 has been requested). This project also serves as leveraging cash for the proposed Alliance Grant. This provides a scientifically useful contrast to the agricultural context (municipal pumping 365 days a year at levels that have already reduced stream flow by 24% in 2018) and seeks to answer some of the same questions with regards to environmental flows (I will be presenting some of these results virtually to CAWG on May 13<sup>th</sup> should you or others be interested).

In terms of the logistics of what is potentially a huge research project, a formidable research team has been chosen that consists of the best, and most experienced and credible scientists in eastern Canada in their respective disciplines. It is this team that will decide on the detailed methodology of the research (naturally in collaboration with producers who own the land) once the broad strokes have been defined by the partners. This team includes myself, the project leader, and an aquatic chemist/biologist, Dr. Andre St.-Hilaire from Institut National Recherche Scientifique in Quebec, and expert in stream flow modelling and associated climate change effects, Dr. Dave Burton from NSAC in Truro, an agronomist and soil scientist, and Dr. Yefang Jiang from AAFC in Charlottetown, a hydrogeologist.

In its initial throne speech, the government committed to undertaking research on water that is free from government and industry influence. As a researcher at UPEI, that serves the people of PEI, I am absolutely committed to, and have the fortitude to undertake research that is open and credible and in the best standards of international peer reviewed science. While I could go on, a recently short video created by a colleague at Carleton University best describes my own perspective on applied research from an academic perspective, and I would invite you or other board members to watch it.

<https://www.youtube.com/watch?v=JdMVueunJfo&feature=youtu.be>

Clearly, further discussion on this is essential, and the current pandemic has not made that easy. Unfortunately, this has led to a situation where there is significant risk of losing another year of valuable research. I cannot imagine how this research would be done without the PEIWA as a partner. It is my strong hope the board of the PEIWA will provide a positive reply to partnering in this research.

Sincerely



Michael R. van den Heuvel  
Director, Canadian Rivers Institute  
UPEI



August 25, 2020

Dr. Mike van den Heuvel  
Director, Canadian Rivers Institute  
University of Prince Edward Island

Re: Invitation to partner on sustainable potato agriculture research

Dear Dr. van den Heuvel:

Thank you for your invitation in May to partner on this project, and also for the presentation to the Watershed Alliance board on July 24th. The board of the PEI Watershed Alliance has considered this proposal in detail in several meetings over several months and has resolved that we cannot support the proposed research project.

The PEI Watershed Alliance is an umbrella organization for the 24 community-based watershed groups across PEI; our overall goal is to improve and protect the environmental quality of Prince Edward Island watersheds for the benefit of all Island residents. Our guiding principles state that access to clean, safe water is a fundamental human right and essential for the physical, social and economic well-being of all of Prince Edward Island; environmental stewardship is at the forefront of the Alliance's work and that protection of water resources must be considered in a holistic context which considers both local needs as well as global pressures such as climate change. Furthermore, in accordance with the goals of the PEI Watershed Strategy, we "*.. should strive for the (implementation of) best management practices as borne out by good science, the precautionary principle, and a desire to protect our environment.*"

Given the broad differences in opinions expressed within the board regarding this research project, we feel it would be unreasonable for us to support it without a strong mandate from the watershed groups we represent. The board agrees that this is important research, however, we are concerned about the scarcity of baseline data and variability within the models used to estimate water quantity. We share the public's concerns about the accuracy of groundwater modelling studies and how acceptable error could mean drinking water wells and stream beds going dry.

Community concerns need to be addressed in research projects such as this, and if this project does proceed, we would encourage you (to continue) to involve the individual watershed groups affected by this research to participate in data collection and validation.

We have been encouraged by recent communication and partnership with the PEI agricultural community and we will continue to work together with these partners on sustainable agricultural practices. Improving soil organic matter, minimizing field run-off, increasing buffer zones, taking high-risk land out of production and diversifying crops are all beneficial management practices that we support to protect our environment. As a key stakeholder in PEI's water resources, we

will continue to be active participants in the implementation of the *Water Act*, its regulations and the development of water management plans. We will continue to work and support our 24 watershed groups as they work holistically with their local and regional stakeholders to improve and protect PEI's ecosystems and water resources.

We value your participation and partnership on many current and past research projects involving PEI ecosystems, water resources, and watershed groups. We look forward to continued discussion and collaboration with you, UPEI and Canadian Rivers Institute as we work to protect our environment.

Sincerely,



Mike Durant  
Chair, PEI Watershed Alliance

Cc:

Hon. Natalie Jameson, Minister of Environment, Climate Change and Water

Hon. Bloyce Thompson, Minister of Agriculture and Land

Robert Godfrey, Executive Director, PEI Federation of Agriculture