Submission to the Environmental Advisory Council
Concerning a Water Act for Prince Edward Island

Hon. J. Alan McIsaac, Minister of Agriculture and Fisheries
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Summary

The Department of Agriculture and Fisheries supports the activities of the Environmental Advisory Council concerning a *Water Act* for Prince Edward Island. Protection of water quality and the environment is essential for the sustainability of agriculture and fisheries as contributors to the Island economy. The Department has staff and programs that can assist with the protection of water and wants to ensure that future water use be allocated with a balanced approach and in a sustainable manner. The Department of Agriculture and Fisheries suggest that any regulatory approach be linked to specified, desired outcomes through the active engagement of all concerned.
I welcome the opportunity as Minister of Agriculture and Fisheries to make this submission to the Environmental Advisory Council to highlight some of the activities and concerns my Department has been and is currently involved in regarding your deliberations on a *Water Act* for Prince Edward Island. I also extend an invitation to the Council to contact my Deputy or me concerning any additional information that we may be able to provide or have the staff of the Department provide concerning activities of the Department related to water.

The mandate provided to me as Minister of Agriculture and Fisheries by Premier MacLauchlan is clear and states that:

- Supporting the growth and sustained development of all elements of agriculture, fisheries and aquaculture on PEI to ensure economic and community prosperity and job creation, including strategies that encourage new product and new market developments;
- Actively protecting, through leading science and community engagement, the means of ensuring the ongoing strength of our resource sectors and the promotion of environmental stewardship;
- Contributing to the PEI sales effort through the active participation of leading producers and processors of primary resources; and
- Collaborating with the Minister of Economic Development and Tourism in the Canada's Food Island Strategy by ensuring the active engagement of farmers, fishers, and processors and linking to market and product development opportunities that place PEI among the world leaders in food production and innovation.

Actions designed toward achieving the mandate are underway. However, the mandate will only be accomplished through the building of positive and constructive relations with farmers, fishers, processors, researchers and industry, as well as, interested community groups.

There are three areas that I would like to emphasize in this submission that I feel are relevant to the task of the Environmental Advisory Council.

These are:

1. The importance of water quality and availability;
2. The role the Department of Agriculture and Fisheries has in participating particularly with the farm community and land owners to influence water quality; and
3. The need to ensure that any legislation, regulation or policy that is developed can be practically applied to achieve its purpose and is subject to regular review.

**The Importance of Water Quality and Availability**

During this past summer I had the opportunity to host the Federal Provincial Territorial Ministers of Agriculture Meeting. As host, my Department organized a tour to provide visiting participants an introduction to PEI. We visited a new dairy operation, the PEI National Park and had the chance to have a presentation on the PEI aquaculture industry. A highlight for many was a stop in Bayview to visit Raspberry Point Oysters where James Power, did an excellent job of
explaining and demonstrating oyster production. Everyone then had a chance to sample some of the best oysters in the world, for some it was their first ever chance to have an oyster.

This was an excellent opportunity to introduce people from across the country to the great scenery presented by our Province. The bounty of our aquaculture industry was enjoyed, aided by the enthusiasm of the fishers, along with the clean clear water evident as we stood on the wharf.

However, as you will have been made aware by others there are challenges being faced by shellfishers and aquaculturalists. Many aquaculture sites are experiencing the impact of sediment entering streams and being deposited in our bays and estuaries. This has caused physiological changes which are more pronounced in some estuaries than others, such as: reduced water levels, increased water temperatures and increased nutrient content that impacts water quality. The accumulated sediment may also have reduced the potential for some estuarine waters to be exchanged as regularly with the nearby waters of the Gulf of St. Lawrence or Northumberland Strait.

The aquaculture industry which is a $40 million part of our economy has built its reputation on a quality product produced in a sustainable manner. The discharge of nutrients in the form of nitrates or contained in sediment into our bays and estuaries has upset the delicate balance in some ecosystems. This has led to algae growth and dinoflagellate blooms which then create anaerobic conditions or anoxia (the lack of oxygen) in the water which is detrimental shellfish.

The Report of the Commission on Nitrates in Groundwater identified “The difference in flushing between estuaries, and the resulting differences in tolerance of nutrient load, means that the same nutrient loading guidelines cannot be used for all estuaries. Site specific nutrient criteria unique to each estuary will be required to protect them from anoxic events.” Do we have the science and the desire to target policy, programs, resources, legislation and regulation to achieve goals on a watershed and/or estuary basis?

Prince Edward Island has developed a great reputation as a supplier of quality seafood and aquaculture products. Maintaining and enhancing this reputation by improving water quality in our bays and estuaries is not only good for the environment but is essential in going forward with the Food Island Strategy.

PEI’s agriculture industry also has a tremendous interest in maintaining quality. Rainfall is essential to grow our crops; quality ground water is needed to supply livestock; for washing milking equipment, potatoes, other vegetables and for food processing. Just to meet the estimated requirements of drinking water for the Province’s cattle and hogs requires approximately 210 litres of quality water per second be pumped from wells. I understand that this is approximately double the amount the City of Charlottetown withdraws from their Union pumping station. However, unlike Charlottetown’s water use; withdrawals for livestock are distributed across the Province and also unlike water in Charlottetown, which after treatment enters the Hillsborough River; the vast majority of the water used by livestock is returned to the watershed from which it is withdrawn.

The potential impacts of climate change on water use and quality is a concern of the Department of Agriculture and Fisheries. My Department anticipates that the impact of climate change will
occur slowly enough to allow agricultural production practices to continue to evolve. Potential climate change issues that may arise can be categorized as follows:

- Decadal Trends in Crop Heat Units (CHUs) in Prince Edward Island have shown a steady increase since 1979-88. With increased CHUs the competitive advantage that small grain spring cereals have held will diminish leading to a shift from small grain cereals to increased corn and soybean production. This shift appears to already be underway with increased acreage of corn and soybeans in the Province.

- A longer growing season may allow for increased areas of potatoes and soybeans being post-harvest seeded to winter cereals. Currently, with potatoes or soybeans the ability to establish a post-harvest winter cereal is limited to a very brief time-frame. Increased amounts of winter cereals which would provide a living ground cover would reduce the potential for nutrient loss through leeching and soil erosion during the autumn, winter and early spring months.

- An assessment of the recent 30-year, 1981-2010 weather normal period, has indicated a minor but consistent trend toward a decrease in rainfall during the growing season. There is also an evident trend indicating less rainfall during the early part of the growing season (April, May and June).

- A change in rainfall distribution during the growing season could cause an increase in demand for irrigation on the potato crop.

- Heavy rainfall events especially during the cropping season appear to be more frequent (but are imperfectly reflected in weather data). Such rainfall events enhance the potential for soil movement into nearby water courses and are considered in the design of soil conservation structures.

- Slightly warmer winters have the potential to change precipitation from snow to rain reducing snow coverage on fields and increasing the potential for soil erosion especially on bare ground.

Quality water used *in situ* or extracted in an environmentally responsible manner is essential for those involved in aquaculture, fisheries and agriculture. When considering recommendations for a *Water Act*, the Environmental Advisory Council needs to ensure that due consideration and a balanced approach is provided to all future water use requirements. Future permits must be tempered with the need for accurate monitoring and reporting of withdrawals, the siting and construction requirements for any wells, the impact of extractions on stream flows, the economic impact of sustainable resource use and the need to involve any active watershed group in the decision process.

**The role the Department of Agriculture and Fisheries**

My Department, through Growing Forward 2 (GF2), which is the five-year (2013-2018) framework for Canada's agricultural and agri-food sector, supports the following three programs:
the Environmental Farm Plan (EFP), the Agriculture Stewardship Program (ASP) and Alternate Land Use Services (ALUS).

The EFP is an industry led initiative administered by the PEI Federation of Agriculture which assists farmers in developing a strong environmental awareness in all aspects of their farming operation. Farmers complete an environmental assessment of their operation and develop an action plan to address environmental issues on their farm. Having a valid EFP completed is a prerequisite for farmers having access to funding under the Agricultural Stewardship Program (ASP).

The ASP offers technical and financial support to encourage producers to voluntarily implement beneficial management practices (BMPs) that reduce environmental risk and enhance Prince Edward Island's soil, water, air and biodiversity.

The ASP is divided into six sub-programs:

1. Soil Management - Includes: Erosion control structures, Crop residue management, Primary residue tillage, Furrow damming, Strip cropping,
2. Storage Management - Includes: On-farm pesticide storage, On-farm silage storage, Improved manure storage, Covered feedlots (Impermeable base and roof), On-farm fuel storage (doubled walled tanks only),
3. Buffer Zone/Riparian Management - Includes: Alternative livestock watering systems, Improved farm machinery stream crossings, Fencing & livestock stream crossings, Power to remote watering sites,
4. Water Management - Includes: Agricultural water quality, On farm water use efficiency, Well water management, Improved irrigation efficiency, Sustainable agriculture water supply,
5. Integrated Pest/Nutrient Management - Includes: Nutrient management planning, Rotational Crops for Pest Management and Nutrient Reduction Loss, Cranberry Bog Enhancement, and

The most popular of the sub-programs is soil management. Out of 182 BMPs implemented this year, 84 were for soil management. What is an example of the type of soil management project that might be funded? A producer could approach my staff for assistance with a field in which he has been having soil erosion issues. The runoff from this field was entering the woods near the headwater of a stream. The farmer had identified this as an issue in his EFP. In consultation with staff an appropriate BMP was designed. The design resulted in the construction of two terraces, a grass waterway, with an erosion mat, and a rock dam. In this example, the risk of soil erosion has been considerably reduced and at the same time the potential for silt to enter the adjacent stream has also been lowered.

What is great is that the problem is self-identified by the farmer! Who also had to cover one-third of the construction costs for the project, while losing a good portion of the field from production during the growing season, as all construction work must be completed by September 10. The
BMP also opens up the process concerning recommendations that are made by staff regarding the timing and rates for the application of manure, fertilizers and pesticides to avoid surface and groundwater contamination.

Soil management projects can be challenging at several levels; all permits need approval before any activity takes place in buffer zones and projects must be completed to allow soil cover to be established before fall. Another challenge and it shows the level of interest on the part of the land owners is that more applications are received than the budget permits the Department to fund. The $970,000 allocated for this budget year has been fully committed.

ALUS is a voluntary program for land owners and farmers. The goals of ALUS are to: reduce soil erosion and siltation of watercourses and wetlands, improve water quality, improve and increase wildlife habitat and reduce the impacts of climate change.

Eligible activities that may be funded include:

- **Buffer zone tree planting** - Eligible applicants losing agricultural land as a result of the 5 meter increase in the regulated buffer are eligible for payment on this land on condition that trees either currently exist in the first 5 meters adjacent to the watercourse or wetland or they agree to allow trees to be established in the first 5 meters.
- **Expanded buffer zone** - Expanded buffer zones are areas of land, adjacent to the legislated buffer, that are retired to give added protection to the watercourse or wetland.
- **High sloped land** - High sloped land is agricultural land that is identified by its red color in the Prince Edward Island Sloped Land Inventory (PEISLI) GIS layer. Other non PEISLI land can be retired as high sloped land if the topography warrants it.
- **Land under soil conservation structures** - Land that is taken out of production to establish soil conservation structures is eligible for payment. Soil Conservation structures include diversion terraces, farmable berms, and grassed waterways.
- **Maintaining livestock fences adjacent to watercourse and wetlands** - Fences have been constructed on most livestock farms in the province to eliminate cattle access to watercourses and wetlands. There are ongoing costs associated with maintaining fences and alternate watering systems to ensure that livestock continue to be denied access.

A practical example of an activity under ALUS is compensation for the land that has been removed from production to establish conservation structures. In the example described above land that is under terraces or grass waterways to reduce erosion becomes eligible for an annual payment of $185 per hectare at least until 2018, when the current funding agreement ends.

In their current forms, the above programs have been in place since 2008 with ALUS commencing slightly later. It takes some time for the positive attributes of the individual projects encouraged through EFP, ASP and ALUS to show effect. Moreover, the benefits obtained from the above programs cannot be considered in isolation from the long-standing efforts of watershed groups, land owners, other agencies and the many efforts of individual Islanders to improve their local environment. However, a diagram showing nitrate content in Island streams compared to potato area, as reported by the Department of Communities, Land and Environment, is attached as Appendix 1 and is available on the Communities, Land and Environment website at:
It indicates that the trend for nitrates is moving downward.

Much work remains to be done: less bare ground during the fall, winter and early spring, more land under soil conservation plans, more land farmed with nutrient management plans, plus continued changes in soil tillage practices are all areas where my Department, the agricultural community and watershed groups and others can work in partnership to enhance the environment and improve water quality.

Additional information concerning the EFP, the ASP and ALUS is attached as Appendix 2, and is available in the case of the EFP through the PEI Federation of Agriculture at: http://peifa.ca/efp/ and for ASP and ALUS from the PEI Department of Agriculture and Fisheries website: http://www.gov.pe.ca/growingforward/.

The Need for Legislation to Achieve Its Purpose

Nonpoint source pollution (NPS) as defined by the United States Environmental Protection Agency, generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. NPS pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into streams, lakes, rivers, wetlands, coastal waters and ground waters.

NPS pollution can include:

- Excess nutrients, herbicides and insecticides from agricultural lands and residential areas,
- Sediment from improperly managed construction sites, crop and forest lands, and eroding stream banks,
- Bacteria and nutrients from livestock, pet wastes and faulty septic systems, and
- Atmospheric deposition

Effectively, the majority of nutrients in groundwater or sediment in streams that occurs on PEI is of NPS nature. The contributions from any particular field or farm are small individually but collectively can be damaging to rivers, drinking water, fisheries and the overall environment. An understanding of nonpoint source pollution, how it has been dealt with elsewhere and how it should be approached here would seem to be fundamental requirement for those drafting any legislation proposed to deal with water and water quality in Prince Edward Island.

Places as far apart as the United Kingdom and the Delmarva Peninsula in the United States have attempted to deal with the issue of NPS from agricultural sources. The United Kingdom as part of a larger European Union project has established Nitrogen Vulnerable Zones on a catchment or watershed basis. On the Delmarva Peninsula three states: Maryland, Delaware and Virginia all took varying approaches to regulating farmer nutrient management. As a starting point in dealing with NPS pollution the Environmental Advisory Council should request that those drafting the Water Act review the effectiveness of different approaches used in the jurisdictions referred to above and consider what the best practices might be to achieve the objectives of the proposed legislation.
A study *Regulating Farmer Nutrient Management: A Three-State Case Study on the Delmarva Peninsula*, by Michelle R. Perez, reported in the *Journal of Environmental Quality*, March 2015 concludes with the following:

A regulatory approach to nonpoint source agricultural nutrient pollution will turn out to be voluntary if the state is unable to compel, verify, or enforce compliance. Thus, successful regulations of nonpoint-source pollution likely have to be developed cooperatively with the agricultural industry. Even more importantly, farmers have to be convinced that it is in their economic self-interest to comply with the regulations either because

(i) the environmentally protective practices can save them money,
(ii) financial assistance programs provide sufficient incentive to comply, or
(iii) the cost of noncompliance exceeds the cost of compliance.

States that pursue a regulatory approach can help ensure greater administrative, behavioral, and environmental outcomes by

(i) being mindful of the tone and overall regulatory style they embody so that the policy-making process is respectful and inclusive,
(ii) choosing regulatory requirements that are straightforward to implement and easy to verify in addition to or in lieu of difficult-to-detect management practices,
(iii) effectively designing educational campaigns to convince farmers of the economic and environmental benefits of the required practices, and
(iv) considering prioritizing the increasingly limited public financial assistance funds for practices that only have environmental benefits.

Given the enormous effort involved in regulatory policy-making, governments would be wise to establish regulatory policies that have quantifiable administrative and behavioral goals that are directly linked to specified, desired environmental outcomes.

**Conclusion**

I’d like to conclude with a passage from Marq deVilliers in his book *Water*. “*Water has become imperilled, not through the deliberate actions of evil men, the corporate rapists of ecological fantasy, but through the small doings of many – far too many – ordinary people, doing things in the way they have always done them. That is where the real danger lies.*”

Thank you to the members of the Environmental Advisory Council for your dedication and effort in listening to and reading through all the presentations and submissions you have received through the consultation period. I wish you the best in your deliberations and look forward with interest to your recommendations regarding a *Water Act* for Prince Edward Island.