

Protection of PEI Lands and Water as Sources of Life

Wednesday, March 11, 2020

Presented by Cooper Institute, the Wheatley River Improvement Group
and the Trout River Environmental Committee

Objectives:

- Identify threats to land and water in Island watersheds
- Explore opportunities for addressing threats to land and water
- Acknowledge past and present work that has been done to protect land and water in local watersheds and propose ways of building on that work

1. Welcome – Maggie McConnell, coordinator of the Wheatley River Improvement Group welcomed everyone and acknowledged that we were gathered on the traditional, unceded land of the Mi'kmaq people.

2. Table Talk – In table groups, people discussed two questions:

a) What are the major threats to land in PEI watersheds?

- Lack of land use planning & development of residential
- Climate change
- Intense tillage and soil loss – loss of 3-4 tons/acre considered acceptable
- Chemicals used to compensate for soil loss/loss of organic matter (It was noted that some farmers are using cover crops and computer programs/GPS to address soil quality and to calibrate nutrient inputs)
- Clear-cutting and fragmentation of forest habitats
- Removal of hedgerows
- Loss of biodiversity
- Excessive land ownership (Irving); monoculture/intensive farming
- Water level rise
- Crop rotation regulations not strict enough
- Lack of diversity in trees – vulnerable to weather

b) What are the major threats to water?

- Climate change – more intensive rain events with more runoff
- Successive governments say we have a limitless source of water
- Nutrients runoff – nitrates from agriculture and from people (sewage)
- Chemical run-off, causing fish kills
- Erosion from roads and land – siltation/sedimentation
- Road construction and oil leaching
- Drainage ditches need some provision for diverting excessive runoff
- Poorly designed culverts

- Tree cutting and intense tillage contributing to soil erosion
- Deep water wells & holding ponds for irrigation
- Invasive species
- Government restrictions on removing sediment from ponds
- Nitrates in water causing anoxia
- Causeways impeding tidal flush
- Growing intensity of aquaculture in estuaries - cages that shade eelgrass
- Water use by cruise ships – water taken out & not put back into the system
- Charlottetown sewage going into harbour
- Building too close to rivers

c) What's bad for the land is bad for the water!

- Current economic system – everything gets adapted to a capital input
- Buffer zones that are not wide enough
- Climate change, more extreme weather events - runoff from wind and rain
- Bare soil in the winter

3. Protecting PEI's Land and Water Through Sustainable Land Use

About Colin Jeffrey: Colin holds a MSc in Resource and Environmental Management from Dalhousie University. For the past 7 years, he has been involved in watershed restoration work in Prince Edward Island. First as a field technician with the Brackley-Covehead Bay and Wheatley River watershed groups and for the past 5 years as Director of the Trout River Environmental Committee (TREC) where he oversaw a number of significant projects to restore the health of local rivers, improve aquatic habitat connectivity and involve local communities in understanding and caring for nature. Colin has a long-standing interest in how governments can assist communities to protect the environment, create equitable economic opportunities and promote a just and peaceful society. Colin has also undertaken a variety of environmental volunteer work with the PEI chapter of Save Our Seas and Shores, Sierra Club Canada and overseas in Brazil and Peru.

Colin started by outlining some current threats to PEI land and water:

- Climate change impacts including siltation in waterways caused by erosion from fields and roads
- Loss of soil organic matter
- Nutrient inputs to ground/surface water (causing anoxia in estuaries)
- Potentially unsustainable ground water use
- Removing hedgerows/field expansion and clear-cutting of woodlands
- Uncoordinated land management and conversion/loss of natural areas

He identified some current realities:

Agriculture

- Shrinking profit margins – increased demands from centralized buyers

- Low global commodity prices - rising input costs (fertilizers, fuel, etc.)
- Climate is changing, is increasingly unstable

Forestry

- Influence of Climate Change (increased storms, warmer weather)
- Arrival of foreign pests and disease

According to the Report from the Commission on the Future of Agriculture on PEI – 2009:

“The commodity system has created a ‘vicious circle’ in PEI, where ever-declining profit margins have forced farmers to consolidate and intensify their operations, resulting in negative environmental impacts.”

One currently-used solution for agriculture is the Alternative Land Use Services (ALUS) – PEI Government pays farmers for things such as:

- Terraces/grassed waterways/farmable berms (Question: Do they work?)
- Cover crops/spring plowing/hedgerows (Are they still in effect?)
- Enlarged buffer zones (which don’t work on large fields with bare ground)

According to Jennifer Scott (see link to GPI report below), *“Agricultural production depends on a healthy, fully-functioning ecosystem. In other words, the production of food depends on the services nature provides, such as pest control, nutrient cycling, pollination, waste decomposition, soil formation, nitrogen fixation, and many others.”*

Other potential solutions for agriculture include:

- Legislation restricting field size or requiring hedgerows
- Reform economics and policies to promote and incentivize sustainable agriculture
- Increase local demand for high quality sustainably grown food and develop national/international demand for sustainable, local food.
- Grass-Raised Beef – an opportunity?
 - Increasing area of land in pasture/forage to reduce soil erosion, capture nutrients
 - Opportunity to capture & store carbon (Source of income for farmers?)
 - Fordhall Farm - 60 years of pasture stewardship created diverse, resilient grasslands – is an example

Colin then spoke about possibilities for **sustainable forestry**. According to the PEI State of the Forest Report 2000 – 2010, 62% of forest is hardwood or hardwood-dominated and 38% is softwood or softwood-dominated. Between 2001 and 2010, >33,000 ha was clear cut, leaving ~20K ha in forest. In 2010, fuelwood represented 60-80% of total harvest volume. Between 2000 and 2010, clear cut hardwood increased from 15% to 26%. With sustainable forestry, ecosystem functions are retained (water, air, nutrient cycling), carbon is stored and species diversity is supported. High value forestry products could add more value, employ more people, support sustainable forest management and increase quality and quantity of harvested timber. Some examples from Nova Scotia:

- *Finewood Flooring* - For 32 years, the company was able to generate 10 times more value per unit of wood harvested than the local pulp mill and employed up to 18 people.

- *Windhorse Farm* - Despite 160+ years of logging, this forest boasts trees as old as 450 years. Selective logging created species and age class diversity, supporting wildlife. Only 1.1% of Nova Scotia's forest area is 80+ years old; 80+ year old trees dominate the Windhorse forest. Selective cutting increased biomass production.

And finally, Colin suggested that tax incentives could be used to encourage sustainable forestry practices. In PEI, there are tax advantages to clearing, levelling, draining land. 100 acres of farmland that has been clear-cut is taxed at a rate of \$150 while the rate for 100 acres of uncut woodland is \$300. Possible Future Tax incentives could be for sustainably managed/uncut woodland, permanent pasture or new forest plantings, increased watercourse buffers, hedgerows.

Links to references:

State of the Forest Report 2000 – 2010

<http://www.gpiatlantic.org/publications/naturalcapital.htm>

<http://www.gpiatlantic.org/pdf/agriculture/biodiversity.pdf>

Future of Agriculture on PEI (2009)

4. Discussion following Colin's Presentation

There are economic benefits associated with a cleaner environment (tourism). Colin noted that the Indian province of Sikkim in 2016 became the first state in the world to become fully organic; tourism increased by 70%.

Could no-till farming be part of the solution? It could reduce soil erosion but in one case that Colin was aware of, herbicide was used at the same time. One farmer present described her experience with no-till. She said she has planted a ground cover (clover) in the fall and then in the spring, planted corn as early as possible – if the timing is right, the ground cover lasts until corn grows up and shades out the weeds – no need for pesticides – but timing is important. She said it's an unusual practice on the Island.

In some places we've seen the devastation caused by clearcutting (Nova Scotia in 1970s) and in others we've seen measures put in place to preserve forests (Europe). How do we convince people to use evidence and change practices?

A PEI program to improve hedgerows is helpful. But we've seen how easily old spruce and poplars topple in the wind, and with climate change and winds getting higher and higher, we need to know which species can handle these changes. Colin noted that PEI government has researched tree species that are adapted to a changing climate in PEI – this information is available from the PEI Forestry Department. A UNB forestry study shows how forests in the Maritimes are changing. Some species will disappear this century. Seed migration - in a warming climate, tree seeds will have to come from further south. It's possible that some tree species could survive but won't be able to propagate seeds.

One person recounted the experience of caring for 100 acres of woodland, taking out dead and dying trees as a management practice, only to find a few years later, many previously

healthy trees were dead. By cutting out dead trees, there was no place left for cavity nesters, which eat bark beetles, and the bark beetles had proliferated and destroyed the trees. So, leave enough big trees, and dead trees!

Suggestion: You can protect your land through the Natural Areas Protection Act – it allows you to put a covenant on your land/woodlot to protect it in the future. The covenant goes on your deed, and it is there forever. Nobody else can clear-cut it. This is a good way to protect woods – in the agreement you can put limitations on how much wood can be taken from that piece of land. It's not difficult to do. Alternatively, you can sell land to an NGO such as Island Nature Trust, or government – if you gift your land you can receive protection from capital gains tax (it counts as an Ecological Gift).

5. Open Discussion

a) What work for the protection of lands and water in our watersheds are you most proud of?

- Seeing so many fish in the streams
- The desire among WRIG members to have a comprehensive plan to guide decisions from year to year
- Education of young children and students – UPEI, schools, Holland College – events such as Environmental Fun Day, in collaboration with schools
- Island farmers – who are working in an unfriendly economic system
- Young people who started their careers working as summer students for watershed groups, many still working for protection of the environment
- Providing jobs for so many teenagers every summer

b) What are the most urgent things that should be taken on to increase the protection?

- Public education about the value of natural landscapes (including native plants often seen as “weeds”) and why it's important to preserve them – encourage a shift from the idea that nature needs to be tamed.
- Providing ways for people to connect with nature
- Maintaining and enhancing hedgerows – government programs make this affordable and that's important and needs to continue.
- Reducing nutrient inputs that are causing anoxic events in estuaries – this requires a lot of work, is a slow process, and involves everyone
- Climate change:
 - o Creating a sense of urgency around climate change – we have 8 years to drastically reduce emissions – and it requires a collective response
 - o A campaign aimed at school-aged youth re: climate change similar to the campaign around tobacco reduction in the past
 - o Making the economic argument for addressing climate change, emphasizing its impacts on agriculture, tourism, and fishing