

2015

2015 Activity Report



Kensington North
Watersheds
Association

KNWSA Activity Report - 2015

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1. Introduction

Purposes of the Kensington North Watersheds Association

The following is from the Memorandum of Agreement, Schedule A of the incorporation documents for Kensington North Watersheds Association Ltd:

“We ... agree to become incorporated ... as an association ... for the purpose of carrying on in the province of Prince Edward Island:

- Stream cleaning and restoration within the boundaries of the Kensington North Watersheds;
- Tree planting and maintenance with the riparian zones;
- Promoting public awareness of and engaging the public in watershed issues.”

Item 3 covers a broad range of issues, which includes watershed management planning. This large, encompassing mandate permits us to examine wildlife habitat and certainly to make our plans with the understanding that climate change is changing our environment. It also permits us to work as closely as possible with farmers and landowners on issues such as nutrient management, buffer zone management, soil conservation, Best Management Practices, and many smaller issues, such as farm bridges and farm and forest roadways.

Our activities in 2015 were as follows:

Concerning our **Purposes**;

2. Stream restoration

A string of good weather and a strong, motivated crew achieved exceptional results regarding stream restoration work in 2015. A consensus was achieved that hand tools were preferable to chainsaws, where feasible. Although there was concern that the lack of power-assisted saws would result in less ground covered, the results were quite the opposite.

Using a combination of coarse pruning saws, a total of 0.7 km of stream restoration (MacIntyre Creek) and 23.2 km of stream maintenance was completed. In both cases, removing wooden debris from the streams was the main activity. In our even-aged spruce forests and riparian zones populated with red alder, fallen wooden debris causes stream blockages and a widening, slower current.

Two by-pass silt traps were mechanically cleaned – Lauwerijssen’s on South Creek (Cousins Pond), and Long River Farms on Indian River. Federal fish habitat biologists delayed approving permits for two in-stream silt traps, and they were not dug. In total, KNWSA manages 15 silt traps. Their importance as a management tool for stream health is vital for our area which has many clay roads, predominant agricultural land use and hilly upland topography.

After site tours and discussions with the Dept. of Transportation, Infrastructure and Energy, silt traps along clay roads were maintained at several locations.

Some additional work was carried out at MacLeods Pond in Spring Valley, the site of a major restoration activity in 2014. A channel was dug to increase water flow and reduce standing water around the nesting island. Rock pools were created in the new by-pass to facilitate fish passage. The split at the upstream end of the nesting island was re-enforced with granite rock to reduce erosion.



A tangle on Barbara Weit River prior to restoration



Same location, after restoration



Young conifers

3. Tree planting and maintenance within the riparian zones

There were 2,190 potted trees and shrubs planted by our staff, and an additional 5,000 tree seedlings planted by a forest contractor through the Forest Enhancement Program.

The numbers are lower than past years when 6,000 – 7,000 potted trees were planted, but for good reason; we have planted most of the open meadows in riparian zones in the Kensington North area, which are quick and easy work. Most of our tree planting work is now done in stands of alders or willow, where 5 X 5 metre patch cuts are made and planted. The going is slower, but the goal of increasing biodiversity in these single species stands is important. As well, more and more time is spent each year in maintaining previous plantations, helping out young trees by pruning, staking and tying.

Tree and shrub planting may be the most important contribution that KNWSA makes to the long term health of our riparian zones and environment.

4. Supporting primary industries on issues concerning positive watershed activities

- Alternative Land Use Services (ALUS)

Tree plantings in several private buffer zones belonging to farmers were eligible for ALUS payments. Our staff discussed recent plantings with the ALUS representative, who then updates the files of clients.

- Stream Crossings

KNWSA assisted 3 farmers in the construction of stream crossings. Four used truck scale platforms were donated by Cavendish Farms for the purpose of building farm stream crossings. Similar materials and construction techniques were used for all three crossings in 2016.



New stream crossing, New London New stream crossing, Spring Valley Farming Forever logo

- Farming Forever

The good environmental stewardship that farmers regularly practice often goes unnoticed. KNWSA, in partnership with the East Prince Agri-Environmental Association, published 10 articles in the County Line Courier entitled Farming Forever. These good news stories on farming and environmental issues can be seen on our website at: http://www.knwsa.com/b_farm4ever.htm

- Phosphorus

This was year two for a project with the PEI Soil and Crops Association, Growing Forward 2, and AAFC Agronomist Judith Nyiraneza on a phosphorus nutrient project, Identifying optimum phosphorus (P) application rates for potato production (cv. Shepody) in PEI soils of differing P concentrations. This project may result in new recommendations for P application rates for the Shepody variety of potatoes. Interesting variances on phosphorus uptake are being observed with different soil pH content. 2016 will be the third and final year of this study.

Additional sampling of sediment in Adam Pond was performed as part of a freshwater and phosphorus study in partnership with Agriculture and Agrifood Canada.

- **AgWeather Atlantic**

The automated weather station in Baltic continues to be maintained and promoted by KNWSA. Weather data for the Baltic site, along with 16 other sites on PEI and 150 sites across Atlantic Canada can be accessed at:

<http://atl.agrometeo.org/>

- **Cornell Soil Health Project**

Kensington North has started a three year project with the PEI Dept. of Agriculture and Fisheries on a project through the Agriculture Stewardship Program to promote soil health and soil conservation.

Cornell University, in Ithaca, New York, is recognized by many to be the leading agricultural university in the U.S. Researchers there have created the Cornell Soil Health Test, a radical and modern way of assessing soils and making recommendations for soil improvement. The Cornell Soil Health test examines not only chemical attributes as with the standard soil test, but also physical attributes, such as aggregate stability and soil compaction, and biological attributes such as active carbon, and soil protein. Following analysis, a detailed report is produced, which includes detailed explanations of all tests performed as well as a list of suggested management practices to address specific soil constraints that may be occurring within that field.

The ultimate goal of this project is to create a PEI Soil Health Test that will be more specific in analyzing PEI soils and making appropriate recommendations. This PEI test will take the most useful of the Cornell tests and perform them here on PEI.

In addition to the Cornell Soil Health Test, our Ag. Stewardship project is doing field trials for different cover crops and tillage techniques. Test fields are split to compare the tested technique to the farmer's current practice.



Preparing Cornell test samples



Disinfecting between fields



Examining residual tillage equip.

More information on KNWSA's soil health project can be found at this link on our website: [http://www.knwsa.com/pdfs/ASP Interim Report 1.pdf](http://www.knwsa.com/pdfs/ASP_Interim_Report_1.pdf)

- **Nitrates**

The Nitrate Stakeholders Committee of the Kensington North Watersheds is less active than previous years as it has completed its original task of creating a plan to reduce nitrates in a pilot area of the Southwest River. A summary of nitrate work carried out by the committee can be viewed on our website's Nitrates Page. http://www.knwsa.com/p_nitrates.htm

Additional research was again carried out on soil nitrate movement under a variety of management techniques by staff agronomist Harvey Cairns. The three years of soil nitrate sampling has revealed interesting results in soil nitrate movement and pay yields of processed potatoes with different nitrogen applications. A slide show of Harvey's work can be seen here: http://www.knwsa.com/pdfs/2015_4R_Update.pdf

The report of the Nitrates Stakeholders Committee, *An Adaptive Management Plan to Reduce Nitrates in the Upper Watersheds of the Southwest River*, February 2013, was the foundation for a presentation to the Environmental Advisory Council for the Water Act hearings.

The committee has redefined itself as a Resource Committee, broadening its mandate and appeal to woodlot owners and commercial fishers, and their issues.

- **For woodlot owners**

KNWSA has assisted two land owners with forms and formalities to register in the Forest Enhancement Program (FEP).

KNWSA staff performed maintenance on two plantations for FEP registered owners, lifting grass off of young trees to increase survival rates. This was done under the direction of our local Forestry Technician. KNWSA received credits under the FEP for this work.

- **For commercial fishers**

A beach cleanup in partnership with PEI Watershed Alliance members and the PEI Aquaculture Alliance took place.

A multi-year survey of eel grass began in Marchwater of Malpeque Bay, in partnership with the Southern Gulf of St. Lawrence Coalition on Sustainability and Seagrassnet.

Three samplings with the CAMP project (Community Aquatic Monitoring Program) were conducted at three locations, to assist scientists in making management decisions for our estuaries.

5. Increasing Our Awareness of Watershed Issues

- River Monitors

In 2015, for the third year, our River Monitors provided excellent data to provincial fresh water biologist Cindy Crane to help to increase our collective knowledge on the presence of nitrates in our estuaries. Data was collected by four volunteers who keep watch over the estuary in their neighborhood for anoxic activity.

- Water Testing

A water testing project was designed to see if our bio-reactor in Darnley is capable of reducing the amounts of common farm chemicals that may be present in ground water. The bio-reactor simulates the biological activity that naturally occurs in wetlands on farm property. The bio-reactor is much easier to observe and measure water samples than a wetland for the sake of demonstration. The observations made are demonstrative of what occurs in wetlands on farm operations, and is a strong example of the benefits that healthy wetlands can give to a farm.

In our 2015 partnership proposal, Kensington North carried over funding from the previous year to test the efficiency of a Bioreactor for absorption of agricultural chemicals. We had proposed to collect three samples for testing but we were only able to collect one sample before the water flow from the Bioreactor dried up.

Three one-litre bottles were filled at the inlet into the bioreactor and another three one-litre bottles were filled at the outlet. The inlet sample labels were identified with an A in the sample Id and the outlet samples were identified with a B. The samples were shipped by courier to the RPC test lab in Fredericton, New Brunswick. Based on information from the farmer, the following tests were performed:

- Mancozeb
- MCPA
- Chlorantraniliprole, Chlorothalonil, Imidacloprid

Bioreactor Test Results

Client Sample ID:			BR-1A	BR-1B	BR-2A	BR-2B	BR-3A	BR-3B
Analytes	Units	*RL						
Chlorantraniliprole	ng/mL	0.02	0.18	0.22	-	-	-	-
Chlorothalonil	ng/mL	0.02	< 0.02	< 0.02	-	-	-	-
Imidacloprid	ng/mL	0.23	< 0.23	< 0.23	-	-	-	-
Mancozeb	ng/mL	100	-	-	< 100	< 100	-	-
MCPA	ng/mL	0.5	-	-	-	-	< 0.5	< 0.5

*RL = Reporting Limit

The results from the lab are shown above. The reporting limit is the smallest concentration (or amount) of analyte, that can be reported by a laboratory. In four of the five tests the results at both the inlet and outlet are shown to be below the Reporting Limit (RL). In the case of Chlorantraniliprole, the results are somewhat inconclusive and appear to be plus or minus the RL of .02 ng/mL from a mean value of 0.20 ng/mL. The higher of the two values, interestingly, is on the outlet.

It would appear that further analysis should be performed to confirm these results. It may be more beneficial to perform these tests in the fall when the bioreactor has started to flow again.

For more information on the Darnley Bioreactor, visit this link:

http://www.knwsa.com/pdfs/Bioreactor_20140210.pdf

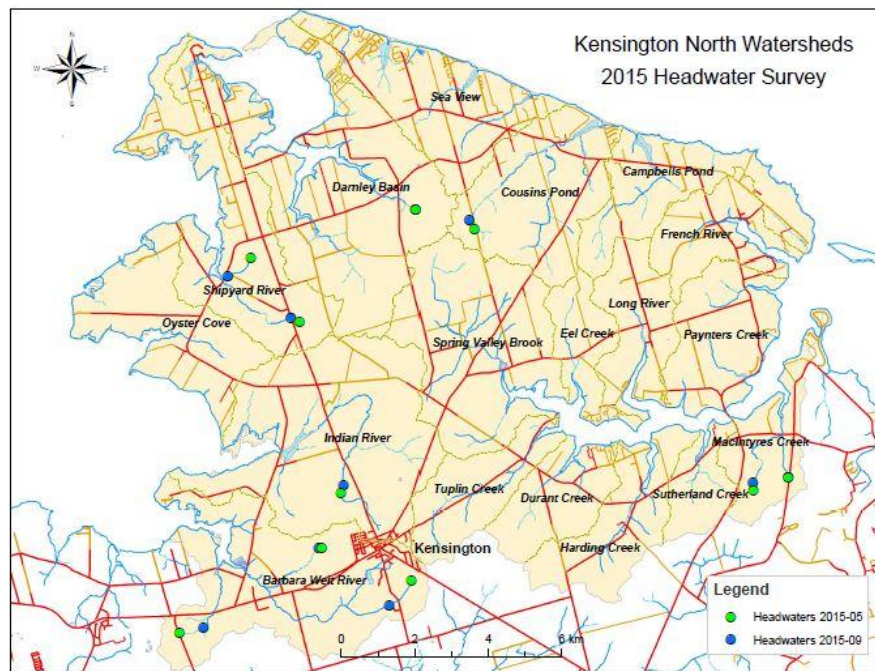
- **Stream Length Monitoring**

With the guidance of Qing Li, Hydrogeologist with the Dept. of Communities, Land and Environment, Kensington North has developed a method to survey streams for their maximum and minimum seasonal lengths.

By taking a GPS reading of the highest point of open water in April and again in the Fall and repeating these observations over several years, it is hoped that we can learn more about the seasonal variation in our streams, and how these variations affect stream habitat and perhaps the impacts of water extraction.

This year the survey revealed a wide range of variance between wet and dry seasons, between 10 and 940 m.

This Stream Length Differential Survey is now being done in other watersheds across PEI with Qing's assistance. Conclusions made with this data will be more valid when combined with data from more locations over the coming years.



Kensington North Watersheds
2015 Headwater Survey

STREAM	DATE	WATERSHED	LON	LAT	UPSTRM	DNSTRM	SURVEYOR	NOTES	Delta
Baltic River	2014-05-13	Darnley Basin	- 63.626330	46.519293	0	4	D. Cody	spring *	
Baltic River	2015-09-19	Darnley Basin	- 63.626453	46.519340	0	3	D. Cody		10
Barbara Weit - N	2014-05-13	Barbara Weit R	- 63.658645	46.436199	0	4	D. Cody	drain tile *	
Barbara Weit - N	2015-09-17	Barbara Weit R	- 63.659780	46.436131	1	4	D. Cody	Split-Calc	88
Barbara Weit - W	2015-05-25	Barbara Weit R	- 63.708699	46.415282	1	2	D. Cody	ditch	
Barbara Weit - W	2015-09-17	Barbara Weit R	- 63.700252	46.416443	1	4	D. Cody	Split-Calc	740
Barbara Weit R	2015-05-25	Barbara Weit R	- 63.626821	46.428427	0	2	D. Cody	end of pond	
Barbara Weit R	2015-09-17	Barbara Weit R	- 63.634598	46.422359	1	2	D. Cody		940
Indian River	2015-05-25	Indian River	- 63.651984	46.449717	1	2	D. Cody		
Indian River	2015-09-19	Indian River	- 63.651264	46.451618	1	2	D. Cody		232
MacIntyres - E	2015-05-25	MacIntyres Ck	- 63.493798	46.454410	1	3	D. Cody		
MacIntyres - E	2015-09-17	MacIntyres Ck	- 63.493877	46.454484	1	4	D. Cody		10
MacIntyres - W	2015-05-25	MacIntyres Ck	- 63.506077	46.451281	0	2	D. Cody		
MacIntyres - W	2015-09-17	MacIntyres Ck	- 63.506285	46.452934	1	3	D. Cody		185
Shipyard R - N	2015-05-25	Shipyard River	- 63.684544	46.507120	1	3	D. Cody		
Shipyard R - N	2015-09-19	Shipyard River	- 63.692668	46.502665	1	2	D. Cody		888
Shipyard River	2015-05-25	Shipyard River	- 63.667329	46.491693	1	3	D. Cody	grass waterway	
Shipyard River	2015-09-19	Shipyard River	- 63.670407	46.492641	1	3	D. Cody		270
West Branch	2015-05-25	Cousins Pond	- 63.605520	46.514592	1	3	D. Cody	silt	
West Branch	2015-09-17	Cousins Pond	- 63.607498	46.516733	1	3	D. Cody		352

* Old data

- **Introduction of Ring Necked Pheasant**

For the second consecutive year, KNWSA released Ring Necked Pheasants in partnership with the PEI chapter of Pheasants Forever. Fourteen birds were captured in Nova Scotia and released in the Clermont Conservation Area in Indian River in April, 2015. These birds, ten females and three males, were fed whole corn at feeding stations serviced by KNWSA board member Lewie Sutherland. Sightings of these birds occur often, mostly from the Indian River/Clermont area, but also from French River, Burlington, Margate, and New Annan. Again, as in 2014 and 2013, several broods were observed. The population seems to be adapting well and we hope it will be able to naturalize.

The trapping of pheasants was delayed by several weeks due to excessive snowfall.



Grade 6 Environmental Day



Grade 8 Science in Tuplin Creek



Ring Necked Pheasant release

- **Water Conservation and the Town of Kensington**

This was the second and final year of an EcoAction project on water conservation and water safety with the Town of Kensington. KNWSA employee Megan Getson performed 50 surveys with town residents on a wide range of water conservation and water safety topics. Thirty five water efficient shower heads were distributed to surveyed households in the Kensington area. Our committee teamed up with Island Waste Management to create a modified pamphlet for household hazardous waste which was distributed to town residents. Brochures were created and distributed on water efficient appliances, and water saving gardening techniques. These pamphlets are posted on the Water Management Committee's page on our website: http://www.knwsa.com/p_kwmc.htm

The committee created to manage this project, led by volunteer Gordon Jenkins, has come to realize that water conservation goes hand in hand with water safety. After careful calculation of the size of the well field and extraction rates, the Town's water supply was deemed ample and not in danger of being over-extracted in the near term. The 2016 survey has revealed that Kensington residents in general do not use a lot of water for lawn care, are gradually shifting to low water consumption toilets and shower heads, and are careful with water use. There are water conservation gains to be made, especially by institutions, and these need to be addressed.

It was determined that a Well Field Protection Plan for the town needs to be developed. The proximity of the Town's wells to residential, commercial and institutional activity requires us to be careful and wise. Residents need to be mindful when handling hazardous household waste. A plan needs to be created so that if a water emergency occurs, our community can react quickly and precisely. Additional education and communication will be a major component of future plans for the committee. Additional funding is being sought to support the creation of a well field protection plan, and supporting education and communication activities.

- **PEI Nature Tracker**

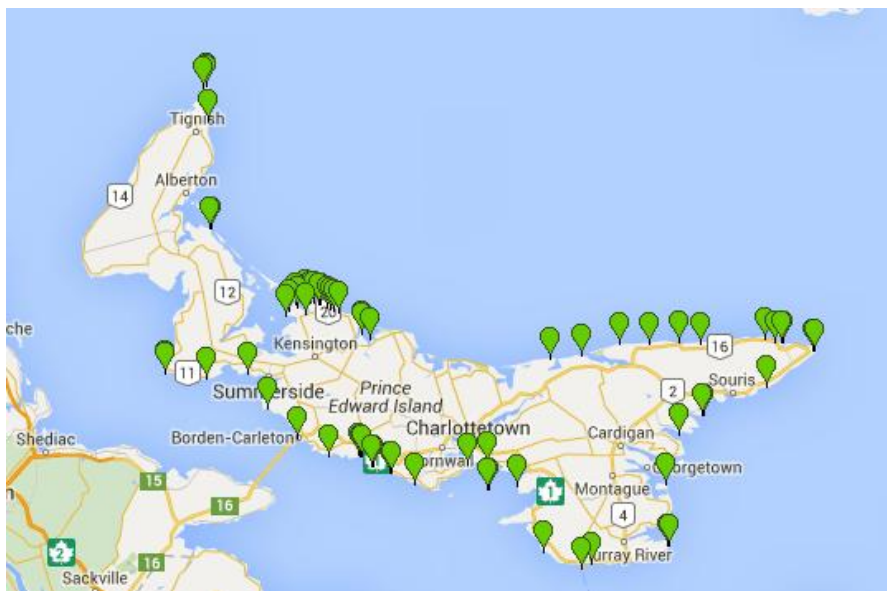
This project, the creation of a wildlife reporting project system, was very successful. Staff member Chris Rice has produced a website and accompanying Android smartphone app for reporting incidental wildlife observations. This technology greatly facilitates mapping and analysis of wildlife observations, thus aiding, for example, provincial biologists in wildlife management decisions. The website (<http://www.peinaturetracker.ca>) and app, have been turned over to the PEI Watershed Alliance, who have secured funding for further development, namely the creation of an accompanying iPhone app and training for PEI watershed staff. This is now a province-wide project. The data to be collected from this technology is in demand from provincial biologists, Island Nature Trust, and the Natural Historical Society of PEI. The project is also being set up to report invasive weeds and forest pests through the PEI Invasive Species Council. The app and website are being field tested in the summer of 2016, for release to watershed groups later this year.



6. Climate Change

- Coastal Erosion Monitoring

This year Kensington North worked closely with the UPEI Climate Lab in amalgamating data and locations for a provincial record. Of the 70 locations being monitored on PEI, 14 were previously monitored by KNWSA. Of the observations recorded in 2015, 5 sites experienced greater than 2 metres of erosion in since 2014. The second largest one year change on PEI was along the capes of Sea View, with a difference of 2.31 m. These manual measurements clearly illustrate the magnitude and rapid rate at which our coastline is changing as sea levels rise, ice cover becomes less certain, and storm intensities increase, all part of what we may expect in the future according to climate change models.



Coastal Erosion Monitoring locations (map courtesy UPEI Climate Lab)

- Climate Diary

Kensington North is also fortunate to be working with the UPEI Climate Lab on several other projects. The Climate Diary was introduced in 2015. Several Kensington North area volunteers are keeping record of natural phenomena such as arrival and departure dates of migrating birds, bloom dates of various species, planting and harvest dates of various crops, and much more.

The UPEI Climate Lab has an interesting website: <http://projects.upei.ca/climate/>

- Additional Awareness

- A booth at the Kensington Harvest Festival was presented and attended to by volunteers and staff.
- Employment was provided for a full time executive director, a part time administrative assistant, and five seasonal workers, all of whom received

invaluable exposure to watershed, environmental, and agricultural issues.

- Multiple tours of watershed sites were conducted for Elected Dignitaries, Public Servants, Agricultural Industry Reps and Local Residents.
- KNWSA remains active in the PEI Watershed Alliance, and is a member of the Southern Gulf of St. Lawrence Coalition on Sustainability
- The knwsa.com webpages and a Facebook page were maintained.
- A newsletter with additional information on 2015 activities can be found at our website at: <http://www.knwsa.com/pdfs/news12-2016-03.pdf>

- **Education**

The Grade 6 Environmental Day was held again at the Community Gardens in Kensington in June. Forty five students participated in five different stations provided by both government and private sources.

In June Kensington North also hosted the Grade 8 Science Class from Kensington Intermediate Senior High for an afternoon of tree planting and an electro-fishing demonstration.

Our Executive Director assisted in the judging of the Grade 8 Science Fair.

7. **Board, Committee and Volunteer work**

- **Board Activity**

- The Board met 5 times and the Executive met an additional 6 times.
- In June board members were given a tour of the Bio Gas Plant and the Waste Water Treatment Facility at Cavendish Farms. Many complimentary superlatives were uttered, referring to the scale and significance of these environmental technology initiatives.
- Two board members and the Executive Director were given a tour of the Cape Breton Road near Mount Stewart. There are similarities in the environmental challenges between this road and the St. Andrews Rd. in Sea View. Following the tour and a board discussion, the board decided to request full or partial closure of the St. Andrews Rd. Discussions between KNWSA and the Dept. of Transportation, Infrastructure and Energy are ongoing.
- A presentation for the PEI Advisory Council for the Water Act hearings was prepared and presented by board members.



Board members touring Cavendish Farms



Matt MacKay, President Harold Barker, Hon. Robert Mitchell



Watershed patricarch Bruce Gillespie and staffer Megan Getson

- **Kensington North Watersheds Association Board Members**

- President – Harold Barker
- Vice President – Katie Dennuse
- Secretary – Dale Adams
- Treasurer – Ches Boutilier

George Campbell

Amber MacRae

Paul Christensen

Donald Pickering

Karen Cobb

Bill Pidgeon (recently retired)

Gordon Coffin

Jeremy Stiles

Greg Donald

Lewis Sutherland

Susan Graham

- **Nitrates Stakeholders Committee**

Nine residents and landowners make up our Nitrates Stakeholders Committee, including six farmers. The committee has re-branded itself as the Resources Committee. The Stakeholders met once as a committee and a second time for a farmers meeting.

- **River Monitors**

Four residents were River Monitors in 2014. The data was processed by PEI Freshwater Biologist Cindy Crane, who has created a useful scale to be used as an indicator of the estuary’s health, using data from the River Monitors. Monitors collected data, often daily, on a wide range of indicators for their local estuary.

- **Water Conservation Focus Group**

Seven residents, almost entirely from the Town of Kensington, including Town of Kensington staff and one counselor, make up our Water Conservation Focus Group. The committee chaired by Gordon Jenkins, is in the final stages of a report on the project.

- **Island Nature Trust's Farmland Birds Project.**

Dr. David Thomas of Margate monitored Bobolinks and Barn Swallows on his property for this Island Nature Trust project.

- **Spruce Budworm Monitoring**

Spruce budworm populations are on the rise in Eastern and Atlantic Canada. A very successful network of volunteers has collected high quality data to monitor the insect population. David Cody monitored a spruce budworm trap in Indian River.

- **Kensington North Staff**

- Barry Murray, Executive Director
- David Cody, Administrative Assistant
- Summer field staff – Garreth Ashley, Megan Getson, Chris Rice, Ashton Cole and John Bryant.
- Agronomist Harvey Cairns
- Agricultural Advisor Matt Ramsay

- **Major Funders**

- Watershed Management Fund (PEI)
- PEI Wildlife Conservation Fund
- EcoAction (Environment Canada)
- Syngenta Canada
- PEI Employment Development Agency
- Service Canada
- Recreational Fisheries Conservation Partnerships Program (D.F.O.)
- 4R Stewardship, PEI (Fertilizer Institute)
- Growing Forward 2
- Greening Spaces (Dept. of Agriculture and Forestry)
- Agriculture Stewardship Program

- **In-Kind Supporters**

- PEI Dept. of Transportation & Infrastructure Renewal
- Malpeque Bay Credit Union
- Companion Electronics
- IR Geomatics Services
- Town of Kensington
- **And Community Volunteers!**

- **Corporate Members**

- Anne of Green Gables Museum
- Art Cousins and Sons
- Atlantic Deck Systems
- Cavendish Farms
- Cobb's Little Farm
- Community of Malpeque Bay
- Cousins Seed Cleaning
- Graham's Deep Sea Fishing
- Gull Point Fisheries Ltd.
- Indian River Farms
- K'town Auto Parts
- Kensington Agricultural Services
- L & C Fisheries
- Malpeque Bay Credit Union
- Melvin & Linda Paynter
- MJS Marketing and Promotions
- Sharpe Construction Ltd.
- Spring Valley Farms
- Thomson Well Drilling Ltd.
- Thompsons Backhoeing and Trucking
- Town of Kensington
- Twin Shores Camping Area
- Tuppy's Fishing Ltd.
- Vernon & Bertha Campbell