Annual Newsletter

2019

Celebrating 5 years of Water Quality Initiatives

Muskrat Watershed Council

Letter From the Chair

This year has been a big year for the Muskrat Watershed Council as we celebrate our 5th year milestone as a not-for-profit volunteer-based organization. Where has the time gone? We have achieved much in a short period, many of which would not have been possible without the continued support of our dedicated volunteers, surrounding townships, provincial and federal government agencies, educational institutions, and local businesses. From annual water sampling and the installation of the first controlled tile drainage structures in Renfrew County to re-naturalizing agricultural stream banks with 45, 000 native trees and shrubs, we continue to look for new opportunities to improve the quality of our watershed.

This year, the water quality monitoring network completed its 6th season of sampling, but with some changes. Please read the article "Updates on the Water Quality Monitoring Network" on page 7 for more information. We are also entering our 2nd year of partnering with Watersheds Canada on The Natural Edge Project to plant another 15, 000 native trees and shrubs this fall. A new project set to start in 2019-2020 will test the effectiveness of Zeolite (a naturally occurring mineral) to remediate phosphorus from water (see "The Miracle Mineral" on page 6 for further details). If the Zeolite test phase yields results and proves to be successful at remediating phosphorous, the Muskrat Watershed Council hopes to deploy Zeolite in high nutrient streams feeding into the Snake River and Muskrat Lake.

On the agricultural side of things, we are working with local farmers on a soil health project to help reduce fertilizer and chemical use through education, soil testing, and soil analysis. As well, the guest speaker for our 2019 Annual General Meeting, Casey Schelock of Alternative Land Use Services (ALUS) Canada, presented on how ALUS can benefit both farmers and our watershed. If you would like to know more about ALUS, please be sure to look at page 4 of our newsletter.

Aside from these field projects, the council has also been busy fundraising for a better part of the year, specifically allocating funds to help this year's property owners cover the costs of the agricultural stream bank plantings for The Natural Edge Project, since participating landowners are required to fund 25% of the planting costs. We were fortunate enough to support M & R Feeds (Micksburg) in the "Thank A Retailer" contest and came out victorious alongside the Robbie Dean Centre in Pembroke. Lush Cosmetics, an environmentally friendly cosmetic company, also agreed to help fund the plantings, as well as our own Whitewater Township and Whitewater Brewery.

It goes without saying that this has been a productive year with the continuance of longstanding projects and the introduction of new ones, as well as the successful raising of funds to support current projects. As a volunteer-based organization we try our very best to do good in this community and hope that over time our efforts will leverage larger funding and partnerships to deal with this complex and globally relevant issue. In the meantime, we invite members of this community to join in on our efforts by volunteering, becoming a member, or doing good deeds within their own lives that benefit the watershed as a whole.

Sincerely,

Karen Coulas

Chair

Volunteer Spotlight

Evelyn St. Amour

Firstly, I would like to thank the Muskrat Watershed Council for the volunteer recognition and the chance to share my experience in this year's newsletter. I am truly honoured to speak on behalf of our volunteers, but what is just as important is to recognize those individuals who were also here at the beginning of the Muskrat Watershed Council. Those who got us off and running: Doug Skeggs, Karen Stokes, Brian Whitehead, Rosalie Burton, Amanda Hawkins, Murray Hyatt, Gerald Rollins, Andy Laird, Barbara Green and Julie Truelove.

We've had others come on board a bit later on, but this group met every week for the first year, for 2 ½ hours. Some had traveling to do, sometimes from Ottawa, Arnprior and then those locally.

Algonquin College was our first partner led by Sarah Hall and Julie Sylvestre. They provided us with numerous summer students and volunteers. They also worked on writing and acquiring grants. We could not have survived without the support from Algonquin College. Whitewater Region also deserves recognition for listening to us, believing in us and being supportive. We have always appreciated that.

Even when we seemed to be in a losing battle, we knew we had to keep going. We came up with making sure we didn't blame anyone for the issues currently in the watershed, and we stuck with that. In fact, we didn't even blame climate change. We were simply looking for results, the best scientific solutions and today, we are all still on that same boat.

So, after 5 years of some pretty awesome work, by our current Executive and Board of Directors, you can see that progress has been made in many areas. Sometimes it may not look like progress but if you joined our monthly meetings, follow us on social media or get a chance to read the minutes from those meetings, you can see that many hours of work are done by all of these people who are volunteers.

"My motto is, if it's to be, it's up to me"

I believe when Champlain was here, in his canoe, he would have just reached over to have a sip of water. We aim to get the watershed back to swimmable, drinkable and fishable, just like it was in Champlain's day, for your grandchildren's grandchildren to enjoy.

My motto is "If it's to be, it's up to me." Well, let's see what the next 5 years bring. We'd like to see new faces in our meetings, our members, and our volunteers. We want to hear your ideas and, if you have a concern about the watershed, I encourage you to get involved.

ALUS Alternative Land Use Services

Sustaining Agriculture, Wildlife and Natural Spaces, One Acre at a Time

Our 5th Annual General Meeting saw Casey Schelock (pictured above), from Alternative Land Use Services (ALUS) Canada, present on the benefits ALUS can have on farmers in the Muskrat Watershed. ALUS started in 2000 when the agricultural community was addressing the shortcomings seen in traditional approaches to conservation. From 2006-2009, the first ever ALUS pilot project took place in the Municipality of Blanshard, Manitoba. Flash forward 10 years and the ALUS Canada program is present in 6 provinces across Canada, has worked with nearly 1,000 farmers and has converted over 50,000 acres of farmland into wetland ecosystems, forests or pollinator habitat.

The ALUS program is community developed and farmer delivered, meaning that ALUS programs are managed by a local ALUS Coordinator and Partnership Advisory Committee (PAC) comprised of farmers in the community, local stakeholders such as municipalities, conservation groups and farm associations.

The projects, created with the help of ALUS, turn marginal farmland into restored wetlands, forests, plant windbreaks, riparian buffers, sustainable drainage systems, pollinator habitat and other environmentally beneficial systems. These types of ecosystems provide services not commonly thought of when considering commercial agriculture. Such services include clean water, clean air, increased pollination, carbon capture and habitat for wildlife. Farmers who choose to convert a select acreage of their land toward more beneficial systems that enhance overall ecosystem services and functions receive an annual dollar amount per acre from ALUS Canada.

The Muskrat Watershed Council is considering hosting a farmers information night for those who wish to know more or would like to start a project on their farm. For those who are interested and want to know more, please visit the ALUS website or email Casey Schelock at cschelock@alus.ca

One Season Down, Two to Go

In spring 2018, Watersheds Canada entered into a 3-year partnership with the Muskrat Watershed Council and Algonquin College's Office of Applied Research to undertake the monumental task of planting 45,000 native trees and shrubs along agricultural stream banks in the Muskrat Lake Watershed. Watersheds Canada is leading the project and funding is administered by Watersheds Canada through grants they received from the Ontario Trillium Foundation and LUSH Cosmetics.

The goal of these stream bank naturalization efforts is to enhance agricultural stream banks adjacent to waterways known to be high in nutrients where stream banks are eroded and lacking in deep-rooted vegetation. Shoreline naturalization using trees and shrubs will aid in stabilizing the soil, reducing erosion and sedimentation, and offer new habitat opportunities for wildlife and fish. Over time, the new trees and shrubs will also aid in the absorption of surface and groundwater runoff, decreasing the amount of potential nutrients, such as phosphorous and nitrogen, entering waterways and contributing to problematic issues like algae blooms. Together, Watersheds Canada, MWC and Algonquin College set a goal of planting 15,000 trees and shrubs on five agricultural properties before the end of 2018. A Steering Committee of local volunteers was formed to oversee the planning and preparation and to keep the project on schedule. Planting notices were distributed by email, as well as to local media outlets and on social media asking local volunteers to donate their time. And of course, in traditional Ottawa Valley style, the community responded!

More than two hundred local and Ottawa-area volunteers came out to plant at the five sites over a ten-day period, including students from Algonquin College's Pembroke and Ottawa campuses, local high school students from Fellowes High School in Pembroke and Opeongo High School in Cobden, and local business, Jp2g Consultants. On November 6, 2018, the last shrub out of 15,000 plants was safely secured into the ground and year one of the project was completed! A big thank you to all of the 2018 volunteers and property owners for agreeing to join in on this project to improve the future of our watershed.

Season 2 of planting begins this fall and we highly encourage volunteers to come out and join us! We have already selected and assessed the sites. The Muskrat Watershed Council also received funding for 2019 from LUSH Cosmetics and general fundraising to ensure the planting is free for this year's property owners. Please stay tuned for dates and other information on our upcoming planting events!

The Miracle Mineral

The Muskrat Watershed Council hopes to initiate a pilot project in spring 2020 in the Muskrat Watershed that will test the ability of the mineral Zeolite to absorb phosphorous from freshwater.

Although the word Zeolite may sound alien, it is actually a naturally occurring mineral with many common uses. It is formed from volcanic activities where hot volcanic ash mixes with mineral rich lake or marine water. The molecular structure is what makes Zeolite such an interesting and useful mineral. The mineral's structure contains relatively open, three-dimensional crystals built from aluminum, oxygen, silicon and earth metals (such as sodium, potassium and magnesium) trapped between the gaps of the crystals is water molecules. Due to this porous structure, Zeolite acts like a "molecular sieve", capable of absorbing large amounts of water and other substances and, depending on the varying size of pores, permits certain substances to pass through while trapping others. In addition to acting as a sieve, Zeolite's structure causes the mineral to have a negative molecular charge, which acts like a magnet to positively charged elements in an environment. The process is known in the scientific world as a cation exchange.

The first use of Zeolite can be tracked to the Roman Empire where it was used in the aqueducts as a natural water filter. In 1756, Swedish mineralogist, Alex Fredrick Cronstedt, coined the name "Zeolite" after the Greek words, *zeo* "to boil" and *lithos* "a stone". It was not until the mid-nineteenth century that Zeolite entered into the North American commercial market as a use for wastewater plants to remove ammonia. From 1970 onward, Zeolite became useful for a range of applications, from radioactivity removal, pool filters, and livestock feed additives to kitty litter and road salt. Canadian Nuclear Laboratories in Chalk River uses Zeolite to remove Tritium from groundwater.

When it comes to the issues of eutrophication in the Muskrat Watershed, studies have shown that Zeolite has the ability to reduce levels of phosphorous and nitrogen from different sources of water and sediments. The Muskrat Watershed Council received Zeolite from the Canadian corporation Imagine Zeolite to conduct a controlled experiment to determine Zeolite's level of effectiveness at removing phosphorus from a select stream in the watershed. We hope to start the testing by spring 2020.

2019 Summer Student

For summer 2019, Nicholas Ferris was hired by the Muskrat Watershed Council as a summer student to sample in the watershed, conduct stream bank assessments, and perform other field tasks. Canada Summer Jobs funded Nicholas' 8-week position. Nicholas worked alongside Algonquin College co-op student Candice Rollins and Algonquin College Water Quality and Agricultural Best Management Practice Junior Specialist, Megan Rae.

Nicholas grew up in Pembroke enjoying everything that the Ottawa Valley has to offer. His favourite activities include fishing, camping, hiking, playing guitar and traveling to the Maritimes to visit family every year. After graduating from Jean Lajoie High school in 2017, Nicholas secured a job working at Lavern Heideman and Sons lumber yard in Pembroke. In 2019, Nicholas decided to pursue post-secondary education and was accepted into the Fish and Wildlife program at Fleming College in Lindsay, ON, starting this fall.

Nicholas was a lot of fun to work with and always eager to learn. He was technically adept and genuinely interested in working on any project that helped preserve the natural environment. We wish Nicholas the best of luck in his studies!

Updates on the Water Quality Monitoring Network

Since 2014, the Muskrat Watershed Council has collaborated with Algonquin College's Office of Applied Research and the Environmental Technician Program to collect monthly water quality and quantity samples at 24 sites from May-August in the Muskrat Lake Watershed. A group of local and regional professionals and scientists, as well as farmers and community members with knowledge of the watershed selected the sites. After samples are collected, they are shipped to the Ontario Ministry of Environment, Conservation and Parks (OMECP) to be analyzed in-kind at their accredited lab.

Data on the overall water quality of the watershed can indicate where to focus efforts for remedial options and/or best management practice implementations. In collecting data on water quality, we are gathering important information about the current conditions of the watershed. Year-to-year information allows us to develop a kind of inventory, or "story", of what is happening at a biophysical level within the watershed and understand potential impacts on our community.

Due to cuts in government funding, the OMECP requested a reduction in the number of sampling sites and parameters tested in the lab. Sample sites were reduced from 24 to 17, with the exception of one new site, CB-01, Cobden Beach at Muskrat Lake. Sample sites were removed based on accessibility, historical data, and critical habitat (see table below for the list of canceled sites). For example, certain sites have become too dangerous to access because of severe stream bank erosion. Certain healthier sites with historically low nitrogen and phosphorous levels were also removed. In addition, the "Deep Site" on Muskrat Lake was excluded for 2019, as the equipment used to obtain water quality data required servicing. Lastly, one site was removed following observations of nesting Bobolinks, which deemed this site a critical habitat for the threatened species. The reason for adding Cobden Beach as a sample site is to test whether the aeration system installed at the beach is working effectively. The remaining 17 sites will continue to provide sufficient data to inform on the conditions of the watershed and help determine future areas of focus for remediation projects.

Station Code	Station Description	Reason for Cancellation
MC-04	MOUTH OF MINK CREEK	Bobolinks critical habitat
MKR-03	MUSKRAT RIVER AT COBDEN WETLAND	Inaccessible for 2019 due to construction on the Cobden Wastewater Treatment Plant
MLK-02	MUSKRAT LAKE DEEP SITE	Equipment unavailable, in service
NT-01	MOUTH OF NORTH TRIBUTARY	Difficulty accessing site / spring flooding
OAD-01	MOUTH OF O'GORMAN AGNEW DRAIN	Difficulty accessing site / seasonal drought
OS-01	OLMSTEAD AT HIGHWAY 17	Unsafe access
PH-01	PUMPHOUSE (OFF CHENAUX ROAD)	Historically low in nitrogen and phosphorous
SNR-06	SNAKE RIVER ABOVE O'GORMAN AGNEW DRAIN	Difficulty accessing site due to erosion

2019 Photography Contest Winner

Congratulations to Martin Gaudet on winning our annual photography contest! Thanks goes out to all those who submitted their images via Email, Facebook, Twitter and Instagram!

Monthly Meetings

If you are interested in knowing more about what we are doing in the local community, or wish to volunteer your time, our regular monthly meetings happen every third Thursday of the month at 6:30pm at 44 Main Street Cobden ON, K0J1K0. Parking is behind the building and enter through the back door into the basement. All are welcome!

Contact Us

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