2019-2020

MALLA Reports 2020

Our Year in Review

2019-2020

This has been a year like no other as the impact of COVID has been far reaching. For the first time since its inception MALLA did hold an AGM. Everyone was forced to adjust and this is just one of the measures that was made to keep our neighbours and friends safe.

While we could not gather in person, we still managed to find some things that needed sharing so we are providing these Reports to keep you current.

We hope that next year we will be able to gather once again.

Vice-President (Malcolm Lake) Annual Report by Brenda Martin

The 2019-2020 year posed many challenges without a President as I endeavored to serve in that capacity when required as well as fulfill the responsibilities of VP for Malcolm Lake AND Stewardship Chair.

I represented MALLA at the North Frontenac Lakes Alliance Association meetings in person and by teleconference. Due to my local contacts I was asked to invite these new lakes to join-Mackie, Mazinaw and Shabomeka. I believe that the NFLAA has an important role to liaise on behalf of as many NF lakes as possible thus I made a commitment to share resource ideas and actively promote the principles of MALLA. Topics for the fall meeting were: Septic System inspections, dry fire hydrants, zoning and by-laws as per Committee of Adjustment role, Lake Carrying Capacity, a rep for Mississippi Valley Conservation committee, improving internet service, pros/cons of an integrated collective website AND Eurasian Water Milfoil impact. Several of these topics are already being examined by MALLA. The 2020 meetings may all be teleconferencing given the pandemic situation.

From the VP role, much of my time was communicating with environmental/lake organizations dealing with similar issues as MALLA faces or preparing grant applications to support the EWM project. Grant funding was tough because there are no Ontario research studies for EWM. A major commitment was made by the Township by hiring a summer student with technology skills. In our proposed budget we had anticipated some grant funding; since this did not happen, two fundraisers were used to generate funds; 1) sale of tickets on the “Autumn Red” print and 2) an updated/expanded reproduction of the History of The Lakes book.

A key responsibility for each Vice-President is to maintain and grow membership. We continue to hover around 60 members (out of 115) despite invitations to others on the lakes. Our Welcome packages provide an exceptional set of resources for all property owners. This year we have many useful booklets for each of our members. Our social activities are examples of membership fees well spent to support a sense of lake community. It is not the $30 fee that seems to be the issue. If a crisis like EWM didn’t attract their attention, I am unclear as to their expectations for having a cottage on these lakes. I ask again for your help to welcome the newcomers to the lake and previous owners by encouraging them to be part of our small organization.

Vice-President (Ardoch Lake) Annual Report by Ruth Cooper

As Brenda has mentioned in her report, it was a little difficult this year (2019-2020) with our MALLA organization without a President. We had some late summer meetings last year (2019) regarding the MALLA (with Brenda), at the North Frontenac Lakes Alliance Association meeting by teleconference on May 12th. Like Brenda, I feel that NFLAA is an important conduit for lakes associations to share lake stewardship education, help remedy common problems, share resources and be a common voice for lake concerns in the Township.

A large discussion during the meeting that I was present in regarded a common NFLAA website, Septic Inspections and suggested recommendations, that will be presented to the Township Council, as well as improving internet service in the community. There were other subjects on the agenda, but we did not have time to pursue them, during the two-hour teleconferencing. Until the pandemic eases up, the future 2020 meetings will all be by teleconferencing.

Invasive species, such as Eurasian Water Millefoil and Phragmites are on-going concerns on our lake. EWM has spread on the northern shore and cottagers are trying to control it with burlap and pulling it out around their dock and shoreline areas. There is a patch of Phragmites in our ne bay. It will need to be addressed, hopefully later this season, if we are able to get enough help from around the lake.

I have continued to talk to new members on our lake, regarding the Lake Association and am hoping to continue this summer. It could be a harder sell during this pandemic. I also ask you to help us welcome the newcomers to the lake and previous members by encouraging them to be part of our small organization. Every member helps us help our lakes together!

Thank you for being a member!

Audited Financial Statement - Malcolm & Ardoch Lakes Landowner Association May 1, 2019 to April 30, 2020

General Operating Fund				
Balance forward from May 1, 2019				6,156.44
Balance Forward General Account			2810.19	
Income				
Memberships	55x 30.00	1,650.00		
Membership Donations EWM Project		2,194.00		
50/50 Draws		228.00		
Picture Raffel		250.00		
History Books		2,450.00		
Misc Other donations		554.00		
Total Income		7,326.00	7,326.00	
Total Income General Account			10,136.19	
Expenses				
FOCA		328.00		
Social Events		355.80		
Insurance		1,081.08		
History Books		1,409.10		
Drone Survey		1,117.54		
Stewardship		516.36		
Burlap		3,595.41		
Office Expenses (Bank Fees)		117.15		
Total Expenses General Account		8,520.44	8,520.44	
Closing Balance For General Operating account			1,615.75	
Fishing Account				
Opening Balance		3,346.25		
Income				
Derby Registration		620.00		
50/50 Draw		150.00		
Donations		85.00		
Total Fishing Income		855.00	855.00	
Total Income for the year		4,201.25		
Expenses				
Derby Prizes,		301.65		
Food		77.57		
Frontenac News		44.10		
Engraving		20.00		
Total Fishing Expenses		443.32	443.32	
Closing balance for Fishing Account			3,757.93	3,757.93
Current Closing Bank Balance			5,373.68	5,373.68

John Stewart

24/04/2020.

Date

2019 Fishing Derby Expenses & Revenue Report

Derby Expenses		
Prizes		**$301.62**
Food		**77.56**
Thank you Ad		**44.08**
Trophy engraving		**20.00**
	Total	**$443.26**
Derby Revenue		
Ticket money (63 anglers)		**$630.00**
50/50 draw		**150.00**
	Total	**$780.00**
Profit		**$336.74**

MALCOLM & ARDOCH
Lake Stewardship Committee

2020 STEWARDSHIP ANNUAL REPORT by Brenda Martin

My report starts off by reminding the membership of the roles and responsibilities of the Stewardship Committee. For the period of 2018-2020 I believe that the Stewardship committee has demonstrated overwhelming effort and work ethic with respect to the key responsibilities. As Chair I would like to thank the members (Bud Griswold, Mary Gessner, Ruth Cooper, Cathy Owen, Brian Palmer and MVCA liaison, Alyson Symon) for their efforts to address the issues facing our lakes. Also, thanks to Glen Fowler and Ruth Cooper for maintaining our annual water quality testing (Lake Partner Program and MCVA Watershed Watch Program).

The purpose of the Lake Stewardship Committee is to co-ordinate the process, the development, the approval, the implementation and monitoring of the (MALLA) Lake Plan. Such monitoring will include advocacy with municipal/government agencies to ensure that the lake capacity is considered in land use and lake use decisions. Among key responsibilities will be:

*collecting data through survey, interview, checklists, mapping and assessment

*identifying environmental concerns and providing recommendations

*reporting to lake users via of the MALLA website or meetings

*educating lake users with respect to best stewardship practices through newsletters, website, and educational sessions

*applying for funding as grants are available.

Each of these responsibilities has major tasks to get results; a partial list is provided.

- Apply to MNRF for permits (Letters of Authority)
- Seek Township Council support
- Prepare grant applications (TD bank, OFAH, FOCA, NFTwsp)
- Prepare report to organizations who provided funding
- Develop roles for partnership with Above & Beyond program
- Develop role for partnership with Carleton University
- Identify two grad students to lead data collection for burlap placement
- Develop proposed budget and sources of funding for activities
- Summer student- hire, plan flights, monitor results, revise

- Conduct research on aspects of EWM
- Plan implementation strategies
- Order materials (burlap, rebar, pipes, etc)
- Organize burlap laying sessions (2 days)
- Supervise summer student for drone activities and report writing
- Ongoing communication with environmental agencies- MCVA and Watersheds Canada and Invasive Species Awareness program (until newly elected govt eliminated)
- Communicate with others in Ont. conducting EWM studies (Trent University, Big Cedar Lake, Farlain Lake, Wolfe Lake)
- Develop EWM Management Plan (2018-2020) and revise as necessary
- Phragmites control training
- Phragmites control projects (2)
- Report to MALLA and partners (Secretary, Kathy Smith and Webmaster, Cathy Potts)
- Prepare displays/reports
- Provide community education session(s)
- Present EWM plan to NFLAA
- Conduct two fundraisers
- Apply for water blanket grant with Township
- Pilot project- weevils as a control strategy
- Present at Lake Links Conference (Oct.2019)
- Prepare report to organizations who provided funding
- Planning timelines and activities with partners (Jan.-May 2020)

On the topic of Eurasian Water Milfoil, the MALLA pilot project is a leader in data collection and research. Our team which included summer student, Ryleigh Rioux, Patrick Beaupre, Wade Leonard and I provided a huge display and presented at the Eastern Ontario Lake Links Conference October 26, 2019. There was terrific interest from other lake associations and environmental groups across Eastern Ontario. As a result of Lake Links, I was also asked to present at the Federation of Cottagers' Association Conference in November. Due to a previous commitment and the fact that it would be a five- minute presentation in Toronto, I was unable to share our work there.

As a major pilot project in the study of EWM, MALLA has been invited in 2020 to expand our control strategies to include the use of milfoil weevils- a project led by Wade Leonard. Given that these weevils are not produced or available anywhere else in Canada, it is an exciting opportunity that MALLA will consider.

May 2020 Report - Above & Beyond with Drones at GREC by Wade Leonard (Teacher)

I hope this note finds all of you well in this trying time.

It was great to work with everyone and see the effort that went into all of the missions and meetings the last year; they were truly impressive. This is a brief report that provides a general overview related to the findings and improvements that were made related to drone imaging of the Eurasian Water Milfoil (EWM) program by Ryleigh Rioux, and Above and Beyond with Drones at GREC.

This year we were able to map the largest amount of area and produce some of the best quality data we have collected since we began working with MALLA. Our mapping efforts have helped the association track the spread and assess the effectiveness of the mitigation measures that have been taken to limit the spread of EWM such as the deployment of burlap to cover the beds.

We have made some substantial improvements in our data collection and processing methodology since 2017. These improvements have allowed us to be able to better delineate the EWM beds which will benefit the tracking of the spread or hopeful decline milfoil in Malcolm and Ardoch Lakes.

As Ryleigh noted in her report from 2019, we were able to substantially refine our imaging techniques through using polarizing filters to reduce the glare from sunlight which has proved to be our nemesis in terms of obtaining quality imagery. By using polarizing filters and optimizing the orientation of the drone during the flights we were able to substantially reduce the effect of glare resulting in incredibly detailed orthomosaic imagery.

We also determined that between about 8:00 am and 11:00 am is an optimum time during the day for collecting imagery. If imagery is collected too early in the morning there isn't enough

light to properly illuminate the milfoil beds and after 11:00 am there is substantial glare and on most days the wind comes up after this time, creating waves which further diminishing the quality of the imagery.

Another surprising discovery was related to imagery analysis. We found that the EWM appears red when we analyzed the imagery through the plant health analysis tool in the DroneDeploy subscription software. Normally, plants are red when they are either dead or dying when viewed with this tool, however, EWM appears to be red-shifted in the orthomosaics compared to most plants. The bad news about this finding may be that it is harder to determine if the milfoil is growing quickly or is actually dying, the good news is that the milfoil beds can easily be differentiated from native submergent vegetation.

We also made a substantial improvement in being able to obtain consistency in the imagery through batch editing thousands of pictures with a program made available to students and teachers in the Limestone District School Board Education called Lightroom. Ryleigh was able to make use of this program and substantially improve the quality of orthomosaics produced. The orthomosaics that were produced from these pictures were substantially sharper and much richer in colour, making the job of delineating the milfoil beds much easier.

Ryleigh used her own drone during one of the missions this summer. Her drone is a DJI Mavic 2 Pro and it produced some of the best imagery from all of the missions that took place during the summer of 2019.

I wanted to end this report by extending a huge thank you to MALLA and specifically all the volunteers for contributing to the success of our program. From laying buoys to help the computer stitch imagery, driving the boats and being visual observers. In particular, I would like to thank Brenda Martin for her tireless efforts to support our program and for her support of the students involved in the program. This partnership and this program are unique in Canada and has made a transformative difference in the lives of the students involved. It has been a pleasure to work with such a professionally run organization such as yours.

I look forward to the continued involvement of Above and Beyond with Drones at GREC with MALLA.

Yours truly,

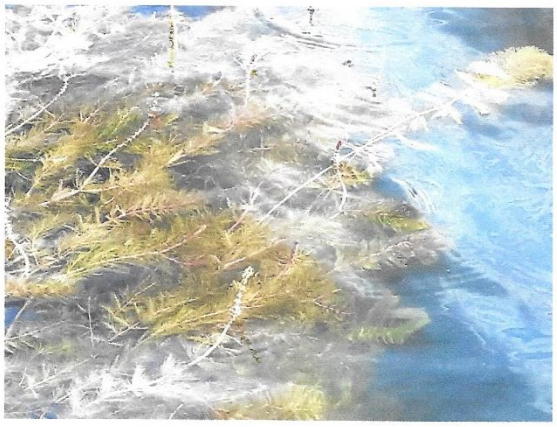
Wade Leonard, Teacher

Above and Beyond with Drones at GREC
Granite Ridge Education Centre
Sharbot Lake, Ont

Carleton UNIVERSITY
Canada's Capital University

2020 May Scientific Data Report for MALLA
by Patrick Beaupre (Grad student, Carleton University)

Assessing the physical, chemical and biological impacts of Myriophyllum spicatum L. control by burlap benthic barriers on the Malcolm lake littoral zone



PILOT PROJECT
REPORT ON

EURASIAN WATER
MILFOIL

FOR TOWNSHIP OF
NORTH FRONTENAC

Carleton University participation objectives of this project:

1) **to examine what impact(s) if any, the use of these benthic barriers has on aquatic habitat.**
2) **and to assess the use of biodegradable benthic barriers as a control of dense M. spicatum beds.**

The following summarizes the mean values of water quality parameters measured during the first 4-month sampling period, at depth of 2m:

- Water temperature 21.4 °C
- Dissolved Oxygen (DO) 79%
- Conductivity 201 µS
- pH 8.4
- % light reaching bottom 11%
- Dissolved Organic Carbon (DOC) 2.9 m/L
- Total Kieldahl Nitrogen (TKN) 0.54 m/L
- Total Phosphorus (TP) 0.009 mg/L
- Sediment moisture content 96%
- Dry sediment organic content 51%

- Chlorophyll a (Chla, rough estimate of biomass)1.9 μg/L

The following is a comparison between control (EWM patches) and impact (EWM smothered by burlap) sites:

- higher **conductivity** in EWM patches (a statistically 'significant' difference)
- lower **pH** in EWM patches (also significant)
- way less **light** penetrating to bottom in EWM patches (also significant)
- similar **DO,** slightly lower in EWM patches (but not significant)
- similar **DOC,** slightly lower in EWM patches (but not significant)
- similar **Chla** slightly higher in EWM (but not significant)
- similar **zooplankton density,** with slightly less in impact areas (but not significant)
- no difference in **temperature**
- no difference in nutrient levels (**TP or TKN**)

In terms of the zooplankton community, it WAS impacted, and quite drastically in terms of community composition (not significantly in terms of total abundance):

- dominance of chydoridae (a small cladoceran crustacean) in EWM patches throughout the sampling period, although more and more copepods as the seasons progressed
- immediately after the mats were laid down the chydoridae were replaced by a surge in bosminidae (a different family of cladoceran crustaceans)
- after that, there was a complete takeover by copepod crustaceans (cyclopidae) in the impact trenches, and an almost complete elimination of cladocerans (the EWM patches were still dominated by chydoridae at the end of the season)

Interpretation:

- Nutrient (P) and algae (chla) levels are low (oligotrophic)...yeah!

- Benthic barriers do not seem to have any significant impacts on local lake water quality (neither good nor bad). This is consistent with the limited literature on this topic. It will be interesting to see what results are obtained if the grad student is able to measure under the barriers next year.

- The benthic barriers do seem to prevent a drop in pH, which was noted in the adjacent EWM patches. Although the difference is small, it is significant. Generally keeping the pH higher and more stable is actually a good thing, especially for fish. The barriers also allow more light to the bottom, which may provide a (minor) positive benefit to periphyton, and the organisms that graze it (snails). Because the barriers cover the sediment, they do not benefit native macrophytes.

- While the benthic barriers do not have a significant impact on zooplankton density, they do lower it but not significantly. They do change what species live where. This is very

open to interpretation, as zooplankton are quite complex organisms that sit in the 'messy' middle regions of aquatic food chains. They are subjected to both top-down and bottom-up pressures. Because zooplankton are a major food source for planktivorous fish (eg. tons of little sunfish!), these barriers will change where fish go in the lake (eg their dispersal, dispersion and distribution). The benthic barrier strips may provide a corridor for fish travel, particularly bass.

- This study examined what impact, if any, these benthic barriers are having on important components of aquatic habitat, including light and temperature, nutrient concentrations, algal biomass, zooplankton abundance, and benthic invertebrates. These data could help lake users and managers across Canada better develop management plans for this invasive species and where appropriate, take management actions to ensure healthy and functional lake ecosystems.