

Fish and Wildlife Enhancement Fund
FWEF Project #FES 20-025
Aquatic Invasive Species Prevention Initiative
Citizens for Protecting Our Northern Waterways Inc.
Final Report
November 26, 2021

Executive Summary

Citizens for Protecting Our Northern Waterways (CPONW) has been active since 2019 recognizing the need to reach out to the public about the threat of Aquatic Invasive Species (AIS). The AIS Prevention Initiative, funded by the Fish and Wildlife Enhancement Fund (FWEF), delivered grass roots public awareness at key locations in northern Manitoba focusing on preventing the spread of zebra mussels. Originally targeted to start in 2020, the initiative was delayed due to Covid-19 public health orders and was undertaken in 2021. Outreach first targeted northern lodge owners with a letter encouraging them to include AIS information on their websites/social media and share this information with clients prior to arriving at their lodge. Recognizing the importance of digital and social media, the CPONW website was expanded and a Facebook page was developed. The website became the cornerstone for housing zebra mussel/AIS related information and traffic increased by close to 70% compared to 2020, with 97% being new visitors. Facebook proved to be a very effective tool with posts reaching up to 600 people, and was almost entirely responsible for traffic being drawn to the CPONW website. Working with The Pas Rotary Club, an enhanced signage project was undertaken to focus public awareness on what needs to be done when watercraft have been in a Control Zone, with specific reference to the Saskatchewan River. Locally specific signs were developed and placed at 13 boat launch sites including at the Saskatchewan River in The Pas and several surrounding lakes. A key summer activity was hosting nine outdoor events at six public boat launch sites where contact and discussion occurred with over 150 people and 68 watercraft. This was augmented with three additional awareness events held in The Pas that reached an additional 88 people. Collectively CPONW contributed close to 200 volunteer hours toward these events. An evaluation of the work undertaken is provided including lessons learned to guide future activities. A financial report is provided and includes an overview of actual costs vs. budgeted and a breakdown of costs by project category.

Introduction/Background

Preventing the spread of Aquatic Invasive Species (AIS) into pristine waters is critical to ensuring healthy aquatic ecosystems, healthy fish habitat and sustainable native fish stocks. It is well documented that when AIS, in particular zebra mussels, are introduced into a water body changes to the aquatic ecosystem occurs. This includes clearing of the water column resulting in changes to the food web and the submerged vegetation community. These changes have significant implications to the native fish community including the impact on growth rates and the production of fish, subsequently recreational and commercial fishing.

Additional impacts of zebra mussels include the clogging of private and municipal water intake pipes, the build-up of zebra mussels on watercraft, docks and beaches. These impacts can have a serious financial implication to local residents and municipal governments through maintenance costs to maintain water intake and water related equipment.

Key to preventing the spread of AIS is public awareness. The purpose of this project was to deliver grass roots awareness at key locations within the NW Region and beyond, with a focus on preventing the spread of zebra mussels into Clearwater Lake, Rocky Lake, Lake Athapapuskow, the Grass River system, Paint Lake and surrounding waterways.

The main objective of the project was to enhance public awareness by preparing and disseminating easy to read/plain language written material; building capacity through hosting watercraft inspection seminars, and; targeted outreach efforts by attending various public events.

Originally targeted for delivery in 2020, the project was delayed until 2021 due to Covid-19. Further, due to the ongoing implications of Covid-19, planned indoor events such as leisure/trade shows and planned watercraft inspection training could not take place. As such, efforts were re-directed to focus on activities where Covid-19 protocols could be adhered to. Following is a summary of these activities.

Project Activities

Outreach to northern lodges – Most guests to lodges in Northern Manitoba are from the United States and southern Manitoba where zebra mussels and other AIS are widespread. Recognizing lodge owners are an important group to promote the importance of preventing the spread of AIS, in April we prepared and distributed a letter to 19 lodge owners. This letter outlined the issue and encouraged them to include this important information on their respective websites, social media, and recommended they provide information on practices and requirements to prevent the spread of AIS to their clients prior to coming north ([see Appendix 1](#)).

Distribution of Resource Material - In the spring, CPONW members assembled several AIS awareness information sheets and distributed copies to numerous vendors and public venues. This included local gas stations, tackle shops, marine dealers, lodges and the Rural Municipality and Local Government District. Distributing this information provided the opportunity to discuss who CPONW is, what we do, the threat of zebra mussel invasion, and the important role of the public and watercraft owners to prevent the spread.

Expanded Website/Facebook - Recognizing the importance of digital and social media, in combination with challenges to reach out to the public in person due to Covid 19, we enhanced our website and established a Facebook page. Specific to the website, we expanded the site to include information on

proper Clean-Drain-Dry protocols, created a link to the government inspection decontamination hours, added a page outlining our contributors (including FWEF), started a blog, added relevant news and profiled CPONW activities. This website has become the cornerstone of information created by and/or profiled by our group <https://www.zebramusselprevention.com/>.

To assess the benefit of the web site, we looked at the number of different visitors who viewed the site (unique visitors) from April – October in 2021 vs. 2020. Unique visitors increased 69% between years with 97% being new. In terms of where these visitors reside, 78% were from Canada, 10% from the USA with the balance (12%) from locations outside of N.A. Of the Canadian visitors, most (66%) were from within Manitoba (Figure 1).

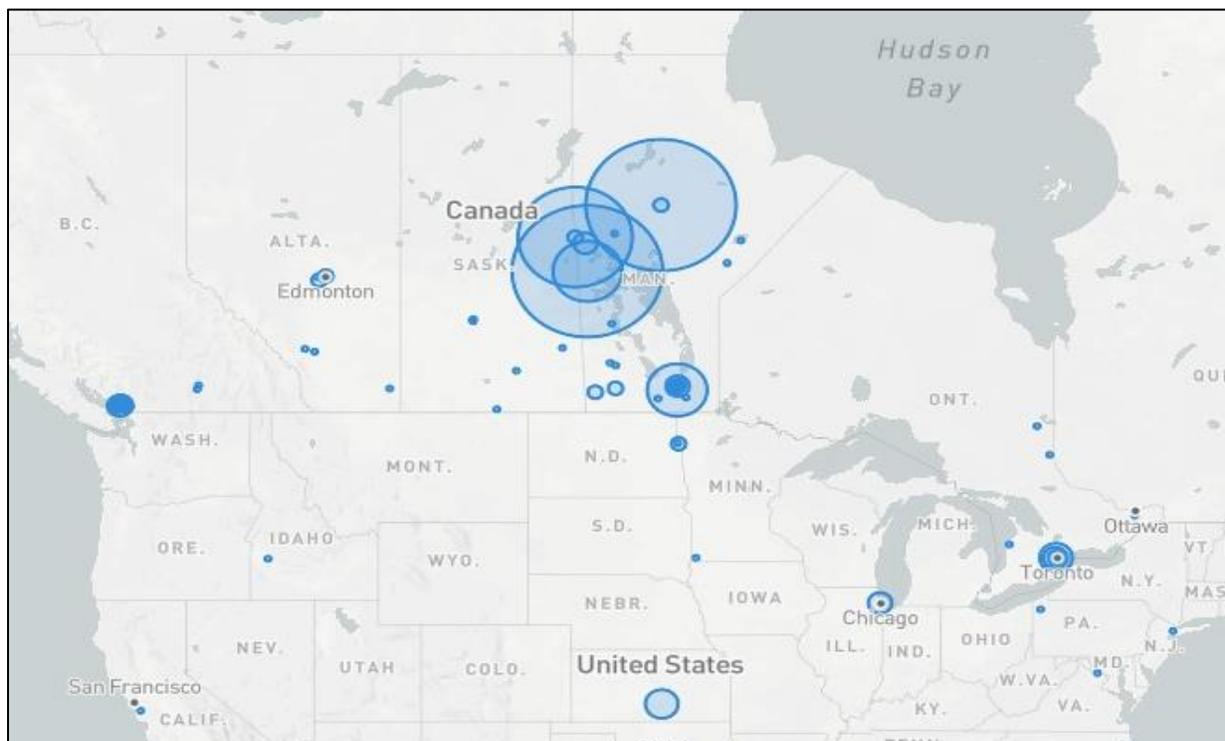


Figure 1. Distribution of unique visitors to the CPONW website (from WIX analytics).

In late July, a Facebook page <https://www.facebook.com/CPONW01> was established to expand our outreach, draw people to our website, provide relevant news items, and advertise upcoming CPONW events. This proved to be a very effective tool in reaching the public, starting with 40 followers and growing to 60 from the end of July to November, with posts reaching up to 600 people. Further, Facebook was almost entirely responsible for traffic being drawn to the CPONW website. This reach was immediate with significant interest being held through the middle of September when traffic lightened, likely due to the reduced number of posts as fall approached (information based on Facebook page insights).

Rotary Sign Initiative - In early March we were contacted by The Pas Rotary Club who were interested in learning about Zebra Mussels and other AIS, and the risk to the local area. This conversation resulted in a virtual “zoom” presentation to the Club on March 16th. The presentation was well received and during the Q&A session members expressed considerable interest in supporting a local project. Following this presentation, we discussed potential project ideas with Rotary and determined there was a need for

enhanced signage at targeted locations close to The Pas. The result was a successful, separate project, funded entirely by The Pas Rotary Club (independent of funds associated with this FWEF initiative).

This project complimented the goals of CPONW and supported the objectives of the FWEF funded project. This initiative focused on public signage explaining what needs to be done when watercraft have been in a Zebra Mussel infected Control Zone, with specific reference to the Saskatchewan River. We identified key watercraft launch sites in close proximity to the Saskatchewan River (Figure 2) and worked with the town of The Pas and Manitoba Parks staff to determine the best location for sign placement on town property and within Clearwater Provincial Park. We also worked with the Manitoba AIS Unit to ensure wording was consistent with Provincial messaging and legislation.

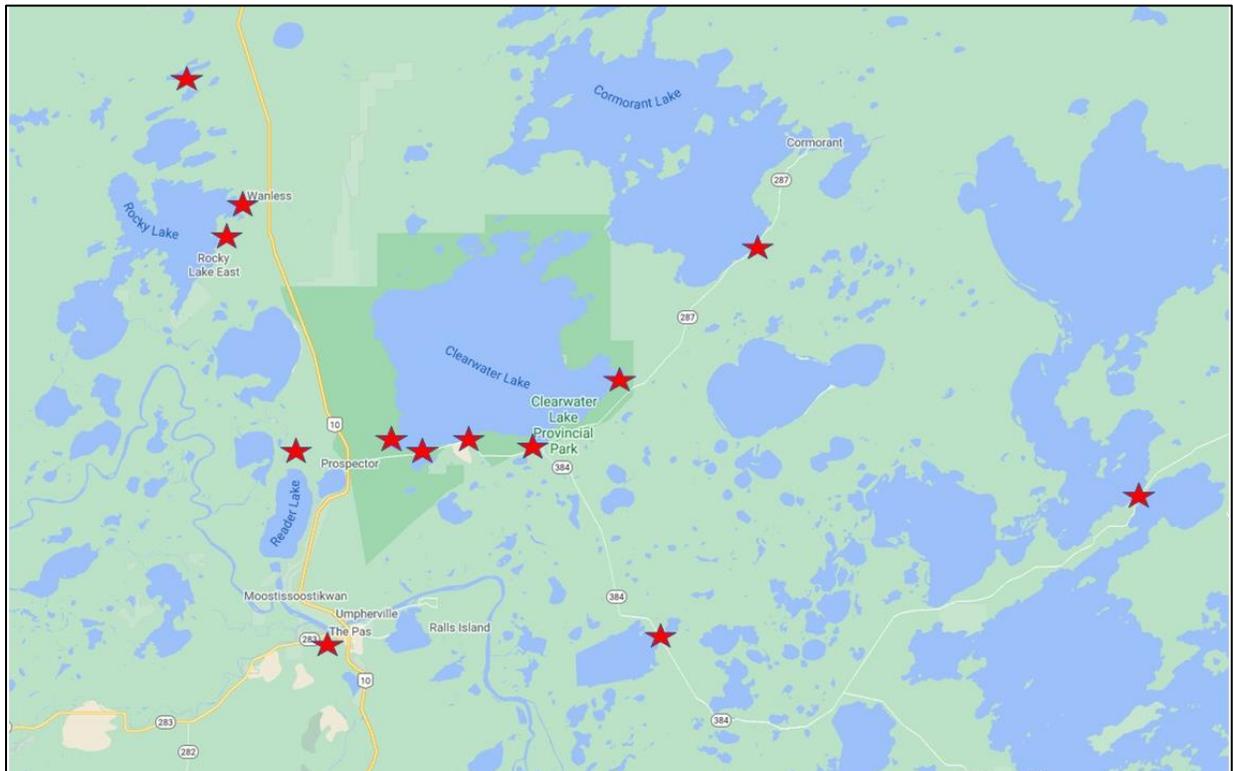


Figure 2. Locations of Rotary supported sign placement.

The result was the development and placement of signs at the following locations:

- A large (3'x4') sign at the boat launch on the Saskatchewan River in The Pas.
- Smaller signs (18"x24') placed at launches at Clearwater Lake (5), Cormorant Lake (1), Landry Lake (1), North Moose Lake (1), Red Rock Creek (1), Rocky Lake (2) site) and Barbe Lake (1).

Examples of these signs are provided in [Appendix 2](#).

To celebrate, and launch, this initiative, a local "photo-op" and press event was held in June at the boat launch at The Pas that profiled the sign at The Pas, support of The Pas Rotary Club, and the work of CPONW including with the AIS Unit (Figure 3.). The article which was included in the Opasquia Times on June 30th, 2021 is included [Appendix 3](#).

Custom Outreach Material - To augment the existing government AIS written material, we prepared two additional written pieces to share with the public via our CPONW website and at in-person events. These pieces focused on the fundamentals of Clean-Drain-Dry protocols and plain language information on zebra mussels, their impact, and what needs to be done to prevent the spread. These are provided in

[Appendix 4](#). In addition, promotional “hand-outs” in the form of bumper stickers and hand towels were designed and purchased for use at public outreach events (Figure 4).



Figure 3. CPONW members receive donation from The Pas Rotary Club



Figure 4. Promotional Hand-outs

Outdoor Outreach - In July, the Provincial Covid 19 related restrictions were adjusted to allow for outdoor outreach events. In anticipation of this announcement, we were prepared to hold these at several public boat launch sites. Sites were selected based on location (e.g., the upper reaches of the watershed) and level of use by the boating public (target sites of known high use). All events took place on the week-end at times when high traffic was anticipated (Figure 5).

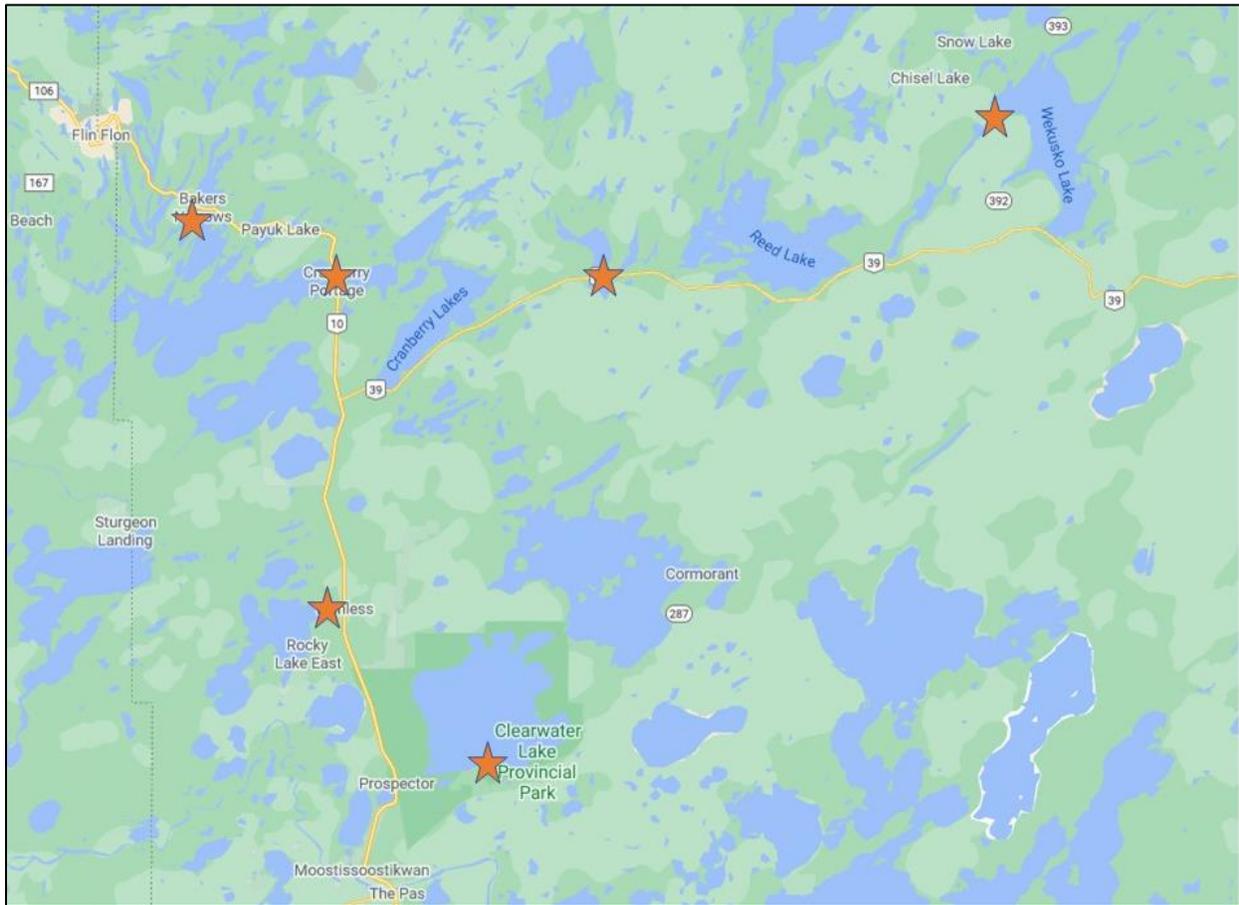


Figure 5. Location of boat launch outreach events, summer 2021.

When at these sites, a table was set up and manned with members of CPONW along with hand out materials on zebra mussels and other AIS, what watercraft owners need to do to help prevent the spread, samples of zebra mussels, and several give-a-ways to help promote CPONW and remind people of the importance of this issue (Figure 6.)



Figure 6. Example of set-up at boat launch event.

In total, we held nine boat launch events from July to September averaging just under three hours per event, reaching over 150 people associated with 68 different watercraft. Each event was hosted by two CPONW volunteers who, collectively, logged over 85 volunteer hours (Table 1). For the purpose of this report, watercraft include boats, personal watercraft (e.g., Sea-doo®), canoes and kayaks. Of note is for events held within Provincial Parks, a Special Events Permit was obtained from Manitoba Parks.

Table 1. Summary of boat launch events held, summer 2021.

| Boat Launch Site | Date(s) | Hrs. of Operation | Volunteers | Volunteer Hrs. | Interactions* |
|--------------------------------|------------------------|---------------------|------------|----------------|---------------|
| Bakers Narrows | July 4 | 2.0 | 2 | 4 | 11/3 |
| Clearwater Lake | July 10 | 3.5 | 2 | 7 | 35/13 |
| 1 st Cranberry Lake | July 10, Aug 1, Sept 6 | 3.0, 3.0, 2.5 (8.5) | 2,2,2 (6) | 51 | 50/26 |
| Iskwasum | July 17, Sept 5 | 2.5, 0.5 (3.0) | 2,1 (3) | 9 | 23/10 |
| Wekusko Falls | July 24 | 3.5 | 2 | 7 | 20/9 |
| Rocky Lake | Aug 7 | 4 | 2 | 8 | 15/7 |
| Total | 9 | 24.5 | 17 | 86 | 154/68 |

*Recorded as the number of people interactions/number of watercraft.

In addition, we set up at Extra Foods in The Pas to capture pre - Labour Day shopping traffic, as well as two other outdoor events held in The Pas (Vendor and Culture Days) with the latter being located close to the Saskatchewan River boat launch. The intent of these events was to capture the local public as well as those from distant communities such as Grand Rapids. This resulted in an additional 88 public interactions and 19 volunteer hours. Details of these events are provided in Table 2. During the The Pas Vendor Days the local newspaper recorded the event which included an interview with CPONW volunteers and subsequently posted on YouTube (1.25-4.5 min).

https://m.youtube.com/watch?fbclid=IwAR0nrundVHarlhzcapyAo_vhyshsUSmi3tYN-IIFTgikE5erNJjEEEnXWvg&v=7rFOyhmql-M&feature=youtu.be

Comparing the two, the general public events resulted in greater public interaction (9.3 public interactions/hour vs. 6.2), while the boat launch events specifically targeted watercraft owners. Both types of activities offer important contact opportunities with a range of interested people.

Table 2. Summary of public outreach activities held in The Pas.

| Event | Date | Hrs. of Operation | Volunteers | Volunteer Hrs. | Interactions * |
|--------------|----------|-------------------|------------|----------------|----------------|
| Extra Foods | Sept 3 | 2.5 | 2 | 5 | 27 |
| Vendor Days | Sept 11 | 4.5 | 2 | 9 | 43 |
| Culture Days | Oct 02 | 2.5 | 2 | 5 | 18 |
| Total | 9 | 9.5 | 6 | 19 | 88 |

*Recorded as the number of people interactions

In summary, despite having a narrow window of time for public outreach due to Covid, collectively we contributed over 100 volunteer hours and reached over 240 people, of which 68 were associated with watercraft.

Evaluation and Lessons Learned

Based on activities undertaken, following is a brief evaluation and thoughts for future endeavors. Social Media - With the addition of the CPONW Facebook page, the reach to the public increased substantially and drew more people to our expanded website for more information. Going forward, thoughtful targeting using Facebook, in combination with videos using YouTube, will help expand CPONW outreach capabilities.

Public Outreach - Regardless of outreach event, public feedback was positive noting the printed information was helpful to expand their knowledge of zebra mussels and associated impacts. Having samples of actual zebra mussels proved to be a very powerful tool allowing people to have an in-person experience vs. through pictures. It was not uncommon for people to comment “so that’s what they look like”! In the future, having more samples of zebra mussels (e.g., zebra mussel covered boat propellers) will enhance take-home messaging.

Although people indicated they knew about zebra mussels, and did not want them in our waters, most did not have a full understanding of what needs to be done to prevent the spread. This included a general lack of knowledge of proper Clean – Drain – Dry protocols and understanding the differences of what needs to be done between a control zone and waters outside of a control zone. There was also interest in knowing the status of zebra mussel presence in local waters.

In addition, although people appreciated the importance of the government watercraft inspection and decontamination stations, most expressed disappointment in the hours of operation. Greater exposure and emphasis on the Clean – Drain - Dry – Protocols, the status of zebra mussels in local lakes, and information the on inspection and decontamination stations is clearly needed.

Boat Launch vs. General Public Events - We undertook outreach activities at boat launch and general public venues/events. Both types of activities offer direct contact with a range of interested people and should continue.

Specific to boat launches, although difficult to time due to a variety of reasons, including the weather, these events provide the opportunity to observe watercraft owner behaviour relative to Clean – Drain – Dry. In some cases, we noted limited adherence to cleaning watercraft and trailers once pulled out of the water (e.g., aquatic vegetation). Although most people pulled the plug from their boats, lowering the motor to completely drain the water was not typically not done. In the future, observing owner behaviour and engaging in dialogue to discuss proper Clean – Drain – Dry protocols should be emphasised.

Financial Report

The original budget, submitted with the FEWF application, was prepared just as the Covid 19 pandemic was becoming a significant issue. In addition, the approval of our application was delayed until mid-summer 2020, followed by other delays resulting in the Grant Funding Agreement being signed in mid December. As such, some of the planned activities as identified in the grant application did not take place. However, prior to the approval of our proposed project, we hosted a watercraft inspection training seminar in July 2020, and met with both The Pas and Flin Flon town councils where we presented information on the threat of zebra mussels (and other AIS) and what can be done to prevent the spread. Both of these activities were part of the original project proposal.

With the continuation of Covid-19 in 2021, and associated restrictions relative to indoor public events (e.g., leisure trade shows), we re-directed our planning and outreach efforts to focus on outdoor events and enhanced communication efforts. This change resulted in the need to adjust our budget expenditures as outlined in the FWEF Grant Funding Agreement. We requested, and secured, permission from the FWEF Grant Administrator to adjust our budget accordingly.

A summary of project contributions is provided in Table 3, including the holdback funds being held by the FWEF. Note the significant variance in the cash expenditures from funds provided by the LUD of Cranberry Portage. This is because most of reduced funding from the LUD and some funds were expended in 2020, prior to the execution of the Grant Funding Agreement. A significant variance in the CPONW in-kind contributions was also realized due to the cancellation of the planned indoor events due to Covid-19, including leisure/trade shows and in-person community/cottager association meetings.

Table 3. Summary of project contributions, total vs. budget as submitted.

| Project Contributions | Cash | In-Kind | Total | Budget (as submitted) | Variance \$ |
|-------------------------------|----------------|----------------|----------------|------------------------------|--------------------|
| LUD of Cranberry Portage | 76 | | 76 | 1,750 | -96% |
| FWEF | 3,935 | | 3,935 | 3,935 | 0% |
| CPONW | | 3,213 | 3,213 | 5,040* | -36% |
| Funds received to date | \$4,011 | | | | |
| Holdback Funds (FWEF) | 437 | | 437 | 437 | 0% |
| Total | \$4,448 | \$3,213 | \$7,661 | \$11,162 | -32% |

*23 Volunteer days

A summary of expenditures by project category is provided in Table 4. The significant negative variance in the in-kind staffing/personnel, transportation and other costs is a reflection of the cancelled indoor events as noted above. The plus variance in communication and materials, supplies and equipment costs are a direct result of re-directed planning and outreach efforts to outdoor events and enhanced communication efforts.

Table 4. Summary of Project Expenditures by Category, total vs. budget as submitted.

| TOTAL PROJECT EXPENDITURES | CASH | IN-KIND | TOTAL | BUDGET (as submitted) | Variance |
|--|----------------|----------------|----------------|------------------------------|-----------------|
| Staffing and Personnel Costs | | 2,013 | 2,013 | 3,840 | -48% |
| Communication Costs | 968 | 1,200 | 2,168 | 1,800 | +21% |
| Transportation Costs | 946 | | 946 | 2,872 | -69% |
| Materials, Supplies, Equipment Costs | 2,417 | | 2,417 | 1,650 | +46% |
| Other Costs (hall rentals, meals etc.) | 117 | | 117 | 1,000 | -88% |
| Total | \$4,448 | \$3,213 | \$7,661 | \$11,162 | -32% |

Detailed project expenditures by project category are provided in [Appendix 5](#). Specific information relative to the individual expenditures outlined in Appendix 5 is available upon request.

APPENDICES

Appendix 1: Letter to Northern Lodges

April 12, 2021

Fellow lodge owners;

Citizens Protecting Our Northern Waters (CPONW) is a volunteer organization dedicated to preventing aquatic invasive species (AIS), such as Zebra Mussels from invading our northern waters. As a member of this group, I would encourage all lodge operators to include information about this potentially devastating problem on your websites and other contact information.

As you may be aware, Zebra Mussels have invaded provinces to the east of us and states to the south of us. Closest to us, Lake Winnipeg and the Nelson River are invaded. Presently, with the exception of the Nelson River, there are no invaded water bodies north of the 53rd parallel. We hope that you will be part of the solution and emphasize this with your guests.

It is in our best interest that arriving guests with watercraft and float planes are made aware there are provincial AIS legal requirements under The Water Protection Act. The [open-water season checklist](#) and the [float plane operators checklist](#) are helpful step-by-step resources that can help your guests comply with the Manitoba government's AIS requirements.

We recommend contacting you guests prior to their arrival and providing the information in the attached letter. Please feel free to personalize the letter or take excerpts from it for your website or Facebook page.

If you are interested in more information about CPONW check our website at www.zebramusselprevention.com. If you would like to join CPONW, contact us at cpow01@gmail.com. For more information on AIS, legal AIS requirements or to obtain one of the checklists mentioned above, visit: www.Manitoba.ca/StopAIS

Thank you for being part of the solution by helping to protect our northern water bodies from Zebra Mussels and other AIS.

Sincerely

Jim Lorden
Carpenters Clearwater Lodge
cclodgetrout@gmail.com

Keep Our Waters

Zebra Mussel Free
Citizens Protecting Our Northern Waters Inc. (CPONW)

Dear Guest;

Zebra Mussels and other aquatic invasive species (AIS) have invaded waters throughout much of eastern Canada and our neighbouring states. Closest to us, Lake Winnipeg and the Nelson River are invaded. Presently, with the exception of the Nelson River, none of the lakes or rivers north of the 53rd parallel are invaded.

Manitoba has measures in place to protect these waters and we would like to ensure you are aware of them before your upcoming trip. There are provincial legal requirements under The Water Protection Act for all surface water-users. Manitoba has helpful step-by-step resources that can help you comply with the Manitoba government's AIS requirements for watercraft and float planes:
https://www.gov.mb.ca/asset_library/en/ais/ais_summer_checklist.pdf
https://www.gov.mb.ca/asset_library/en/ais/ais_floatplane.pdf

Guest crossing the Canadian border should be aware that watercraft must be free of Zebra Mussels, Quagga Mussels and Asian Carp as well as Clean, Drain, Dried to cross the border. The watercraft and trailer must be free of vegetation, algae and dirt. Drain plugs for the bilge and live well must be removed. There should be no standing water within the watercraft. Boats not meeting this standard may not be allowed across the border. For more information visit: <https://www.cbsa-asfc.gc.ca/publications/dm-md/d19/d19-8-5-eng.html>.

While in Manitoba, you must be AIS free. If you stopped to fish anywhere in Manitoba before arriving in our region, please ensure you are aware of the general AIS requirements, locations of the AIS Control Zones and the measures you need to take after boating in one. The Manitoba government operates an annual Watercraft Inspection Program which provides free inspections and, if needed, decontaminations. Several of these are located on access routes to northern Manitoba and guests should expect to encounter at least one on their trip north. All vehicles transporting a watercraft must stop at every station, even if they have already been inspected. Once your watercraft has been inspected, passing through subsequent stations is quick and simple. If the inspection finds that your watercraft requires decontamination, they will do this for you at no charge. The stations operate throughout the summer, but are not open 24/7 so please plan your trip accordingly. During the open water season the Watercraft Inspection Program schedule is posted online at Manitoba.ca/StopAIS.

For more information on AIS requirements, set-fines and control zones, visit: www.Manitoba.ca/StopAIS

Thanks very much for your assistance in keeping our region free of these unwanted invaders. We look forward to your visit and hope you have a great time.

Appendix 2. Example signs - Rotary Sign Initiative (left 3'x4'; right 18'x24')

Appendix 3. Opasquia Times Article

www.opasquatimes.com news | Opasquia Times June 30, 2021 **5**

Rotary donation to help prevent zebra mussels

Ralph McLean
Editor

On June 24, Chris Smith, of Cranberry Portage was on hand to receive a two-thousand-dollar cheque from The Pas Rotary Club to assist in the prevention of zebra mussels and aquatic invasive species in the Saskatchewan River Control Zone. The Rotary Club was on hand to highlight new signage at the boat launch beside the Anglican Church. Zebra mussels have been found as close as Cedar Lake. When leaving a Control Zone and transporting your watercraft, which includes boats, canoes, kayaks and personal watercraft, to any other waterbody, by law, you are required to have it, and items that have been in the water, decontaminated. Free decontamination is available at the Clearwater Lake turnoff, north of The Pas. Decontamination is not required if returning to the Saskatchewan River the next time the watercraft is used. When leaving any waterbody, remove aquatic plants, mud and drain all water including live well and motors before leaving the shore. Dry the watercraft, motor, trailer and items that have been in the water. Keep drain plugs removed when transporting the watercraft.

Citizens for Protecting Our Northern Waterways Inc. is a coalition of local citizen and business volunteers committed to the protection of our pristine waterways in Northern Manitoba. Their focus is on preventing the spread of invasive zebra mussels which can be transported to lakes and other waters by boats and other watercraft that have been in waters infected with zebra mussels. The spread of zebra mussels, and other aquatic invasive species (AIS), can be prevented.

Ralph McLean/Opasquia Times

MEMBERS of The Pas Rotary Club present cheque to Citizens for Protecting Our Northern Waterways

They offer Awareness, Outreach and Advocacy through their group and work to prepare and distribute helpful information on the threat and potential impact of zebra mussels to our waters. They hold community meetings, workshops and attend various community events. They advocate for strong policies and programs that prevent the spread of zebra mussels into northern waters that are free of zebra mussels and other AIS. They work closely with the Aquatic Invasive Species Unit of the Manitoba Government to assist and augment the work they do to prevent the spread of Zebra Mussels and other AIS.

They assemble and disseminate valuable information to help people and various agencies understand the threat of zebra mussels and other AIS and what can be done to prevent the spread. To visit their website, go to Citizens for Protecting Our Northern Waterways www.zebramusselprevention.com

NOTICE

Holiday Hours

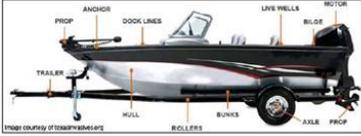
Local Authorities/Insurance Agencies

Appendix 4. Custom Outreach Informational Fact Sheets



The Four things You Can Do to Stop the Spread of Zebra Mussels & Other Aquatic Invasive Species (AIS)

Zebra mussels, and other AIS, pose a real threat to our pristine northern waterways. Please do your part and follow these four simple steps:

- 1. CLEAN - DRAIN - DRY* it takes 5 minutes!**
 - Remove all weeds and mud from your watercraft**, engine and trailer
 - Lower outboard engines and pull live well plugs to drain all water
 - Wipe off your watercraft, engine, trailer, and items that have been in the water
 - Allow watercraft, anchor lines and wet equipment time to completely dry before the next launch
- 2. PULL YOUR PLUG**
 - Drain all water from your watercraft
 - Transport your watercraft without the plug in- this is the law!
- 3. DECONTAMINATE - IF NECESSARY**
 - When your watercraft has been in zebra mussel invaded waters or within a "Control Zone", have it decontaminated
 - Decontamination is available at government decontamination stations - free of charge.
 - To learn more about control zones and hours of operation of decontamination stations visit: Manitoba.ca/StopAIS or check out our website below
- 4. TELL OTHERS - SPREAD THE WORD!**
 - The spread can be stopped with your help

This notice is provided by Citizens for Protecting Our Northern Waterways Inc. www.zebramusselprevention.com




use phone camera to scan code to learn more

*Modified from Manitoba Government information
**a watercraft includes boats, canoes, kayaks, paddle boards and personal watercraft

JUNE 2021

What Are Zebra Mussels?



Credit: U of Minnesota

- They are a small clam 1-3cm in length
- They are not from here - they came to North America in ship ballast water in the late 1980's
- By 2013 they were in Lake Winnipeg - 2019 they were detected in the Nelson River System and are now found the entire length of the Nelson River
- They change the aquatic ecosystem, accumulate on hard surfaces and wash up on shore
- Zebra mussel larvae are microscopic and easily transported between lakes by watercraft

Zebra Mussel accumulation - Nelson River 2021 just two years after detection!



Credit: Don Thomson

The sharp shells wash up on beaches



Credit: John Karl, U of Wisconsin Sea Grant



Credit: Salmon Arm Observer

They can accumulate on boat propellers and clog water intake pipes



Credit: Peter Yates/The LIFE Images Collection/Getty Image

Zebra Mussel Fact Sheet



Zebra Mussels (*Dreissena polymorpha*) are a small shellfish related to snails, oysters, and clams. They are an Aquatic Invasive Species (AIS) originating in the Black and Caspian seas, and through the building of canals in the 18th century allowed the mussels to spread throughout Europe all the way to the United Kingdom. Zebra Mussels are ranked one of the top 100 most destructive invasive species and considered a human-induced global biological invasion.

They arrived in North America in 1988 from a suspected dumping of ships' ballast water navigating the Great Lakes system. In Manitoba, zebra mussels were first detected in the South Basin of Lake Winnipeg in 2013, by 2015 it was considered invaded. In 2015 they were found in the North Basin of Lake Winnipeg and larvae were found in Cedar Lake downstream of The Pas near Easterville. By 2019 larvae were found in the Nelson River and is now considered invaded.

Identifying Features



Credit: U of Minnesota

Zebra Mussels are a small freshwater hinged mollusk. You can identify them by:

- their flat underside and triangular shape
- varying zigzagged patterns of black and brown with white and yellow
- average size of 2 to 2.5 cm (up to 4 cm long)

Reproduction, Growth and Movement

On average, zebra mussels live 2-5 years and can reproduce by their second year. Each year, a mature female Zebra Mussel may release up to one million eggs, while the male may release more than two hundred million sperm into the water where fertilization takes place. In approximately two days, the fertilized eggs develop into free-swimming larvae called veligers.

Within 2-3 weeks the microscopic veligers begin to 'settle-out' in the water under the weight of their forming shells and attach to firm, underwater surfaces. They cling to surfaces using thread-like strands called byssal fibers tipped with a strong, sticky substance.

As many as 700,000 mussels can occupy a square meter attaching themselves to solid surfaces such as rocks, submerged wood, plants, native mussels, and even boats and docks. Once attached, they generally stay in one place, but can detach and crawl to a new location if environmental conditions change.

Expansion takes place naturally when veligers flow downstream in current or by wind action. Zebra mussels do not move upstream and can only expand to upstream waters, or isolated new lakes, by human activity such as by moving boats, other watercraft, and items that have been in zebra mussel invaded waters.

Ecological Impacts

Zebra mussels feed by filtering large amounts of microscopic plankton from the water which are the building blocks of the food chain. Each mussel can filter one liter of water per day! This can affect the composition of the aquatic ecosystem by:

- Increasing water clarity allowing sunlight to penetrate deeper which can increase vegetation growth and the potential for toxic algae growth.
- Altering the aquatic food web which can result in changes to habitat and food availability for fish and other aquatic species.
- Potentially affecting fish spawning areas by changing the bottom substrate.

Socio-economic Impacts

In Canada, zebra mussels cause millions of dollars in damage every year. Adult zebra mussels attach themselves to hard surfaces and accumulate.



Credit: Salmon Arm Observer

This can result in:

- a build up of mussels on rocks, docks, boats and motors
- dead sharp mussel shells washing up on beaches and shorelines
- clogged water intake in power stations, municipal and home cottage water supplies
- damages to boat engines by blocking the water intake

What Can We Do?

Unfortunately, zebra mussels have few natural enemies, and there is no known environmentally safe way to remove them from the lakes once they are infested. Adults can survive out of water periods of 18 to 30 days such as in live wells & bilges in high humidity.

The only way to prevent the spread of Zebra Mussels (and other AIS) into new waterbodies is to **Clean, Drain and Dry** watercraft and/or equipment when leaving any waterbody. **Do Your Part!**

- CLEAN ALL MUD & VEGETATION FROM BOAT & TRAILERS BEFORE LEAVING THE LAUNCH SITE
- LOWER YOUR MOTORS TO DRAIN ALL WATER
- PULL ALL DRAIN PLUGS, INCLUDING BILGE AND LIVE WELLS
- ALLOW ANCHOR ROPES, PADDLES, AND ITEMS THAT HAVE BEEN IN THE WATER TO DRY BEFORE USING AGAIN
- KEEP DRAIN PLUGS REMOVED WHEN TRANSPORTING YOUR WATERCRAFT*

This information is provided by:
Citizens for Protecting Our Northern Waterways Inc. www.zebramusselprevention.com



Scan code with cell phone camera to learn more

*a watercraft includes boats, canoes, kayaks, personal watercraft

JULY 2021

Appendix 5. Detailed Project Expenditures*

| Project Expenditures by Category | Cash | In - kind | Total |
|--|------------------|----------------|-------------------|
| Staffing and Personnel | | | |
| CPONW volunteer time | | 2,013 | |
| Sub-total | | 2,013 | \$2013 |
| Communications | | | |
| CPONW volunteer time | | 1200 | |
| Promo hand towels with messaging | 536.20 | | |
| Business cards with messaging | 92.66 | | |
| Bumper Stickers with messaging | 339.15 | | |
| Sub total | 968.01 | 1200 | \$2168.01 |
| Transportation costs | | | |
| Mileage expenses (@.58/km) | 946.00 | | \$946.00 |
| Materials, supplies, equipment | | | |
| Vests including crest | 688.37 | | |
| Flags, flag base, table runners (3 sets) | 923.25 | | |
| Shelter canopies (3) | 552.12 | | |
| Printing | 228.70 | | |
| Postal charges | 24.66 | | |
| Sub total | 2417.10 | | \$2417.1 |
| Other | | | |
| Special events permit - Parks | 26.25 | | |
| Covid supplies (masks, hand sanitizer) | 15.66 | | |
| Hall Rental | 75.00 | | |
| Sub total | 116.91 | | \$116.91 |
| Total | \$4447.93 | \$3,213 | \$7,661.02 |

* Specific information relative to the individual expenditures outlined is available upon request.