Jemseg Grand Lake Watershed Association
Final Report of the N.B. Environmental Trust Fund Project 220364

Ecosystem Education and Outreach in the Jemseg Grand Lake Watershed

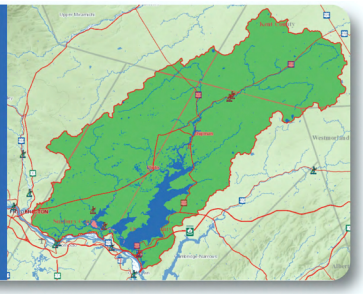
by

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Jemseg Grand Lake Watershed Association Report 23-04

Jemseg Grand Lake Watershed Association



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Jemseg Grand Lake Watershed Association

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1. Executive Summary

Our Association had the opportunity to attend four in-person outreach events in 2022 where we met attendees at Saturday morning markets or events. We again had live native red-tip willows to give to anyone who joined our Association, which made for a truly green booth. Our website continues to be an effective tool for education and informing the public about our activities, and for easy access to evidence based information on how best to keep the watershed ecosystem healthy. Access to all 36 of our monthly newsletters are available from our website as well. Two Zoom webinars were held on Jan. 12, 2023 and on Feb. 6, 2023, and a third one was held on March 2, 2023. These webinars were recorded, and are available on our Association's YouTube channel. An invasive plant patrol (IPP) workshop was held on Sept. 8, 2022 at Robertson Point, with four attendees from our Association, and four from other watershed groups in New Brunswick. This workshop discovered significant Eurasian Watermilfoil presence in our watershed for the first time. The education and training provided by the IPP workshop enabled the discovery of Eurasian Watermilfoil plants in other locations in the Jemseg Grand Lake Watershed.

2. Priority Area/Priority Area Measures

Our July 29, 2022 revised priority area submission included the following:

2.1 (a) Increasing Environmental Awareness - This measure will track the number of participants in environmental education/awareness initiatives.

Record: A) Number of participants
Proposed: 150
Delivered: Estimated 300, for attendees at 3 webinars and 4 outreach events.

Our outreach events were held at the Jemseg Lions Club on May 21, 2022, at the Douglas Harbour Community Centre on June 25 and August 20, and at the Life at the Lakes event in Cambridge Narrows on August 6. We estimate that we engaged with an average of 30 attendees at each of these four in person outreach events. During these events, water quality reports from 2021 and 2022 were explained to participants, and the following brochures were distributed:

1. A brochure describing our Asssociation and the work it does.
2. Bilingual handout entitled "Visual Guide to Cyanobacteria" from ACAP Saint John.
3. A tripanel brochure entitled "Cyanobacteria and Pet Safety", also from ACAP Saint John. This brochure is also available in French.
4. Our double-sided door knocker entitled "How Your Septic System Works".
5. Single-sided 8 ½ by 11 inch handouts entitled "Be Tick Smart", "Keep Your Lake Healthy" and "Eurasian Watermilfoil" from the N.B. Alliance of Lake Associations.

Webinars were held on January 12, 2023 (186 registered attendees), and February 9, 2023 (70 registered attendees). A 3rd webinar is planned for March 2, 2023, with 94 registered attendees as of March 1. This totals 348 registered attendees at webinars, but on average about half the registered attendees actually attend the live webinar they registered for. This brings the total number of live webinar participants to approximately 174. Many of those who weren't able to attend the live webinar ask to see the recorded version of the webinar on our YouTube channel YouTube channel. An approximate estimate of the number of JGLWA YouTube channel participants is obtained by looking at the number of views of each of our

recorded webinars. As of March 1, there are 407 views of our Jan. 12 webinar video (posted on Feb. 2, 2023), and 39 views of our Feb. 9 webinar video (posted on Feb. 28, 2023).

B) Type of activity: 1) Active learning (e.g. workshop, 'in the field', hands-on), or 2) Observing (e.g. presentation)
Proposed: Webinar or workshop, outreach event
Delivered: Four outreach events, three webinars as explained above.

C) Activity duration (number of hours)
Proposed: 3.0
Delivered: We estimate an average of **one hour** per person engaged in the webinar or outreach event. Our webinars typically last from 60 to 90 minutes, including the question and answer session. At outreach events, 12 participants who joined the Jemseg Grand Lake Watershed Association also received red-tip willow live stakes or rooted cuttings for planting on their own property, along with planting instructions and a bag of potting soil. These participants would be engaged much longer by planting their red-tip willows.

2.2 (b) Protecting our Environment - Communications and awareness (e.g. conferences, education materials).
Record: A) Number of events/initiatives
Proposed: 4
Delivered: 7, including Sept. 8, 2022 Invasive Plant Patrol workshop for participants in kayaks, direct mailout to Canada Post mail recipients residing in the Jemseg Grand Lake Watershed area, forging partnerships with lease or campground owners, evaluating Eurofins Abraxis cyanotoxin test kits (for detecting microcystin and anatoxin-a) at seven locations in our watershed, preparing watershed educational sheets for teens and young children, prepared an ad for printing on the Douglas Harbour Community Centre summer breakfast placemats.

Record: B) Number of people reached by each event/initiative
Proposed: 5,000 by direct mailout by Canada Post, 6 partnerships with lease or campground owners
Delivered: B) 5,252 direct mailout brochures to Canada Post mail recipients in the JGLW area (in progress), 8 participants in the Invasive Plant Patrol workshop held by Kristin Elton (program director of the N.B. Invasive Species Council) at Robertson Point on Sept. 8, 2022, engaging with one lease owner of land at Robertson Point, 2 volunteers assisted ACAP Saint John in cyanotoxin test kit testing, 8 different educational pages were created for use in future outreach events.

3. Project timeline and milestones

The following list gives a more detailed timeline of our accomplishments in this project during the period April 1, 2022 to March 31, 2023.

3.1 May 21, 2022 – Jemseg Lions Club breakfast

Mike Kelly and Brad Nickerson attended the farmers market and breakfast at the Jemseg Lions Club. Four new members joined our Association, and two of them took a bag of 50 live stakes, a bag of potting soil and a bag of manure with them from the market. One attendee at the market took 12 of our Association brochures for display and distribution at the Ferry Road Bookstore in Lower Jemseg.



Reports from 2021 and 2022 were available for viewing, and brochures described in section 2 (a) were distributed.

3.2 June 25, 2022 - Douglas Harbour Community Centre breakfast

Patrick Oke, Aditi Kadam, Brad Nickerson and Mike Kelly attended the Douglas Harbour Community Centre breakfast. Seven new members joined our Association, and five of them took a six-pack of red-tip willow rooted cuttings in six inch pots for planting on their property.



3.3 August 6, 2022 – Life at the Lakes, Cambridge Narrows

Aditi Kadam, Patrick Oke, Mike Kelly, Tom McAvity, Joy Thomas, Jennifer McPhail, Kim Reeder and Brad Nickerson attended this outreach event, and engaged dozens of visitors. Five of them joined our Association and two took a six-pack of red-tip willow cuttings to plant on their properties. The brochures and handouts mentioned above were available for handout.



3.4 August 20, 2022 – Douglas Harbour Community Centre

Aditi Kadam, Patrick Oke and Brad Nickerson attended this event, and gave out three six-packs of red-tip willow rooted cuttings to new members during our outreach event at the morning breakfast. Five new members joined our Association at this event.



3.5 September 8, 2022 – Invasive Plant Patrol Workshop

An on-the-water invasive plant patrol workshop was held at Robertson Point in the Dykeman Cove area. Association member John Welsman hosted the event at his summer residence. The workshop was organized by the Kristin Elton, program director of the N.B. Invasive Species Council and by the N.B. Alliance of Lake Associations. Eurasian Watermilfoil was found in significant numbers (more than 100 plants). Four of our members participated (including John Welsman), and learned how to identify aquatic plants, including Eurasian Watermilfoil. The pictures below illustrate this activity.





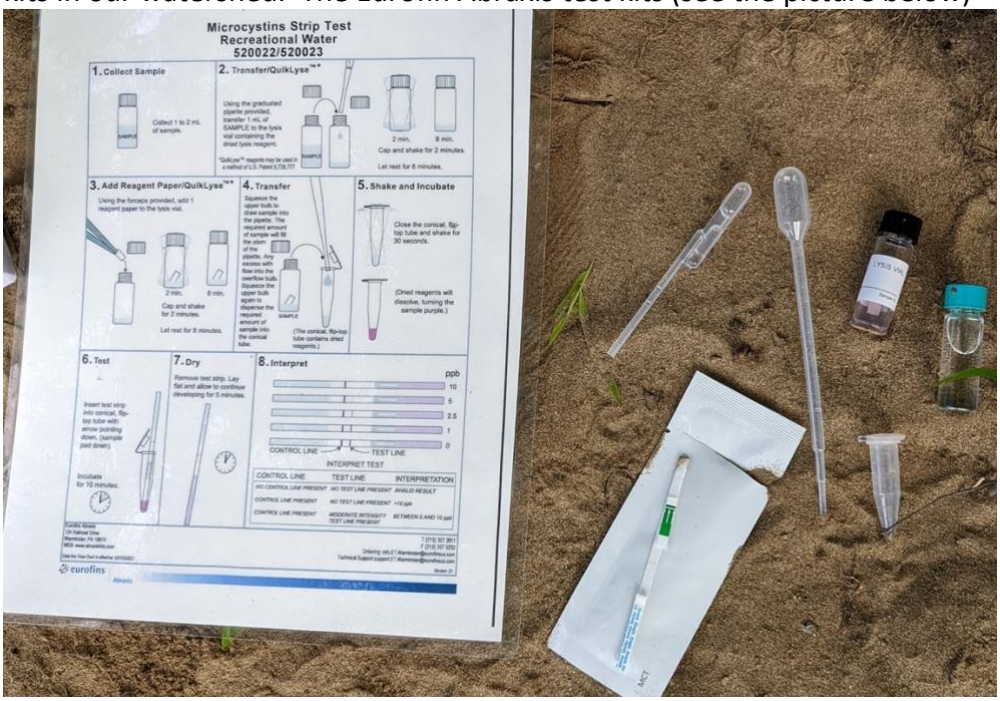




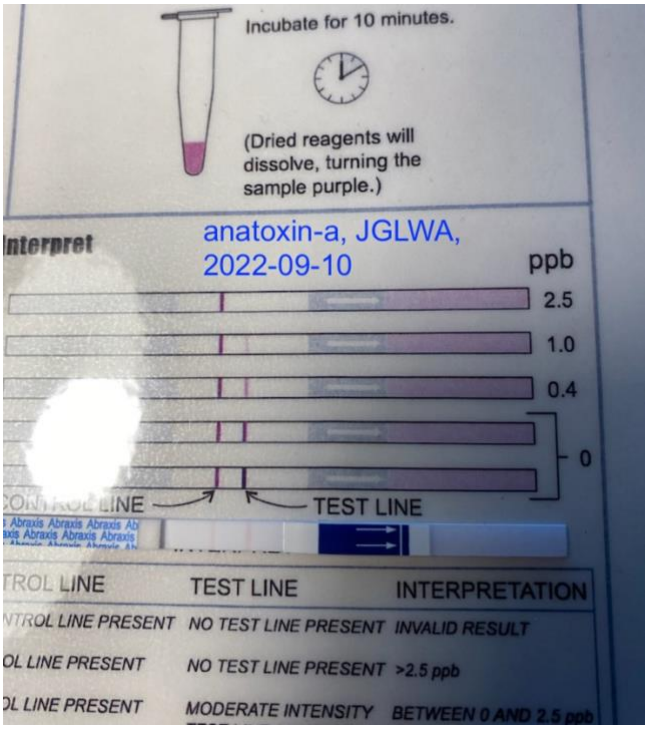
Following the Sept. 8, 2022 workshop, two special newsletters were sent out on Sept. 19 and Sept. 22. This resulted in feedback from Association members indicating that Eurasian Watermilfoil was also present in Mill Cove, Wiggins Cove and in Pickerel Pond on Robertson Point. Brad Nickerson initiated discussion with Meghann Bruce, a research scientist with the Canadian Rivers Institute (CRI) specializing in Eurasian Watermilfoil and cyanobacteria in the lower Wolastoq. Meghann subsequently indicated that Eurasian Watermilfoil had been found by the CRI eel research team while working in the Douglas Harbour area of Grand Lake on Oct. 3, 2022.

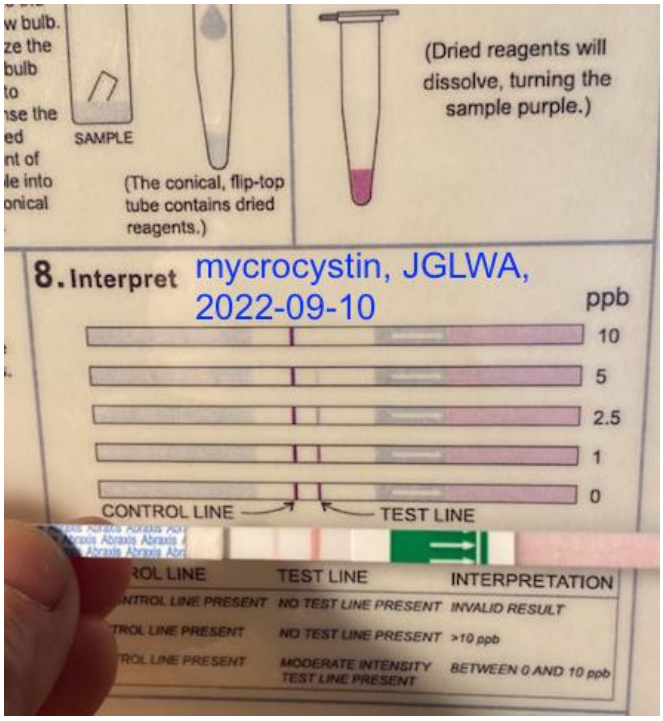
3.6 Sept. 10 to October 1, 2022 – Cyanotoxin Test Kit Evaluation

Eric Luiker and Mary Murdoch, leaders of our voluntary water quality monitoring program, helped evaluate cyanotoxin test kits in our watershed. The Eurofin Abraxis test kits (see the picture below)



work a bit like a reverse Covid-19 test, with different approaches for microcystin testing compared to anatoxin-a testing. The kits were purchased by Roxanne MacKinnon of ACAP Saint John for use by different watershed groups to evaluate their effectiveness in the Lower Wolastoq. Results of two tests (performed on water in Cumberland Bay on Sept. 10, 2022) are shown in the images below.

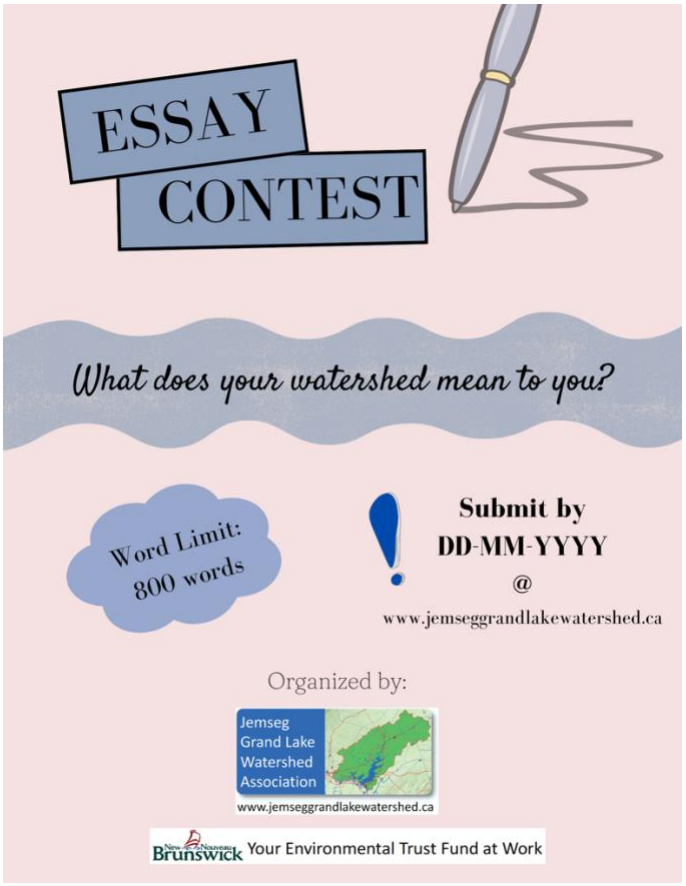


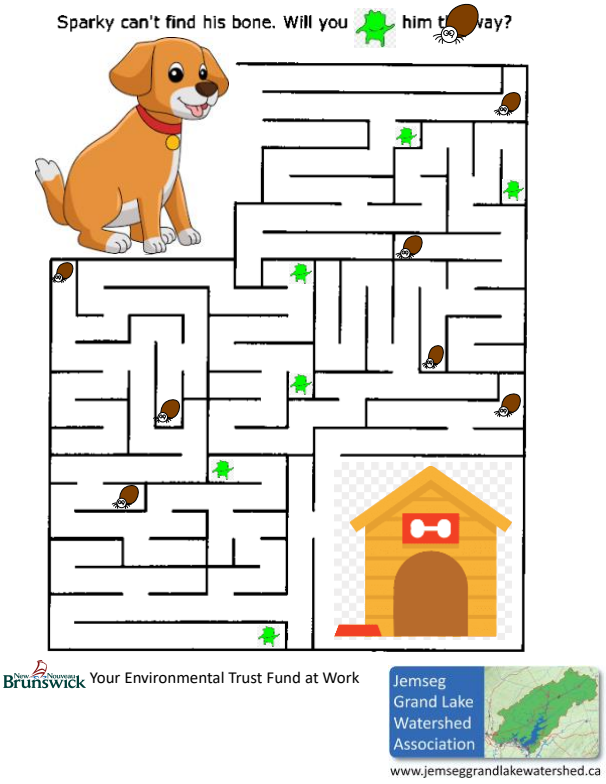


The disappearance of the test line on the test strip indicates a high level of cyanotoxin. The above two test strips show 0 parts per billion of anatoxin-a and of microcystin as the test line is of equal or greater colour intensity compared to the control line. Results of the testing at 75 sites in the Lower Wolastoq (including the 7 tests done in the Jemseg Grand Lake Watershed) are available by clicking this link. This was a great educational activity for two of our volunteer water quality program leaders to participate in. The kits are somewhat complex to use reliably, and require familiarity with biological test processes. We hope to continue this interaction with ACAP Saint John in the future, and perhaps expand its use to help identify cyanotoxin outbreaks in our watershed.

3.7 January to March, 2023 – Watershed educational sheets for teens and young children

As part of our educational activities for this project, our two part-time Master of Environmental Management students prepared 8 educational sheets for use by children and young teens at our educational outreach events. The figures below illustrate several of these.





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Name: _____

Watershed Words

T	I	D	O	O	L	F	H	A	R	B	O	U	R	P	B	E	A	C	H	T	D	Z
E	R	N	E	K	A	L	N	A	I	D	N	I	W	E	T	L	A	N	D	C	W	L
M	K	I	V	T	H	G	B	I	Q	R	E	S	T	O	R	A	T	I	O	N	D	W
P	E	N	V	A	I	W	I	L	L	O	W	R	T	R	K	A	R	F	N	M	T	E
E	N	O	N	E	S	E	S	U	O	H	T	H	G	I	L	I	L	K	C	O	D	K
R	I	I	A	Y	R	I	G	S	Y	T	I	L	A	U	Q	R	E	T	A	W	G	A
A	L	S	I	I	N	M	V	P	F	Q	B	D	N	A	S	E	T	U	E	Q	G	L
T	E	O	R	T	S	S	O	E	C	R	O	O	F	Q	L	T	A	T	F	B	E	T
U	R	R	A	F	A	W	O	N	S	Q	E	W	A	V	E	C	M	A	I	J	K	I
R	O	E	P	K	I	Z	I	I	I	P	D	S	Q	T	K	A	I	T	L	E	A	P
E	H	C	I	A	M	S	R	M	L	T	E	A	H	I	M	B	L	I	D	M	L	A
M	S	S	R	L	C	I	H	B	P	K	O	C	S	E	C	O	C	B	L	S	D	U
G	T	N	E	M	N	O	R	I	V	N	E	R	I	M	T	N	L	A	I	E	N	Q
H	E	K	A	Y	A	K	M	L	N	D	S	J	O	E	V	A	Q	H	W	G	A	A
F	R	E	N	C	H	L	A	K	E	G	X	F	H	M	S	Y	B	M	V	S	R	M
N	W	A	T	E	R	S	H	E	D	O	F	K	K	T	V	C	J	Z	R	X	G	M

Find the following words in the puzzle.
Words are hidden ↑ ↓ → ← and ↘ .

Puzzle Word List:

BOAT	EROSION	FLOOD
CYANOBACTERIA	HABITAT	RIPARIAN
SHORELINE	WILLOW	WATERSHED
SWIM	INVASIVE SPECIES	CLIMATE
TEMPERATURE	ENVIRONMENT	WETLAND
RESTORATION	GRAND LAKE	JEMSEG
BEACH	LIGHTHOUSE	KAYAK
WATER QUALITY	MONITOR	MAQUAPIT LAKE
RIVER	DOCK	SAND
SOIL	WILDLIFE	FISHING
FRESHET	WAVE	HARBOUR
FRENCH LAKE	INDIAN LAKE	

New Nouveau Brunswick Your Environmental Trust Fund at Work

EMERGENCY PREPAREDNESS

Do you know what you would need in an emergency?
Circle the top 5 items you think are essential.



We intend to use these when our Association participates in 2023 educational outreach events.

3.8 January to March, 2023 – Webinars

The table below indicates the three webinars we hosted as part of our educational outreach.

Table 1. Webinars held in 2023.

Number	Title	Date	Registered attendees
1	Natural history and geological evolution of the Jemseg Grand Lake Watershed - a timely story	2023-01-12	186
2	Using Environmental DNA to Understand Aquatic Ecosystems	2023-02-06	70
3	Ecosystem recovery from Minto coal mining: a fascinating story	2023-03-02	119

These webinars were presented by very knowledgeable people with a passion for their area of expertise. Our YouTube channel serves as an archival repository of all 8 of our webinars presented since July 2020, with the content serving as an important environmental ecosystem educational resource.

4. Website Updates and Social Media Interaction

Our Association website https://jemseggrandlakewatershed.ca/ is a valuable resource. As with most websites, it is continually bombarded by bots trying to subvert it. We are fortunate to have a web hosting service from canspace.ca and a local web system sysadmin service provider (Kent Fackenthall, Kiers Marketing) to help keep our system on track, and provide ongoing maintenance. Both Kiers and canspace.ca provide quick responses to requests for issues as they arise. Particularly helpful is the Cloudflare performance, security and reliability features provided as part of the canspace.ca web hosting service. Cloudflare has served up approximately 11,600 requests for web pages on our website in the last 7 days, with 494 MB of data served up. Kiers has deep knowledge of WordPress, and regularly updates plugin apps such as the WordFence Premium service to help block malicious attacks. In the 7 days preceeding March 1, 2023, WordFence blocked 92 complex and 225 blocklist attacks, with the top three attack counts from Germany, the Philippines and the United States.

We have also added additional content under our Resources for Educators web page. Recent additions include the complete slide presentation of Tone Pronk's webinar entitled "Natural history and geological evolution of the Jemseg Grand Lake Watershed - a timely story"; the complete brochure entitled "Septic System Awareness", along with additional useful information on septic system maintenance; and a complete mini tutorial on how to effectively use the excellent 2022 – Updated New Brunswick Flood Hazard Maps.

4.1 Social Media Interaction

We use MailChimp to manage email contact for webinar announcements and monthly newsletters. MailChimp has a semi-automated connection to Facebook, Twitter and Instagram that posts email announcements to these social media channels. For example, our February 2023 newsletter was sent via MailChimp email to 165 members, with 95 of them (58%) opening the email. The social post from MailChimp to Facebook and Instagram generated 181 views of the Facebook and Instagram versions of the

email. A special announcement was sent on Feb. 20, 2023 announcing the upcoming webinar entitled "Ecosystem recovery from Minto coal mining: a fascinating story ". This was sent to 709 recipients, with 414 of them (58%) opening the email, and 64 clicking on one of the links in the email. This same webinar announcement resulted in 1,552 views of the Facebook and Instagram versions of the email, and 29 recipients clicking on the included link to the full email.

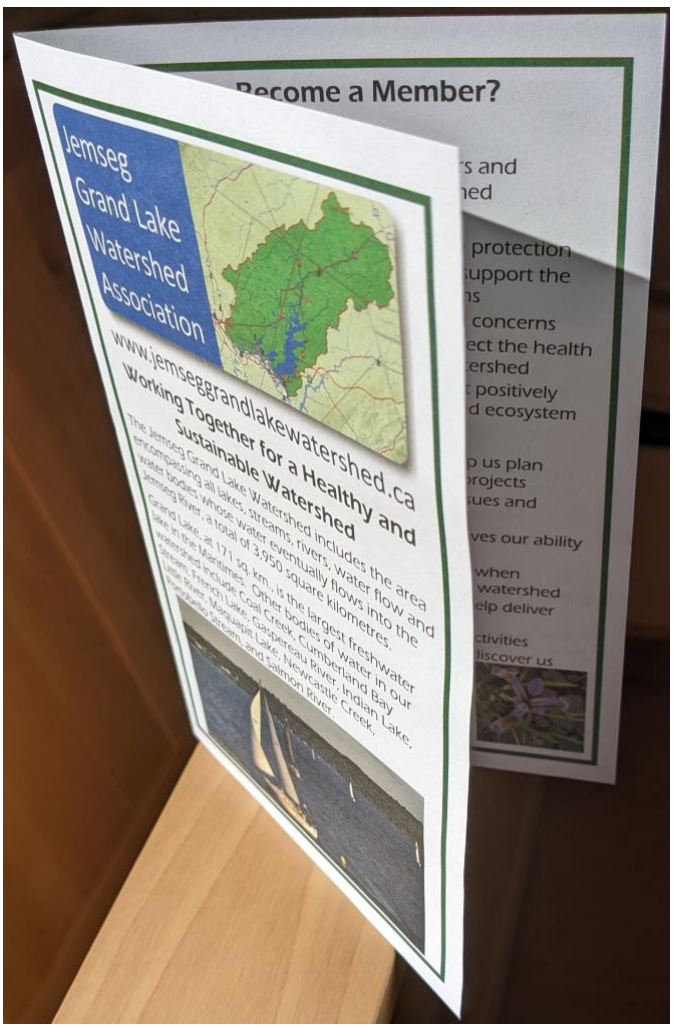
Our https://www.facebook.com/JemsegGrandLakeWatershedAssociation/ account currently has 515 followers. As our Association is volunteer run, we don't have any resources available to monitor our Facebook, Instagram and Twitter interactions. The semi-automated way that MailChimp interacts with social media is helpful in our situation as we get at least one post per month in each channel from our monthly newsletter without direct interaction with Facebook, Instagram and Twitter.

The challenge with environmental education today is the number of channels used by those who might be interested. Besides social media, there is still print media, including the Jemseg Lions Club Monthly Newsletter, the Grand Lake Mirror and the Daily Gleaner. Brad Nickerson posted the three 2023 webinar announcements manually to the "Minto N.B. - WHAT'S HAPPENING" Facebook page. This private group has 3,300 members. The challenge to keep up with all channels is significant, especially with no staff available to help.

5. Project Completion

Our project planned to have Canada Post direct mail a revised brochure to the 5,250 addresses served by Canada Post in the watershed geographical area. Our revised watershed brochure (see the figures below) was mailed by Canada Post (using their Neighbourhood Mail service) to 6,132 households using 7 mail routes in the Jemseg Grand Lake Watershed area on March 23, 2023.




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Partnerships & Alliances
How to Join the Association
It costs $10.00 to join, renewable annually.