Jemseg Grand Lake Watershed Association

www.jemseggrandlakewatershed.ca

2021 Annual Report of the Directors
Jemseg Grand Lake Watershed Association

New Nouveau Brunswick
Your Environmental Trust Fund at Work

Current Board of Directors:
Peter Davidson, Treasurer
Hazen Hughes, Secretary
Brad Longard
Jennifer McPhail
Brad Nickerson, President
Neil Orchard
John Yauss

Executive Summary

Our Association is a group of committed volunteers, with an overarching goal of a healthy watershed ecosystem for all. The Jemseg Grand Lake Watershed Association has grown to 144 paid members, up from 86 in December, 2020. We continued with monthly meetings (with minutes), monthly newsletters and a bank account. Our primary accomplishments in 2021 include holding two Zoom webinars; completing a significant water quality observation program; establishing our website and carrying out a red-tip willow shoreline tree planting program that saw 42 members plant 1,900 red-tip willows on their properties.

Organization

After our initial formation in 2020, we continued to hold monthly meetings, all with recorded minutes, which are available to members at

https://jemseggrandlakewatershed.ca/members/

Our bylaws (available at https://bit.ly/3om7boI) on Feb. 19, 2020 are in the form of a registered N.B. Cooperative Ltd., under the 2019 Province of N.B. Cooperatives Act. With an established set of bylaws, voted on by members in attendance at the Feb. 2020 monthly meeting, we were able to establish a bank account at the Progressive Credit Union in Fredericton, and to join the N.B. Alliance of Lake Associations (NBALA). We also joined the N.B. Environmental Network (NBEN) and participate as an official watershed group in their watershed caucus.

With the hard work of our members to encourage their friends, neighbours and family members to join, our membership has expanded to 144 paid members as of Dec. 6, 2021. Our membership form is available online at

https://jemseggrandlakewatershed.ca/about-us/membership/

Each application form asks for "Topics of Interest". Table 1 below shows the top five categories (out of 14) answers received since our initial seven members joined in the Dec. 9, 2019 meeting.

Table 1. List of top eight topics of Interest on the Membership Forms since 2019. Blue and green shaded rows indicate similar topics of interest.

TOPICS OF INTEREST	TOTALS FOR EACH TOPIC	COMMENTS
Flood Mitigation	28	Flood proofing, high water problems, Grand Lake flood control, recent flooding, flooding, water levels
Water Quality & Testing	25	Healthy waterways, lake water quality, a clean lake, lake/water preservation
Environmental	23	Lake health and safety, improve watershed health & ecosystem, managing blue-green algae, water swimmability, environmental sustainability, conservation, watershed management, pollution, algae
Erosion Control	14	preventing shore erosion, erosion, preserving waterfront
Property Improvements	14	
Ecological	12	Lake and estuarine ecology, wildlife, all ecosystem + pertaining info, improve waterfront ecosystem, climate adaptation, wild edibles, permaculture, ecology, aquatic ecology
Education	10	What's around the lake
Shoreline Protection	10	shoreline preservation

Our Association continued as a member of the N.B. Alliance of Lake Associations (NBALA) in 2021. The NBALA provides insurance for volunteers participating in voluntary water quality monitoring activities, director's insurance, as well as a YSI Pro Plus instrument to measure pH, temperature, conductivity and dissolved oxygen at depths up to 30 m. The NBALA annual membership fee of $150 also provides an annual calibration of the YSI instrument.

Three letters of offer from the Assistant Deputy Minister of the N.B. Dept. of Environment and Local Government to our Association on June 7, June 9 and June 17, 2021 informed us that our funding applications for three NBETF projects submitted on Nov. 30, 2020 were supported, as follows:
(a) Riparian Zone Tree Planting in the Jemseg Grand Lake Watershed, Project No. 210067, Award Amount: $7,600
(b) Water Quality Observation for the Jemseg Grand Lake Watershed, Project No. 210119, Award Amount: $17,700
(c) Ecosystem Education and Outreach in the Jemseg Grand Lake Watershed, Project No. 210078, Amount: $9,000
The total awarded amount of $34,300 more than doubled our NBETF funding of $15,000 awarded in 2020.

In November, 2021, our Association renewed our Associate membership in the New Brunswick Environmental Network (NBEN). The NBEN is the largest environmental network in N.B., comprised of approximately 110 other organizations. The NBEN collects and distributes valuable notifications of upcoming funding opportunities and events related to the environment. We continue to use the NBEN events calendar to advertise our webinars.

Education

Support from the NBETF allowed us to renew our Zoom Pro with Webinar 500 license. This enabled the holding of two online webinars in 2021. The first, entitled "Flooding in New Brunswick: Cause and Effect", was given by Jasmin Boisvert on January 14, 2021. Jasmine is a water resources specialist with the N.B. Department of Environment and Local Government and works in the Hydrology Centre as part of the N.B. River Watch team. With 241 registrations for the webinar and 150 actually attending, this was the best attended webinar we have hosted to date.

The second, entitled "Identifying Cyanobacteria: Keeping You and Your Pets Safe" was given by Dr. Meghann Bruce on Oct. 21, 2021 with 67 registered for the event, and 42 attending. Dr. Bruce has been leading field cyanobacteria research in New Brunswick since 2018, and works for the Canadian Rivers Institute.

Both webinars were well-received, with a lively question and answer session following each presentation. All our webinars are on our YouTube channel at https://www.youtube.com/channel/UCi_8ZOVc3XR9e42qCnT4g7w .

Monthly newsletters were sent (beginning in February, 2020) to all members using MailChimp. Links to the newsletters are available at

https://jemseggrandlakewatershed.ca/resources/newsletters/

Seven of our members have no email access and were not receiving any communication from us since they joined. Starting in October, 2020, we mailed a package to each member without email access that included printed copies of our monthly newsletters, along with a welcome letter from our Association and additional documents. These members are typically seniors without a computer.

This year we were able to attend two face-to-face outreach events; one at the Jemseg Lions Club Saturday morning breakfast gathering on July 17, 2021 and the second at the Life at the Lakes event in Cambridge Narrows on Aug. 7.





Transplanted red-tip willows were available at both events, and were very helpful in attracting new members. New members who joined at our booth received a six-pack of red-tip willows to plant on their property.

On August 29, 2021, Dieter Kromm and Debra Hawker hosted an Invasive Plant Patrol pilot project from their property in Cumberland Bay. Six member of our Association participated, with one canoe "mother ship" and four individual kayaks. Dieter worked very hard to prepare tools (e.g. aquascopes, plant harvesters, data recording sheets, background materials) and marked potential aquatic plant sites with small buoys in advance of the IPP pilot project.





A detailed report, with suggestions on how to move forward in 2022, was written by Dieter Kromm; see

https://jemseggrandlakewatershed.ca/wp-content/uploads/JGLWA_Report_21-05.pdf

Water Quality Observation

Our volunteer water quality observation program was again led by Eric Luiker, a member and aquatic ecologist with significant experience in monitoring lake water quality. The same six profile sites where data was observed in 2020 were sampled again. Three additional surface water sites on rivers were added in 2021 to get a better idea of the water quality flowing from these tributaries into Grand Lake. The profile sites and the river sites were sample four times in the months June, July, August and September. Fourteen sites located near where swimming is likely to occur were also added, with surface water sampled and analysed for *E. coli* once in late August. The observation sites for 2021 are shown in Figures 1 and 2.

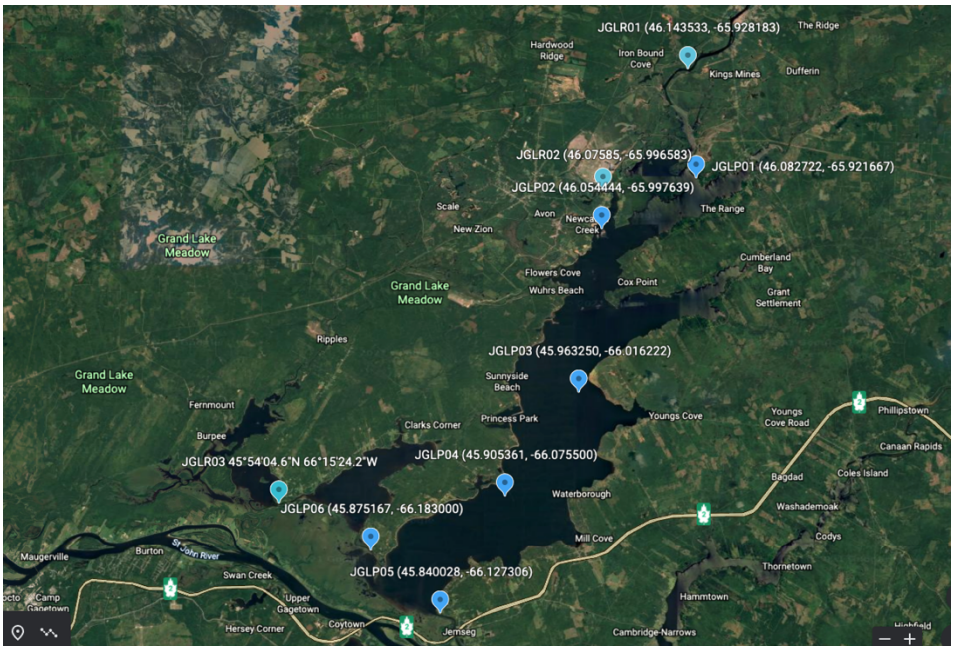


Figure 1. Profile and river water quality observation sites for 2021.

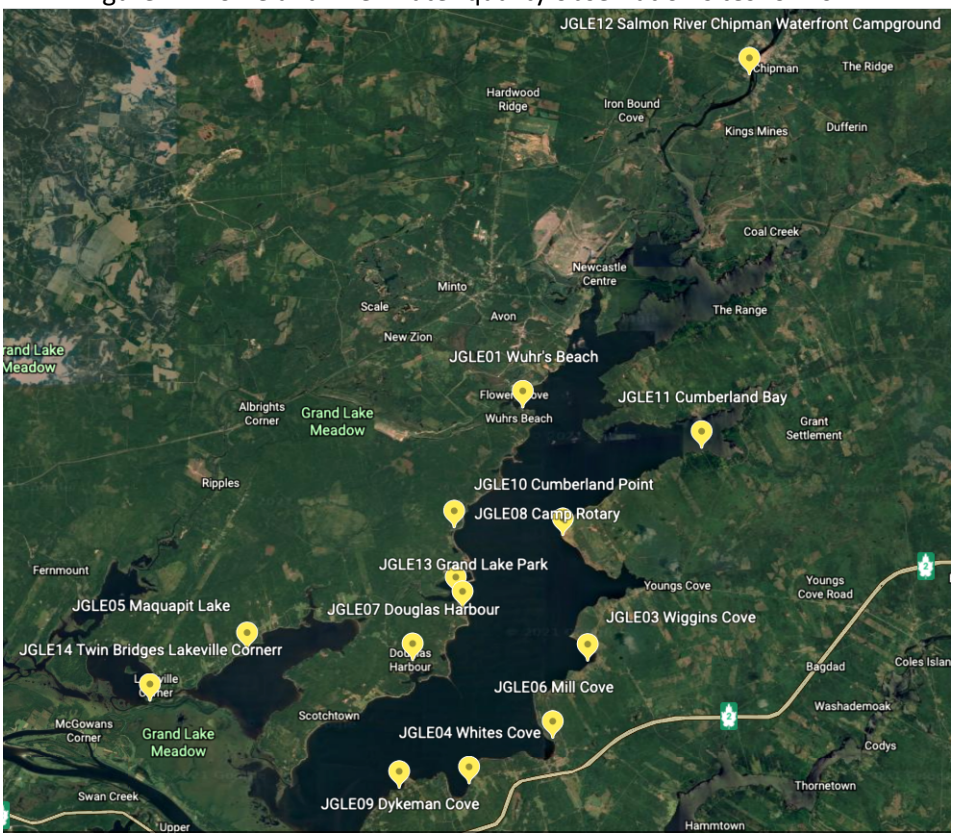


Figure 2. *E. coli* water quality observation sites for 2021.

The monitoring program consists of 6 profile sampling locations throughout the lake, including 2 central deep water locations (southwest of Grand Point Bar, and off of Cumberland Point), 3 inlet locations (Maquapit, Newcastle Creek, Salmon River) and at the outlet into the Jemseg River. At each sampling location we collected information on water clarity (via Secchi disk readings), dissolved oxygen, pH, conductivity and temperature, as well as collected water for a complete suite of water chemical analysis (done by the N.B. Research and Productivity Council), including Chlorophyll a, nutrients, major ions and trace metals. The two deep water sites off Grand Point Bar (JGLP04) and near Cumberland Point (JGLP03) also had water collected from a depth of 20 m by a niskin sampler for the same RPC analysis as the surface water.

Our program was conducted by two teams, team South (Hazen Hughes, John Hughes, Jennifer McPhail, Joy and Robert Thomas) and team North (Mary Murdoch, Michael Kelly, Brad Nickerson and Eric Luiker). Each team collected data at 1 m depth intervals (up to 25 m at the deep sites), and samples from three of the six locations on the lake. After some field guidance from Eric Luiker, the river sites JGLR01 – JGLR03 were sampled and submitted to RPC for analysis by Aaron Fraser (Willowbrook Watershed Services), an experienced field specialist with a degree in biology, his own boat and related equipment (e.g. GPS receiver). Aaron also took the surface water samples for *E. coli* analysis in late August, and submitted them to RPC for analysis.

Eric Luiker used a plankton net to sample surface water in early October at Cumberland Bay. The samples were sent to Bio-Limno Consulting in Halifax for a taxonomic analysis to determine the density and types of phytoplankton and zooplankton found in the surface water. These small plants and animals are an important source of food for small fish and other animals, and are a metric used to help determine the health of an aquatic ecosystem.

In 2021 we again supported the cyanobacteria monitoring program led by Dr. Janice Lawrence and ACAP Saint John. The same two sites JGLS01 (Cumberland Bay) and JGLS02 (Lower Jemseg Ferry Landing) sites used in 2020 were also used in 2021.

Eric Luiker is working Dr. Mikael Gyllström (Meekoi Ecological Consultancy) to write our 2021 water quality report. Mikael is a limnologist with extensive experience in aquatic ecology and water management. Our Association hired him as a contractor to help write our 2021 report following the pattern of our 2020 water quality report.

Riparian Zone Tree Planting

On May 12, 2021 our Association picked up approximately 2,800 red-tip willow rooted cuttings in 40 plant multipots from the Irving Woodlands nursery in Sussex. Approximately 1,900 of these cuttings were distributed to 42 of our members for planting on their shorelines starting on May 22, 2021, and continuing through the summer.





The cuttings originated from red-tip willow whips harvested in January 2021 from the willow plantation of Mike Thorne, a member of our Association and a professional forester. Red-tip willows (*Salix eriocephala*) were chosen as they have an extensive root system that helps prevent erosion, and are native to New Brunswick. They grow up to 3 to 4 m in height, and have a multitude of smaller stems branching from the root system, making them resistant to ice damage. They are very different from the much larger weeping willow tree. Our Shoreline Green Zones web page has further details on our 2021 riparian zone tree planting project.

Kim Reeder was hired as a project coordinator hired to help us with this project. Kim has a Masters Degree in Applied Science, Forestry Technician training and has worked with the Chamcook Watershed Water Quality project, the VOICES group in Gagetown and many others. Kim presented an excellent overview of the 2021 riparian zone tree planting activities and results at our November 8, 2021 monthly meeting. On July 24 Kim visited 18 different properties with plants in the ground and took pictures of some of these plants. Some plants had no leaves and other plants had successful leaf coverage. The properties visited had an average of around 85% survival rate. After visiting the same properties (plus some additional properties) on October 8, Kim adjusted the average survival rate to 75% as the actual survival rate of the combined rooted cuttings (directly from multipots) and transplanted willows in six inch pots. The minutes of the Nov. 8, 2021 meeting have further details on the lessons learned in 2021.

Looking Ahead

On Nov. 30, 2021, our Association submitted three applications for N.B. ETF funding with the same titles as our 2020 projects. Besides writing reports describing our 2021 water quality testing results, and for our 2021-2022 N.B. ETF funding awards, our Association's committed volunteers will be working to improve our website and to find the best way forward as an Association. We need everyone's help in obtaining additional members to help us achieve our mission. As stated in our bylaws

> The *Mission* of the Association is to engage the attention, enthusiasm and support of the people, communities, businesses and organizations in the Jemseg Grand Lake Watershed to provide a healthy watershed for all. We undertake ecosystem education, improvement and protection activities that benefit the Jemseg Grand Lake Watershed community.

Jemseg Grand Lake Watershed Association

Financial Statement

December 3, 2021

	Cheque	Combined	General	New Horizons for Seniors Project	Education 2021 Project	Water Quality 2021 Project	Willow Planting 2021 Project	ETF 2020 Project	Status / Comment
Project Budget					8,999	17,700	7,600		
Membership Fees		1,167.64	1,167.64						3 Memberships in last month
ACAP Contribution:		1,000.00	1,000.00						
2020 Environment Trust Fund Project		7,411.98						7,411.98	
New Horizons for Seniors Grant		2,792.00		2,792.00					
ACAP Contribution		350.00	350.00						
Nashwaak - willow seedlings		130.75					130.75		
2021 Projects -deposit		2,199.79					2,199.79		
2021 Projects - deposit Claim #1		4,941.49			1,032.36	3,909.13			
2021 Projects - deposit Claim #2		3,186.02				3,186.02			
2021 Projects - deposit Claim #3		3,479.98			846.85	2,633.13			
2021 Projects - deposit Claim #4		6,110.61			575.92	3,041.54	2,493.15		
2021 Projects - claims in progress		572.28			70.00	502.28			
		33,342.54	2,517.64	2,792.00	2,525.13	13,272.10	4,823.69	7,411.98	
2020 Environment Trust Fund Exp to Mar 31		7,361.98	(50.00)					7,411.98	
April Newsletter copying and mailout		47.15		47.15					
Supplies for transplanting, watering , growing willow cutting on senior properties		723.19		723.19					
May Newsletter copying and mailout		40.24		40.24					
June Newsletter copying and mailout		41.59		41.59					
Supplies - growing willow cutting - seniors		69.18		69.18					
Potting soil for willows $ 20.68, travel $ 69.82		90.50		90.50					
Education Expenses		192.86			192.86				
Zoom license May 28, 2021 to May 28, 2022		839.50			839.50				
NB Alliance Lake Association membership		150.00				150.00			
Rainbow Printing - 1000 brochures		386.88			386.88				
July Newsletter copying and mailout		22.41		22.41					
Vita Plume - August Newsletter		51.31		51.31					copying/mailout
Kim Reeder		2,205.79					2,205.79		
Kiers Communications-website maintenance		391.00			391.00				
NB RPC Water Quality analysis		3,909.13				3,909.13			
Willowbrook Watershed Services		1,569.89				1,569.89			
NB RPC Water Quality analysis	152	689.85				689.85			Inv 332094 S10
Plankton net & tow line	153	356.50				356.50			
Bolt & Washers Water Quality probe		16.89				16.89			
Folding Table- Education & Outreach events		68.97			68.97				
NB RPC Water Quality analysis	151	3,036.02				3,036.02			330946 328490 331263 331317
Bank Charge - Credit check		15.00	15.00						
Grand Lake Mirror- Advertising September	150	73.60			73.60				
Vita Plume - September Newsletter	149	28.80		28.80					copying/mailout
Daily Gleaner - Ad Webinar	176	502.32			502.32				
Willowbrook Invoice 300921	154	972.00				972.00			
Mike Thorne - 1,100 Willow seedlings	159	1,265.00					1,265.00		
Kim Reeder - Project Coordinator	160	1,231.45					1,231.45		
NB RPC Water Quality analysis	165,177	2,069.54				2,069.54			Inv 334300 & 335424
Joy Thomas Inv 1003, travel,batteries	158	174.25				174.25			
Brad Stamps	145	21.16	21.16						
NB Environmental Network CORE	156	45.00			45.00				
Hazen Hughes Boat Fuel	162	160.16				160.16			
Eric Luiker shipping plankton	155	58.14				58.14			
Eric Luiker Boat fuel	161	109.73				109.73			
Grand Lake Mirror	163	25.00		-	25.00				
Vita - mailing Oct & Nov Newsletters	157,164	78.76		78.76					
		29,090.74	(13.84)	1,193.13	2,525.13	13,272.10	4,702.24	7,411.98	
Surplus (deficit)		4,251.80	2,531.48	1,598.87	-	-	121.45	-	
Opening Bank Balance Jan 1, 2021		2,763.94							
		7,015.74							
Outstanding Cheque									
Invoices waiting to be paid									
Claims in progress		(572.28)							
Actual Bank Balance December 2, 2021		6,443.46							