Education on Water Conservation and Stormwater Management in the Shediac Bay Watershed

Final Report

By:

The Shediac Bay Watershed Association Inc.

March 1, 2020

Report produced for the New Brunswick Environmental Trust Fund

Contributors:

Jolyne Hébert

Rémi Donelle

Acknowledgements

The success of the SBWA's education program relies on strong partnerships with local schools, the Monseigneur François Bourgeois elementary, Shediac Cape elementary and Louis-J.-Robichaud schools. Special thanks go out to the teachers and school administration for the continued collaboration that is needed to bring environmental awareness and actions to the children, both inside the classrooms and outside surrounded by nature.

Special thanks also go out to all other community groups and organizations that request frequent presentations and workshops from the staff at the SBWA. These partnerships allow us to reach out to the general public and to continue to strengthen our message of environmental stewardship, conservation and protection.

The town of Shediac has been an important partner to implement natural stormwater capture systems in the municipal zone. The town has participated in planning and construction of a naturalized bio swale in 2019 and a demonstration rain garden in 2017.

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

1 Introduction

1.1 Description of the Shediac Bay Watershed Association

The Shediac Bay Watershed Association (SBWA) was founded in 1999 as a result of growing concerns from local community residents over the ecological health of Shediac Bay. In order to establish a long-term water quality-monitoring and improvement program, a community-based association was formed.

The Shediac Bay Watershed Association gratefully receives guidance, donations and in-kind support from various organizations and interest groups consisting of business owners, industry, foresters, farmers, residents, cottage owners, recreation boaters and swimmers, conservation groups and community organizations within the Shediac Bay Watershed.

Public education has always been an integrated part of all the Shediac Bay Watershed Association's initiatives. Every year, the Association organizes activities meant to engage the public in environmentally friendly practices such as litter cleanup and tree planting, to raise awareness and to encourage good habits.

Our strong presence in the public eye is a major factor to the success of many of our initiatives, and to keep the public informed of the great work being accomplished by the association.

1.2 Overview of the Shediac Bay Watershed

The Shediac Bay Watershed covers 420 km2 of land area and stretches along 36 km of coastline, from Cap Bimet to Cap de Cocagne (Fig. 1). The Shediac Bay Watershed is composed of two major river systems emptying into Shediac Bay: the Shediac River and the Scoudouc River. The Shediac and the Scoudouc Rivers are characterized by small tributaries covering a watershed of 201.8 and 143.3 km2, respectively. The Shediac River is composed of two major water arms. The northern water arm is created by the convergence of the McQuade Brook, the Weisner and the Calhoun Brook. The southern water arm of the Shediac River is the continuation of the Batemans Brook. Water velocity in both rivers is generally weak due to the gentle regional elevation. The watershed boundaries stretch into both Kent and Westmorland County and cross into both Shediac and Moncton.

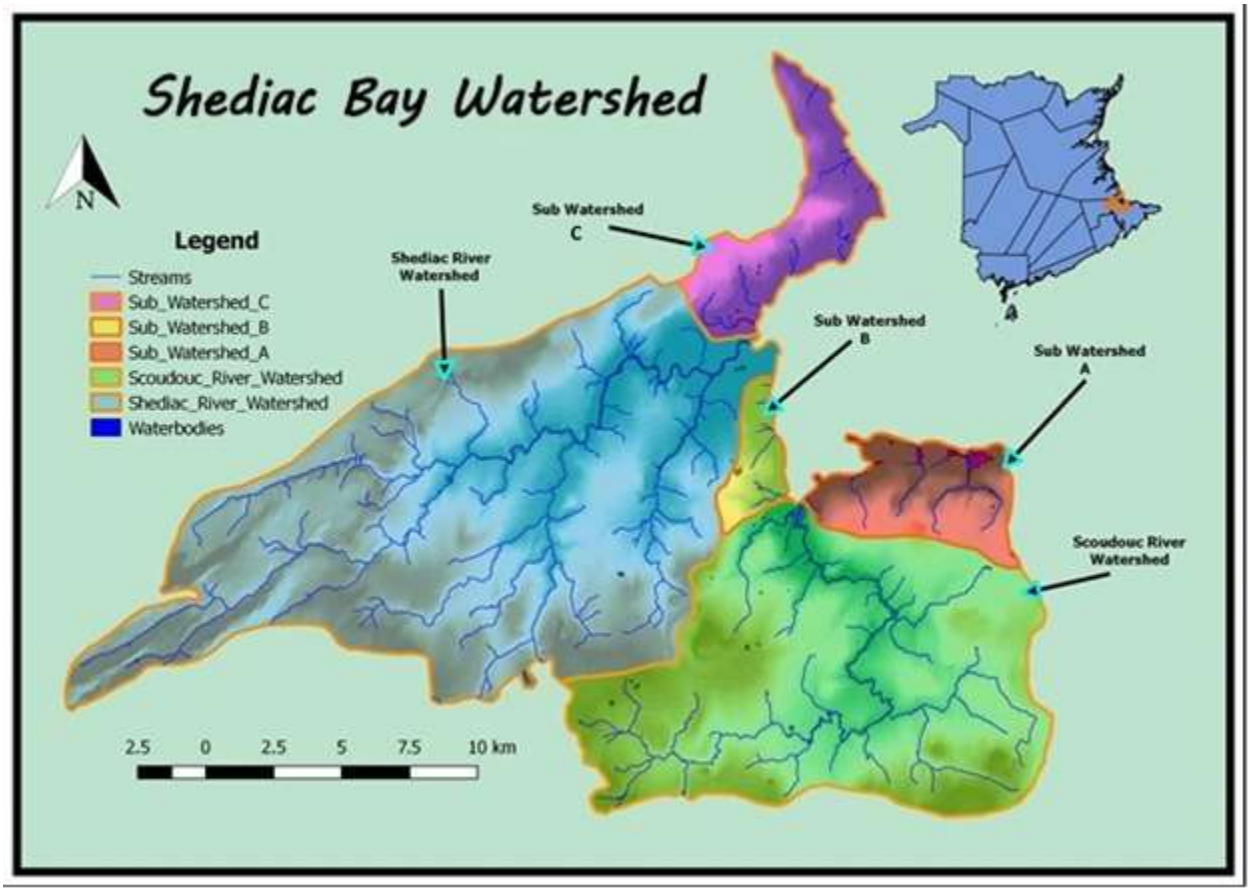


Figure 1: Map of Shediac Bay watershed boundaries

2 Water Conservation and Stormwater Management

The education program of the SBWA's has been focused on the theme "Water Conservation & Stormwater Management" over the last 3 years. Those two major categories revolves around the topic of climate change and the need for adaptation. The climate change predictions for the Maritime Provinces, as described by the Department of Environment and Local Government of New Brunswick; "Wetter, Warmer and Stormier". The predictions include an increase in the frequency and severity of heavy rainfall events, which will inevitably cause greater risk of erosion, stress on infrastructure, runoff and flooding. (Government of New Brunswick, 2018)

These changes in our climate brings the need for adaptation using various methods of stormwater management. An important component of this project is to speak about climate change, explain various methods to manage the increase of stormwater runoff at the municipal and domestic level, and implement concrete actions of stormwater management. The focus of these methods has been on rainwater catchment systems (rain barrels) and rain gardens, being the most affordable and effective small scale actions.

2.1 Naturalized Stormwater Retention Basin

The SBWA partnered with the Town of Shediac to transform the stormwater drainage basin at the new municipal garages into a naturalized stormwater retention system. There are two stormwater pipes that channels the surface runoff from the property into this basin, approximately 18,000 m^2.

Figure 2: Project area for the Naturalized stormwater basin

Figure 3: Stormwater basin – drainage inlets and outlet

Figure 4: Before photos - Stormwater drainage basin after rainfall events

The project area was evaluated and it was found that the bedrock was only 6-8 inches below the surface of the bottom of the stormwater basin. After several consultations, a plan was made to transform this basin into a bed of cattails. Cattails are great filterers, and they need to remain in a wet environment to survive. Therefore, check dams were designed using 3-6 inch rocks to help retain the stormwater to be filtered by the plants, and to maintain the moisture in the habitat for the survival of the cattails. Elevation measurements were taken by *Luko Construction* to determine the proper height of the rock check dams. The cattails were collected from a roadside ditch with permission from the *Department of Transportation and Infrastructure of New Brunswick.*

The SBWA would like to thank the *Town of Shediac* for providing the machinery and staff time to excavate the project area, and for the placement of the rock structures and top soil.

Figure 5: Delimited excavation area and excavation by the Town of Shediac employees

Figure 6: Elevation measurements taken by Luko Construction for check dam installations

Figure 7: Installation of rocks, check dams and top soil

Figure 8: Planting of vegetation after rainfall

In September, the team returned for a second round of planting to thicken the root system that will develop next spring. This time, due to the plants being dormant, rhizomes were dug out from the original donor site and transplanted in the bioswale. In addition, mature cattails seeds were collected from a second bed along an onramp of Highway 11. The seeds were spread manually throughout the bioswale to increase the vegetative thickness next year.

Figure 9: Rhizomes that were transplanted into the bioswale from the donor bed

Figure 10: Photo of bioswale growth in the fall of 2019

2.2 Rain Garden at Shediac Cape School

In September of 2019, additional plants were added to replace the vegetation that did not survive the first year. The SBWA received 14 Swamp Milkweed plants from the *Groupe de Développement Durable du Pays de Cocagne* (GDDPC) as part of their project on the Monarch Butterfly. The addition of Swamp Milkweed in this rain garden will hopefully attract the Monarchs Butterflies to the school grounds next year.

Figure 11: Shediac Cape School Rain Garden, September 2019

2.3 Rain Barrel Giveaway

Figure 12: Rain barrel setup in Shediac

Since the beginning of this project in 2016, 100 collapsible rain barrels (200L) and 26 rigid plastic food-grade rain barrels (55 Gallons) have been distributed to citizens living within the communities in the Shediac Bay watershed boundaries. This project has since sparked interest and high demand in the community, and it has proven to be an excellent tool to promote rain as a resource.

In 2019, the SBWA continued the free rain barrel giveaway program using the rigid plastic food-grade barrel model, in order to provide a more durable and higher-quality product. The 55-gallon food-grade barrels were purchased from a small Dorchester company *Eco-Containers Co*., and the parts were purchased from local Shediac *Kent* and *Home Hardware* Stores.

During the summer, 22 rain barrels were built and distributed to residents living within the boundaries of the Shediac Bay watershed. These participants were recruited by collected names at the Shediac Farmer's Market in the Park, and by hosting a Facebook contest. The social media contest was very successful; 52 people participated in the contest, an increase from the 30 participants in the 2018 contest. The response from social media was very positive, and the purpose of the project was understood and appreciated. For those who did not win a rain barrel in the draw, a post was created to promote the "How to Build a Rain Barrel" video on Youtube that was developed in 2018 thanks to the *NB Environmental Trust Fund*.

Each rain barrel recipient received specific instructions for installation, maintenance and safety. Educational materials were also given with the barrel: a pamphlet with additional rain barrel tips and tricks, a rain garden pamphlet, a water conservation bookmark, and an SBWA Newsletter.

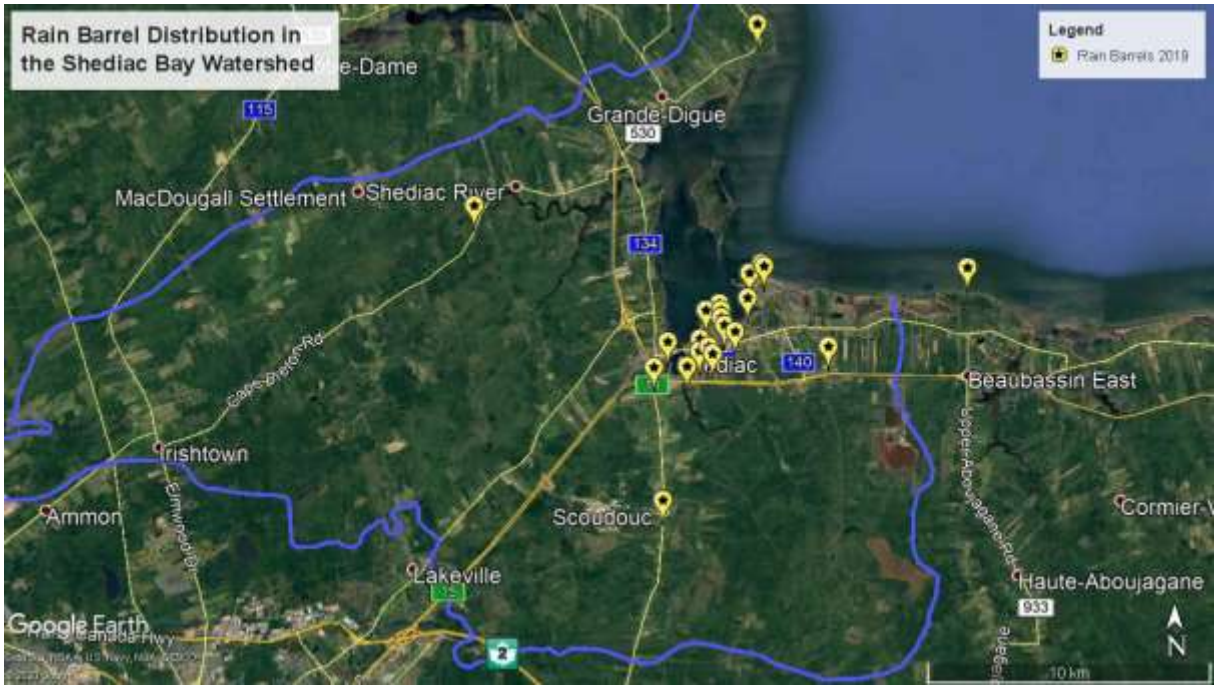


Figure 13: Map of rain barrel recipients within the Shediac Bay watershed, 2019

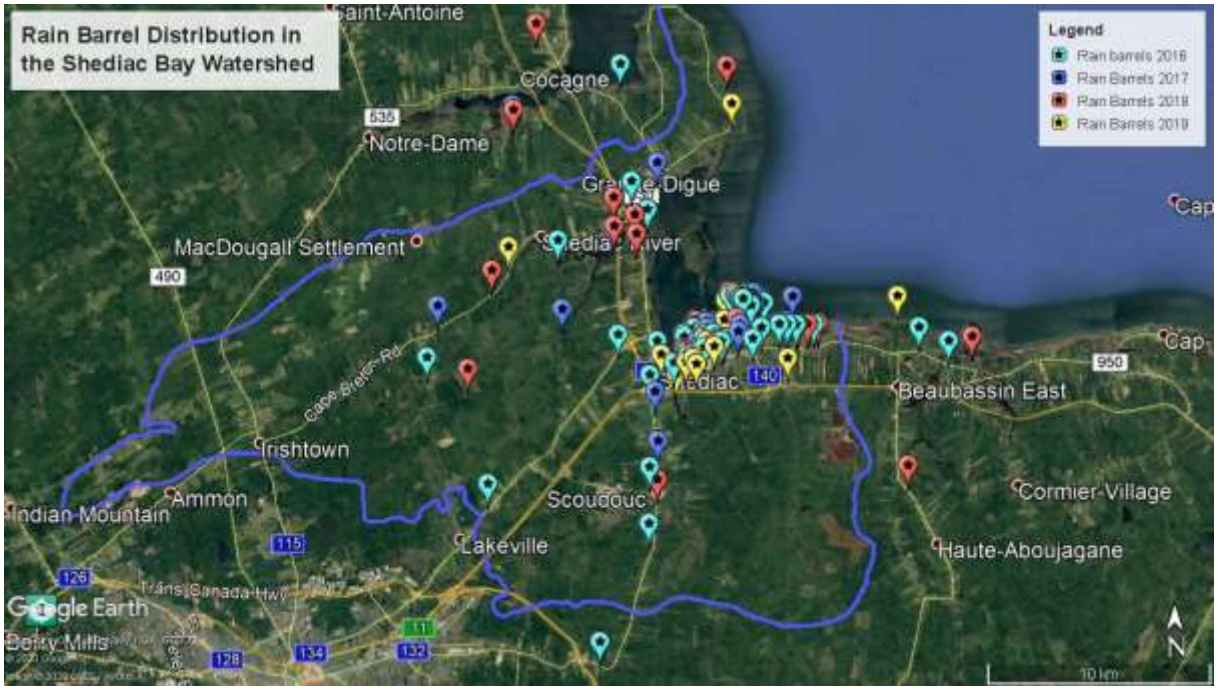


Figure 14: Map of rain barrel recipients within the Shediac Bay watershed, 2016-2019

2.4 Rain Barrel Survey

A follow-up survey was sent to the recipients of the rain barrels, in order to evaluate the success of the program. Of the 22 rain barrel recipients, 14 responded to the survey. Of these 14 people, only 4 had already installed it, while others will install it next spring.

The motivation for participating in this rain barrel program seemed to focus more on conserving drinking water, the ability to water their plants and gardens, and general sustainability and environmental consciousness. The majority of the respondents rated the quality of the barrel as very good or excellent. The 4 people who've installed it found the installation either very easy, or more or less easy. The water collected by the 4 installed barrels has been used to water the garden, water other plants, and to provide water to their animals in one case. All participants recommend the continuation of the program, and some provided some feedback to expand the reach to a wider group in the community. The following table provides the results to the survey.

Table 1: Rain Barrel Distribution Program Survey, 2019

Rain Barrel Distribution Program Survey - September 2019							
Survey Respondents in English					**8**		
Survey Respondents in French					**6**		
Total Survey Respondents					**14**		
Questions/Answers:							
1. What motivated you to participate in our Free Rain Barrel Distribution Program?	**Not at all important**	**Slightly important**	**Moderately Important**	**Very Important**	**Extremely Important**	**Participant Answered**	**Skipped**
Drinking water conservation	1	1	1	4	6	13	1
Watering your plants and garden	0	0	1	7	5	13	1
Reduction of flooding in my yard	5	4	2	1	2	14	0
Reduction of stormwater runoff on non-absorbent surfaces (compacted law, sidewalks, paved driveway, etc.)	3	6	2	2	1	14	0
Reduction of the amount of pollution that flows into municipal stormwater sewers, streams and rivers	3	3	3	3	2	14	0
Climate change adaptation	2	1	2	2	6	13	1
General sustainability and environmental consciousness	1	0	2	2	9	14	0
Comments:							

"I have a small vegetable garden in my backyard. This barrel will help water my plants and result in better crop production! It doesn't mean that I fell the other issues are not important. They were not the motivation to try to win the barrel.
"Being on a well in a rural area, it is extremely important to me that we all use our natural resources responsibly… As a grandmother I want to set a solid example both to my grandsons and children regarding the importance of taking care of Mother Earth, clean air and clean water."

2. Did you install the rain barrel?	**Yes**	**No**
	4	**10**
Yes - I installed it (Go to question 3)	4	
No - This barrel does not suit my needs		
No - I didn't have time, I will install it in the spring		10
No - I had difficulties during the installation		
No - I do not find it necessary or important anymore		
Comments :		
"I need to install an additional gutter to complete the installation."		

3. How do you rate the quality of this type of rain barrel?	**Rating**	**Skipped**
	12	**2**
Poor		
Fair	1	
Good	3	
Very Good	4	
Excellent	4	
Comments :		
"So far so good"		
"Although I haven't set it up yet, it appears to be well made"		

4. How did you find the installation of the rain barrel? (Please go to question 6 if you have not installed the barrel)	**Ratings**	**Skipped**
	4	**10**
Very difficult		
Difficult		
More or less easy	2	
Easy		
Very Easy	2	
Comments :		

5. Did you use the rainwater collected by the barrel? (Please go to question 6 if you have not installed the barrel)	**Participants Answered**	**Skipped**
	4	**10**
Yes - Watering of plants and flowers	2	
Yes - Watering the garden	2	
Yes - Washing the Car		
No		
Other? (Comments) :	1	
"Oui, pour de l'eau pour les animaux, surtout lors de la panne de courant!"		

6. Would you recommend extending this Free Rain Barrel Distribution Program?	**Participants Answered**	**Skipped**
	13	**1**
Yes	13	
No		
Comments :		
"If free, people will put to use"		

Do you have any other comments or suggestions that would help us improve this program?	**Participants Answered**	**Skipped**
	14	**0**
Yes (See comments)	3	
No	11	
Comments :		
"Not at this time. Once I put the barrel to use, I may have suggestions."		
"Provide greater advertisement to the public about the program. I happened to see your booth at the Sunday morning market"		
"The majority of people are not even aware of this program or that these rain barrels are available.. Perhaps set up an information booth at the market or in the mall... Flyers, phone calls or anything else that would help spread the word."		

3 Education Materials

The SWBA has been developing educational materials for several years. In 2019, a shoreline property owner's guide was developed to help with education on the importance of vegetative buffer zones for riverfront property owners.

Figure 15: Shoreline Property Owners Guide, 2019

4 General Presentations

The SBWA is always available for presentations to the general public, to organize workshops and meetings with various other groups. The following section will summarize the activities and meeting for the 2019 fiscal year.

4.1 SBWA's Annual General Meeting

The SBWA holds an AGM every year in the month of June. Members of the public are invited through our member's invite list, public announcement and social media. This AGM was also a celebration of the 20 years of existence of the Association.

This year, the meeting was held June 20th at the Multipurpose Centre in Shediac. There were 39 people in attendance. The guest speaker was Jacque Leblanc, MLA for Shediac-Beaubassin-Cap-Pelé and former mayor of Shediac, gave a speech on the importance of protecting our environment through education, stewardship and partnerships, underlining the 20 years of the Shediac Bay Watershed Association. Afterwards, the SBWA Manager Rémi Donelle presented an overview of the accomplishments of the Association during the 2018-2019 programs and over its 20 years.

Figure 16: Guest speaker Jacque Leblanc and SBWA Manager Rémi Donelle presenting at the 2019 AGM

4.2 Spring Cleanup – Environmental Trash in Grande-Digue

The SBWA organized a spring cleanup with the village of Grande-Digue May 11th, 2019. A presentation on the Watershed Association on the impact on trash on the environment and Shediac Bay to 32 volunteers. The event was organized with the participation of the Kent South Solid Waste Commission and the "Chevalier de Colomb" committee.

Figure 17: Photos of the Grande-Digue Spring Cleanup, 2019

4.3 Public Meetings Ecovision 2025

A collective strategy for the region, Ecovision 2025, has been developed in the three municipalities in Southeastern New Brunswick. Under the Ecovision 2025, a summit of councillors for the three municipalities (Shediac, Cap-Pele and Beaubassin-Est) was organized on June 15th. There were 27 representatives of municipal councillors and municipal staff in attendance.

A 45-minute presentation was prepared to explain stormwater management and applications for municipalities. The presentations explained stormwater issues and management with a focus on the activities that are promoted by the Shediac Bay Watershed Association.

The councillors appreciated the presentation. For the Shediac Town Council this was the third and most complete presentation on stormwater management. The manager of the SBWA had already done some preliminary presentations during town meetings on the problems of stormwater runoff.

Ecovision 2025 also organized a public information meeting the same day. The same presentation was given. Although, only 7 members from the public attended, the presentation was well appreciated and there was good discussion afterwards.

Figure 18: SBWA Manager Rémi Donelle Presenting

4.4 Greater Shediac Community Garden

The manager gave a presentation to the Greater Shediac Community Garden Committee on the importance of native trees in environmental restoration on August 20th. The presentation focused on the Acadian forest ecosystem of New Brunswick and the ecosystem services that trees provide. Due an unfortunate event, there was very little advertising done for this presentation, and only 2 people were in attendance.

4.5 Communities in Bloom

The SBWA was invited to present the demonstration rain garden for the Town's "Community in Bloom" evaluation. The function and purpose of the rain garden was explained to the 3 visiting evaluators.

4.6 Learning Day – Green Infrastructure Workshop

In October, a learning workshop on Green Infrastructure was organized by the *New Brunswick Environmental Network*. The day began in Dieppe with presentations and a tour of the naturalized stormwater management structures built by the Town's engineers in the last 20 years. In the afternoon, the group got onto a touring bus and drove to Shediac and Cap-Pele to view the projects done by the SBWA and Vision H2O. There were approximately 20 people in attendance.

The first stop was at the demonstration rain garden at the Shediac Centennial Park (behind the *Vestiaire St-Joseph*). The SBWA Manager Rémi Donelle gave a presentation on the project, along with background information on the bacterial situation of the Shediac Bay.

The second stop was at the new bioswale at the municipal garages on Ohio Road. The SBWA Project Coordinator Jolyne Hébert presented on the technical construction details of this project.

Figure 19: Learning Day photos; Rémi Donelle and Jolyne Hébert presenting Green infrastructure projects

5 School Programs, Field Trips and Presentations

The SBWA has been working on strengthening the working relationship with local school teachers and on the development of yearly standardized programs. The working relationship with the teachers of the 6-8th grade of Shediac Cape School over the past 5 years has led to the development of a series of presentations that links science curriculum objectives and outcomes to local environmental issues. The main focus of these presentations revolves around water quality, water conservation, and climate change.

In addition to the presentation series, the annual educational programs include; Fish Friends with the younger age groups (3-4th grade), and Adopt-A-River with the 6 to 8th grade students. These programs include field trips to further immerse the students in nature.

A new partnership was formed in 2019 with the 10th grade science teachers of L.-J.-R. High School. There was an interest in enhancing the Ecosystems unit with more hands-on outdoor activities, and this led to a pilot project involving field trips to a local wetland.

The following sections report on activities and results for the 2019-2020 education program.

5.1 Fish Friends Program

The Fish Friends program is a wonderful tool for getting children excited about fish and aquatic ecosystems. The program usually includes an aquarium in the classroom, containing either salmon or trout eggs that the children will witness hatch and grow. The program includes several presentations on fish habitat, on the life cycle of salmonids, salmon migration, etc. The program normally ends with a field trip to release the fish into the wild.

In March of 2019, fish eggs were unfortunately not available from the Miramichi Salmon Conservation Centre. Therefore, there was no aquarium but the presentations were given in the classrooms and a field trip was organized at the end of the school year to see fish species in the Scoudouc River estuary using a beach seine. The program was taught in both French and English; the MFB School is Francophone, and Shediac Cape School is both Anglophone and French emersion.

The 3rd graders of MFB School (57 students) went to the Big Lobster for the activity on June 12th and the 3rd and 4th graders of the Shediac Cape School (41 students) went on June 13th. During the field trip, the kids observed SBWA staff perform a 30-meter beach seine sampling to catch small fish, shrimps and crabs. The catch was divided and transferred to clear containers, where the kids got to observe the specimens. The fish, shrimps and crabs were then transferred to mason jars, and the students got to release them back into the water.

Figure 20: Preparation of the activity and beach seine fish sampling

Figure 21: Observation of fish caught in the beach seine and release of the fish by the students

5.2 Parlee Beach Field Trip

At the end of the 2018-2019 school year, the four classes of the 6th-7th graders of the Shediac Cape School were taken to Parlee Beach Provincial Park. Activities included games from the "Get Outside! NB" program, a treasure hunt on the beach, trash cleanup, a presentation on the dunes, and free time with sporting equipment provided by Parlee Beach Provincial Park. The outing was organized on June 6th for the 7th graders (36 students) and on June 7th for the 6th graders (37 students).

Figure 22: Shediac Cape School during an outing at Parlee Beach Provincial Park, 2019

5.3 Adopt-a-River Program

Adopt-a-River is a school-based program designed to teach the concept of biomonitoring of a river's ecosystem using macroinvertebrate sampling. It also teaches water chemistry using water quality analysis kits for various physicochemical parameters. The program is designed to be integrated into the school's science curriculum.

The SBWA project manager is a certified project coordinator for the "*G3E, Education and Water Monitoring Action Group*" in Quebec, the organization that created and manages the Adopt-a-River program. The science teachers for grades 6 to 8, English and French Immersion of the Shediac Cape School, have agreed to integrate the program within their normal curriculum in partnership with the SBWA since 2016.

A classroom presentation was given before the field trip on the concept of biomonitoring using macroinvertebrates. It was explained that looking at the composition of the community can provide information on water quality, changes in water quality or habitat over many years, and overall aquatic health monitoring. A description of the field trip activities was given, along with a demonstration of the sampling using the equipment in the classroom.

5.3.1 Field Trip

The field trips were organized on two separate days for the English and the French Immersion students. They were brought to an area on the Scoudouc River called "Edna's Pond"; the first group went on October 4th (15 students), and the second group on October 5th (11 students).

The groups were divided into teams, each with a specific task. There were multiple tasks designed to complete the macroinvertebrate sampling, sorting the invertebrates using a sampling protocol, taking site measurements, filling out data sheets, drawing a sketch of the site, and taking habitat observations. The science teachers are always amazed with the various components of the activity, stating that a great portion of the curriculum's objectives and outcomes are being attained in one day.

Figure 23: Field observations and discussion

After the lunch on the first day, several students volunteered to plant a few native trees (7 trees) at an active restoration site across the river. On the second day, the students observed the installation of a restoration sign and installation of hay bales for sediment control. Both groups received a presentation on the restoration site and the importance of responsible use of recreational vehicles.

Figure 24: In-stream collection of benthic macroinvertebrates

Figure 25: Sorting and collection of invertebrate samples for identification

Figure 26: Data collection (site measurements and flow speed)

Figure 27: Tree planting and installation of sign and hay bales at Edna's Pond

5.4 Saltmarsh Education Field Trip (**NEW*)

In September, the SBWA received a message from a 10th grade science teacher at Louis-J.-Robichaud High School in Shediac, looking for a hands-on activity to supplement the ecosystem module. The SBWA education coordinator organized a meeting with both 10th grade science teachers to discuss options. The teachers decided on 2 in-class presentations and a field trip to a salt marsh in Pointe-du-Chêne.

The first presentation was an introductory presentation on the SBWA and its projects. Then on October 11th, both classes took the bus and went to visit the salt marsh, one group in the morning and one in the afternoon. A presentation was given on general wetlands, plants tolerant to salt, biotic and abiotic factors of that specific ecosystem, the ecosystem services provided by the salt marsh, etc. A bated minnow trap was placed in the water and managed to catch a few dozen mummichogs. The group explored a saltpan with a critter dipping activity, where they were able to find invertebrates using a dip net.

The field trip was later followed up by another classroom presentation on ecosystems in general, biodiversity, food chains (terrestrial and aquatic), energy transfer and bioaccumulation, interactions and relations, threats to biodiversity and better management practices.

The teachers really enjoyed the level of education that was involved in this series of activities, and they look forward to repeating this on a yearly basis.

Figure 28: Photos of the Pointe-du-Chêne saltmarsh field trip, October 2019

5.5 Classroom Presentations Summary

It has been a great year for school presentations and field outings. A stronger relationship with the Shediac Cape School was established in 2015, and continues to strengthen over the years. The science teachers for grades 6 to 8 have taken advantage of the presentations to complement the curriculum. It is also their intent to engage the students with various environmental subjects and concerns that impacts us locally. Students have become accustomed to the SBWA education coordinator, and are always excited to receive new presentations. A strong relationship with the L.-J.-R. High School has also led to new and improved presentations and activities with the youth age groups. The teachers and school principals are all very appreciative of our work.

Table 2: Summary of Classroom Seminar Series 2019-2020

Date	School	Language	Grade level	Topics	# Students
04/02/2019	Shediac Cape	English	6-7-8	WATER - Conservation and Climate Change	68
04/02/2019	Shediac Cape	French Immersion	6-7-8	WATER - Conservation and Climate Change	42
04/16/2019	Shediac Cape	English	6-7-8	WATER -Water Pollution and Stormwater	(68)
04/16/2019	Shediac Cape	French Immersion	6-7-8	WATER -Water Pollution and Stormwater	(42)
04/30/2019	Shediac Cape	English	6-7-8	Erosion, Coastal zone and Climate Change	(68)
04/30/2019	Shediac Cape	French Immersion	6-7-8	Erosion, Coastal zone and Climate Change	(42)
05/07/2019	L.-J.-R.	French	11	About SBWA	16
05/14/2019	L.-J.-R.	French	11	Water Conservation & Stormwater Management	(16)
06/06/2019	Shediac Cape	English & French Immersion	7	Parlee Beach Field Trip	36
06/07/2019	Shediac Cape	English & French Immersion	6	Parlee Beach Field Trip	37
06/11/2019	MFB	French	3	Fish Friends: Fish Habitat, Salmonid life cycle, migration	57
06/12/2019	MFB	French	3	Fish Friends : Field Trip Day	(57)
06/12/2019	Shediac Cape	English & French Immersion	3-4	Fish Friends: Fish Habitat, Salmonid life cycle, migration	41
06/13/2019	Shediac Cape	English & French Immersion	3-4	Fish Friends : Field Trip Day	(41)
New School Year					
10/3/2019	Shediac Cape	English	7-8	Adopt-A-River Introduction Presentation	19
10/04 /2019	Shediac Cape	French Immersion	7-8	Adopt-A-River Introduction Presentation	16
10/04/2019	Shediac Cape	English	7-8	Adopt-A-River Field Trip	(15) *Absences

10/05/2019	Shediac Cape	French Immersion	7-8	Adopt-A-River Field Trip	(11) *Absences
10/08/2019	L.-J.-R.	French	10	About SBWA	20
10/08/2019	L.-J.-R.	French	10	About SBWA	22
10/11/2019	L.-J.-R.	French	10	Field Trip Pointe-du-Chêne Salt Marsh	(20)
10/11/2019	L.-J.-R.	French	10	Field Trip Pointe-du-Chêne Salt Marsh	(22)
10/21/2019	L.-J.-R.	French	11	About SBWA	15
10/21/2019	L.-J.-R.	French	11	About SBWA	13
10/29/2019	L.-J.-R.	French	10	Biodiversity and Ecosystems	(20)
10/29/2019	L.-J.-R.	French	10	Biodiversity and Ecosystems	(22)
11/05/2019	L.-J.-R.	French	11	Water Conservation & Stormwater Management	(15)
11/05/2019	L.-J.-R.	French	11	Water Conservation & Stormwater Management	(13)
02/25/2020	Shediac Cape	English	7-8	Adopt-A-River : Macroinvertebrate Identification	(19)
02/25/2020	Shediac Cape	French Immersion	7-8	Adopt-A-River : Macroinvertebrate Identification	(16)
March 2020 (date TBD)	Shediac Cape	English	6-7-8	WATER -Water Pollution and Stormwater	(Unknown)
March 2020 (date TBD)	Shediac Cape	French Immersion	6-7-8	WATER -Water Pollution and Stormwater	(Unknown)
March 2020 (date TBD)	Shediac Cape	English	6-7-8	WATER - Conservation and Climate Change	(Unknown)
March 2020 (date TBD)	Shediac Cape	French Immersion	6-7-8	WATER - Conservation and Climate Change	(Unknown)

5.6 Educational Kiosks

An education kiosk was displayed on Sundays at the Shediac Farmer's market for 2 weeks out of the summer. The main objective was to speak to locals on water conservation and stormwater management, and to recruit participants for the rain barrel giveaway program. SBWA staff was present at the first market of the season in June, and the last market in September.

Figure 29: Shediac Farmer's Market in the Park, 2019

5.7 Communications and Outreach

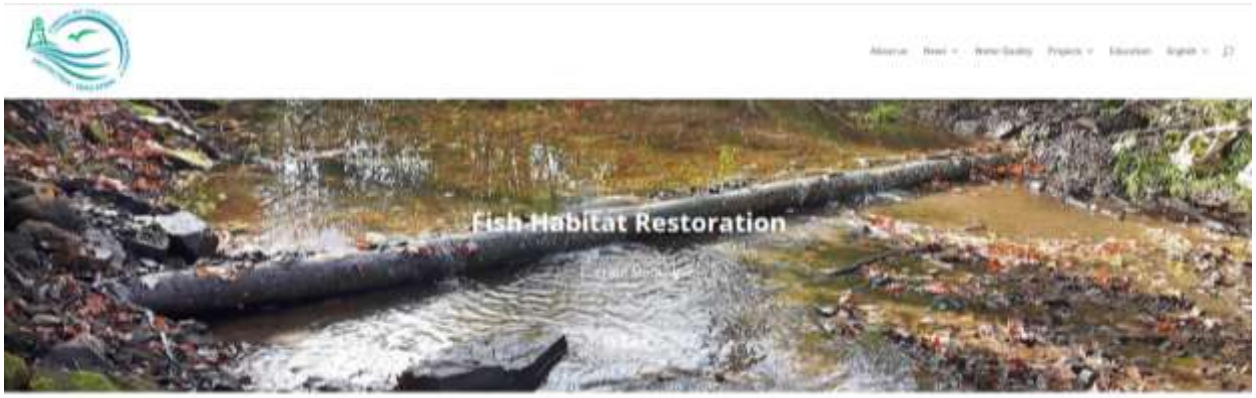
5.7.1 Newsletter

A bilingual newsletter was produced during the 2019-2020 fiscal year. The newsletter display information and photos on the various projects that the SBWA has been doing in the year. The newsletter is now distributed electronically by email list and is available on our website and Facebook page.

5.7.2 Socials Medias and Website

The SBWA is working to keep its website and social media up to date, posting photos and short description of activities and projects. The SBWA now has a dedicated employee who focuses on outreach and communications, and the design and production of educational materials. See table 3 for details.

.



www.shediacbayassociation.org www.facebook.com/#!/shediacbaywatershedassociation

Table 3: SBWA Social Media Outreach 2019

Posted	Type	Lifetime Post Total Reach
4-02-19	Photo	426
4-22-19	Status	418
5-06-19	Photo	509
5-06-19	Link	544
5-09-19	Link	90
5-15-19	Photo	3113
5-16-19	Link	170
5-21-19	Photo	3515
5-31-19	Photo	182
6-06-19	Link	82
6-08-19	Link	71
6-12-19	Photo	485
6-24-19	Photo	273
7-08-19	Photo	1127
7-24-19	Video	588
7-24-19	Video	2130
9-12-19		3595
9-23-19	Photo	279
10-10-19	Photo	162
10-21-19	Photo	527
11-05-19	Link	186
2-07-20	Link	412
2-07-20	Link	78
	Total Reach	**18962**

5.8 Education Program Summary

The following table tallies the approximate numbers of people that have attended events and viewed information organized by the Shediac Bay Watershed Association in 2019.

Table 4: Program Summary

Project	Deliverables	# People Reached
1) Water conservation & Stormwater management	Rain Barrel giveaway	22
2) Public outreach activities	-Beach Sweep event aimed to combat marine litter	19
	-Environmental Cleanup Grande-Digue	32
	-TD Tree Day 2019	17
3) Public Presentations	Public Meetings Ecovision 2025	34
	Greater Shediac Community Garden	2
	Communities in Bloom	3
	Learning Day – Green Infrastructure Workshop	20
4) School Programs and Presentations	- Fish Friends Program in 2 local elementary schools	98
	- Adopt-a-Stream Program	26
	-Parlee Beach Field Trip	73
	-L.-J.-R. Wetland Field Trip	42
	-Students receiving presentations outside of an official program	196
	Total Number of Students Engaged in 2019	**393**
5) Educational Kiosks	-Information Kiosk Market in the Park every Sunday for 2 weeks in 2019.	60
6) Communications and Outreach	-Educational Tools Developed – Facts Sheets, Infographics, Pamphlets	1
	-One bilingual newsletter to the public	578
	SBWA Facebook (Total outreach as reported through Facebook analytical data)	18,962 views
	SBWA Website	Unknown

6 Conclusion

To conclude, the SBWA plans to continue to give away free rain barrels, build rain gardens, bioswales and other green infrastructure projects as we gain more experience. These activities will continue in an effort to control stormwater runoff from impervious surfaces in the watershed, to help improve overall water quality.

This year we built the third green infrastructure project, on the grounds of the new municipal garages on Ohio Road. Projects like this also has the benefit of strengthening our working relationship with the Town of Shediac and their employees. The continuation of our efforts and access to funding has also helped to build trust between the Association and the Town Councillors. Our projects are focused on finding solutions to reduce and improve the quality of surface water runoff, and educating the general public on the impacts of our daily activities in the watershed.

The rain barrel program was improved in 2018, by building a new type of barrel (rigid plastic 55-Galon food grade barrel) that will have a much longer lifespan than the collapsible barrels that were initially used in 2016-2017. In 2019, 22 barrels were given to residents of the watershed, to help conserve drinking water and retain rainwater from the impervious surface that is their rooftops. For the second year, a Facebook contest was used and was again a great success. This type of promotion generates excitement for rain barrels and promoted the project funded by the *NB Environmental Trust Fund*.

The school programs for 2019-2020 has been pretty diverse. The fish friends program was not able to include the aquarium due to a lack of available fish eggs from the Miramichi Hatchery. However, the classroom presentations were delivered and a field trip at organised at the end of the school year, involving 98 children. The Adopt-a-River program targeted 26 students (present the day of the outing) in the 7-8th grade at Shediac Cape School. The field trips to Parlee Beach are greatly appreciated by the school and are becoming an annual event; 73 students got to experience the outdoor learning games from *Get Outside! NB*. The other classroom presentations are always appreciated by the students and teachers, as they integrate science curriculum objectives with local environmental concerns. School based presentations and outdoor activities are essential to teach good habits and to increase awareness in youth to protect our fragile environment. This will create a ripple effect, whether it is by the children telling their parents what they've learned in schools, which may change a parent's perspective, or by creating a more environmentally conscious generation that will continue to pay forward the knowledge as they go through life. In total, 393 students ranging from the 3rd grade to the 11th grade were engaged in 2019.

Public presentations are also very important, because people do have the ability to change their points of view when presented with new information and new scientific evidence. When their local environment changes around them, it may impact some aspect of their life; either financially, recreationally or personally. Many citizens understand this, and many of them are willing to make changes and take actions for the better of the environment.

Education has always been an important part of every project realized by the Shediac Bay Watershed Association. When dealing with local environmental issues, creating dialogue with various members of the community, of any age group, is essential to raise awareness that these issues exist. These issues need to be known and discussed in order to spark interest and change thinking patterns. As they say, knowledge is half the battle.

The Shediac Bay Watershed Association is becoming more and more known for its good work in enhancing the overall health of the Shediac Bay, and that would not be possible without our maintained presence in the public eye through our education programs. The support from the NB Environmental Trust Fund is essential for our group to be able to accomplish the quantity and variety of activities for the community. We hope to continue expanding our programs in future years.

Annex 1 – Newsletter English

CurrentNews

Number 20 Winter 2020

Shediac Bay Watershed Association Newsletter

Adopt-A-River School Program

The school-based program Adopt-A-River is designed to teach the concept of biomonitoring a river's ecosystem using macroinvertebrate sampling. In October, a field trip was organized to bring the 7th and 8th graders from Shediac Cape School to a popular spot on the Scoudouc River called Edna's Pond.

They collected insects, took measurements, and learned about the river's ecosystem and health. This program is a great tool to get kids outside and surrounded by nature, with hands-on learning activities.

Green Boating in the Shediac Bay

It was in 2005 that the Watershed Association launched a green boating program.

This educational project, first step in a long-term program aiming to protect water quality in the Bay of Shediac, has made it possible to raise awareness among boaters about best boating practices.

In 2018, we increased boaters' awareness about the use of pumping stations to prevent sewage from being discharged in the bay. In 2019, an interpretation panel on the importance of protecting eelgrass was produced and a poster was distributed in the surrounding marinas. This program, in collaboration with the marinas in the region, will continue in 2020.

Message from the Association's Manager

Rémi Donelle is the Manager of the Shediac Bay Bay Watershed Association since 2013. A board of directors, consisting of 20 citizens from the region, is responsible for administering the organization.

The Shediac Bay Watershed Association had a busy year in 2019. Several environmental assessment, habitat restoration and education programs took place in the watershed.

In particular, during 2019, the partnership with the town of Shediac on stormwater management continued this year with the naturalization of a retention basin at the municipal garage.

The Association also had the opportunity to join a research and restoration project on the Grande-Digue dune coordinated by the Université de Moncton.

Our educational program has also grown with students from Polyvalente Louis-J.-Robichaud who went out for the first time to a marsh in Pointe-du-Chêne.

More details on these projects will be available on our website in the final reports which will be published in March 2020.

Annex 2 – Newsletter French

NouvellesduCourant

Numéro 20 Hiver 2020

Programme éducatif J'adopte un cours d'eau

« J'adopte un cours d'eau » est un programme scolaire conçu pour enseigner le concept de la biosurveillance de l'écosystème d'une rivière à l'aide de l'échantillonnage des macro-invertébrés. En octobre, nous avons organisé une excursion pour amener les élèves de 7e et 8e année de l'école Shediac Cape à un endroit populaire de la rivière Scoudouc appelé Edna's Pond. Ils ont pu recueillir des insectes, prendre des mesures et se renseigner sur l'écosystème et la santé de la rivière. Ce programme est un excellent outil pour inciter les enfants à sortir dans la nature et participer à des activités d'apprentissage pratique.

Navigation écologique dans la baie de Shédiac

C'est en 2005 que l'Association du bassin versant lançait un programme de navigation écologique. Ce projet éducatif, première étape d'un programme à long terme visant à protéger la qualité de l'eau dans la baie de Shédiac, a permis de sensibiliser davantage les plaisanciers aux meilleures pratiques de navigation.

En 2018, nous avons sensibilisé les plaisanciers à l'importance d'utiliser les stations de pompage pour empêcher le rejet des eaux usées dans la baie. En 2019, nous avons produit un panneau d'interprétation sur l'importance de la protection de la zostère et distribué une affiche dans les marinas de la région. Ce programme, en collaboration avec les marinas de la région, va se poursuivre en 2020.

Message du Gérant de l'Association

Rémi Donelle est Gérant de l'Association du bassin versant de la baie de la baie de Shédiac depuis 2013. Un conseil d'administration, composé d'une vingtaine de citoyens de la région permet d'assurer la direction de l'organisme.

L'Association du bassin versant de la baie de Shédiac a eu une année bien remplie en 2019. Plusieurs programmes d'évaluation environnementale, de restauration des habitats et d'éducation ont eu lieu sur le territoire du bassin versant.

Notamment en 2019, le partenariat avec la ville de Shédiac pour la gestion des eaux pluviales s'est poursuivi cette année avec la naturalisation d'un bassin de rétention au garage municipal. L'association a aussi eu l'opportunité de se joindre à un projet de recherche et de restauration sur la dune Grande-Digue coordonné par l'Université de Moncton. Notre programme éducatif s'est également développé avec des élèves de la Polyvalente Louis-J.-Robichaud qui ont fait une sortie à un marais de Pointe-du-Chêne pour la première fois.

Plus de détails sur ces projets seront disponibles sur notre site Web dans les rapports finaux qui seront publiés en mars 2020.

Appendix A – Educational Materials Collection

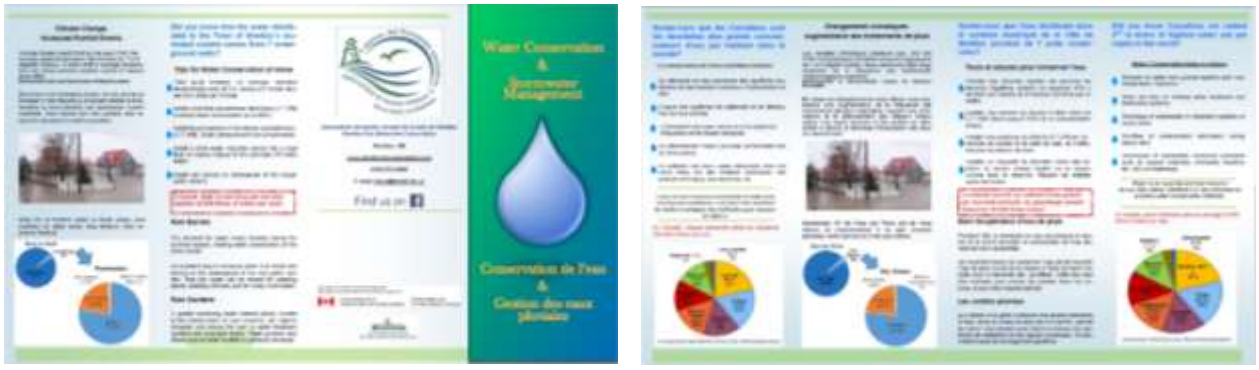


Figure 30: Water Conservation & Stormwater Management pamphlet

Figure 31: Infographics and posters

Figure 32: Fact Sheets on Stormwater Runoff and Water Quality

Figure 33: Rain Barrel Pamphlet

Figure 34: Interpretation panels developed in 2017

Figure 35: Interpretation panel collection developed in 2015