

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

Final Report



By:

The Shediac Bay Watershed Association Inc.

March 1, 2019

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 and Shediac Cape elementary 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.

TABLE OF CONTENTS

| | | |
|-------|---|----|
| 1 | Introduction | 1 |
| 1.1 | Description of the Shediac Bay Watershed Association | 1 |
| 1.2 | Overview of the Shediac Bay Watershed | 2 |
| 2 | Water Conservation and Stormwater Management | 3 |
| 2.1 | Rain Garden | 3 |
| 2.2 | Rain Barrel Giveaway | 5 |
| 2.3 | Rain Barrel Survey | 6 |
| 3 | Education Materials..... | 9 |
| 3.1 | ‘How to Build A Rain Barrel’ Video | 9 |
| 3.2 | Stormwater Runoff Video | 9 |
| 3.3 | ‘How to Build A Rain Barrel’ Handout | 10 |
| 4 | General Presentations | 11 |
| 4.1 | Guest Speaker for the NB Power and Sails Squadron..... | 11 |
| 4.2 | Presentation during Atlantic Datastream Launch..... | 11 |
| 4.3 | SBWA’s Annual General Meeting..... | 12 |
| 4.4 | Probus Club of Shediac Shores | 12 |
| 4.5 | Shediac Sailing School | 12 |
| 4.6 | Shediac Community Garden – How to Build a Rain Barrel Workshop..... | 13 |
| 4.7 | Presentations for Living Water Rally | 14 |
| 4.8 | Presentation to the Town of Shediac | 14 |
| 4.9 | Tantramar Senior's College | 15 |
| 4.10 | Climate Change Adaptation..... | 15 |
| 5 | School Programs, Field Trips and Presentations..... | 16 |
| 5.1 | Fish Friends Program | 16 |
| 5.2 | Parlee Beach Field Trip | 18 |
| 5.3 | Adopt-A-River Program | 18 |
| 5.3.1 | Field Trip | 18 |
| 5.3.2 | Tree Planting at Edna’s Pond | 19 |
| 5.4 | The Acadian Forest and environmental restoration..... | 20 |
| 5.5 | Classroom Presentations Summary | 20 |
| 5.6 | Educational Kiosks | 22 |
| 1.1 | Lobster Festival | 22 |
| 5.7 | Communications and Outreach | 23 |

| | | |
|-------|---|----|
| 5.7.1 | Newsletter | 23 |
| 5.7.2 | Socials Medias and Website..... | 23 |
| 5.7.3 | News Coverages | 23 |
| 5.8 | Education Program Summary..... | 25 |
| 6 | Conclusion..... | 26 |
| | Annex 1 – Newsletter English | 27 |
| | Annex 2 – Newsletter French | 28 |
| | Appendix A – Educational Materials Collection | 29 |

TABLE OF FIGURES

| | | |
|------------|---|----|
| Figure 1: | Map of Shediac Bay watershed boundaries | 2 |
| Figure 2: | Rain garden construction photos Shediac Cape School, 2018 | 4 |
| Figure 3: | Collapsible rain barrel setup in Shediac | 5 |
| Figure 4: | Map of rain barrel recipients within the Shediac Bay watershed, 2016-2018 | 5 |
| Figure 6: | How to build a rain barrel handout..... | 10 |
| Figure 7: | Guest speaker for the NB Power and Sails Squadron, SBWA 2018..... | 11 |
| Figure 8: | Atlantic DataStream launch event..... | 11 |
| Figure 9: | SBWA manager presenting at the 2018 AGM..... | 12 |
| Figure 10: | Green crab display with the Shediac Sailing School..... | 13 |
| Figure 11: | Photos of the community garden workshop, 2018 | 13 |
| Figure 12: | SBWA manager presenting at the Living Waters Rally Conference of 2018..... | 14 |
| Figure 13: | Public consultation on Climate Change in Shediac..... | 15 |
| Figure 14: | Fish Friends aquarium with Atlantic salmon hatchlings/fry | 16 |
| Figure 15: | Fish Friends field trip MFB School, 2018..... | 17 |
| Figure 16: | Fish Friends field trip Shediac Cape School, 2018 | 17 |
| Figure 17: | Shediac Cape School during an outing at Parlee Beach Provincial Park, 2018 | 18 |
| Figure 18: | Group Photo of Adopt-A-River Field Trip, 2018..... | 19 |
| Figure 19: | Students of 7-8 th grade of Shediac Cape School planting trees at Edna’s pond..... | 19 |
| Figure 20: | Shediac Farmer's Market in the Park..... | 22 |
| Figure 21: | Shediac Lobster Festival | 22 |
| Figure 22: | Water Conservation & Stormwater Management pamphlet | 29 |
| Figure 23: | Infographics and posters..... | 29 |
| Figure 24: | Fact Sheets on Stormwater Runoff and Water Quality | 30 |
| Figure 25: | Rain Barrel Pamphlet | 30 |
| Figure 26: | Interpretation panels developed in 2017 | 31 |
| Figure 27: | Interpretation panel collection developed in 2015 | 31 |

TABLE OF TABLES

| | |
|--|----|
| Table 1: Summary of Classroom Seminar Series 2018-2019 | 20 |
| Table 2: SBWA Social Media Outreach 2018 | 24 |
| Table 3: Program Summary | 25 |

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 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, hoping to raise awareness and to build 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.

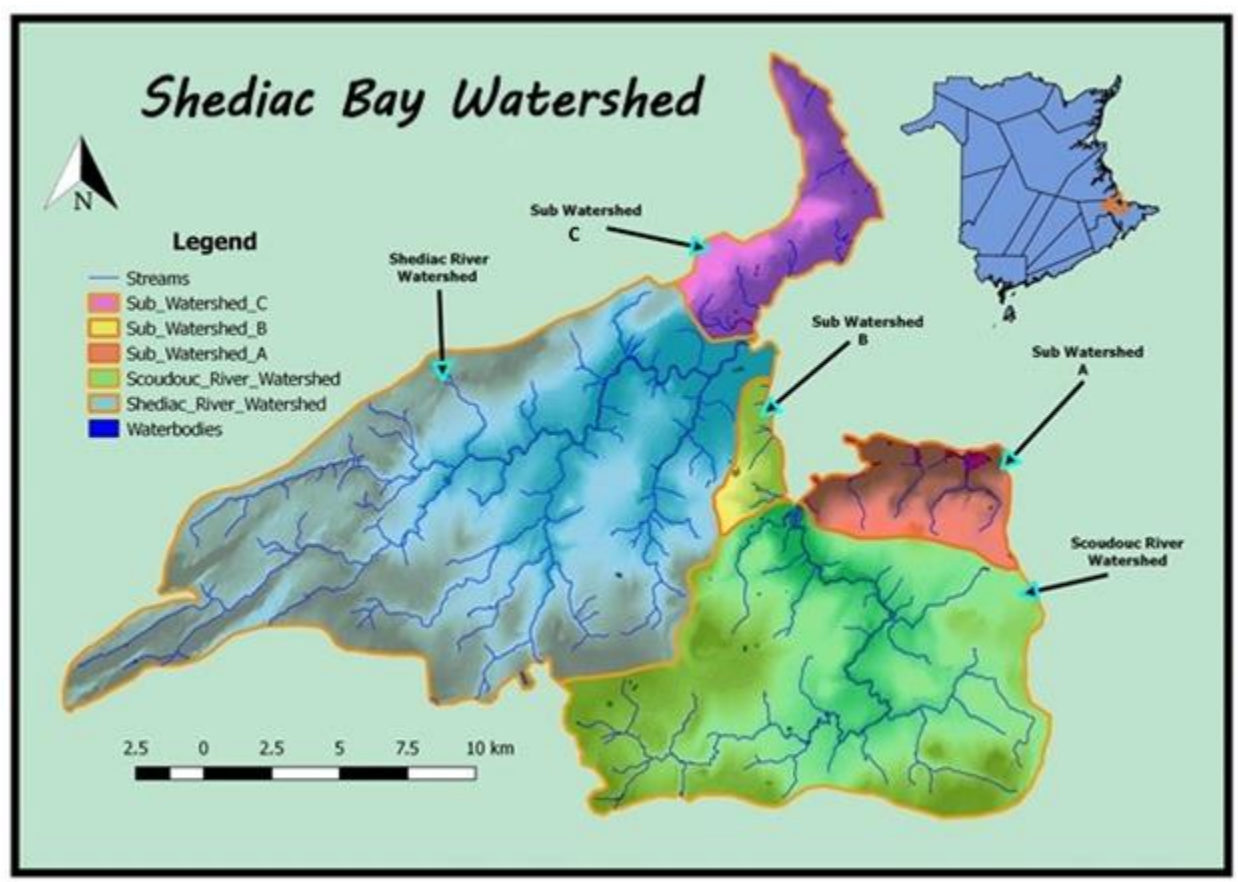


Figure 1: Map of Shediac Bay watershed boundaries

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 Rain Garden

In partnership with the Shediac Cape School, a new rain garden was built on school property in the spring of 2018. The SBWA was contacted by the school to discuss partnership opportunities to build a rain garden, in a problematic area in the school yard that remained wet and muddy after heavy rain and spring snowmelt. The area is the lowest point downhill of a farmland property that holds cattle.



After receiving several presentations on stormwater runoff, pollution and management over the previous winter, three students of the 7-8th grade wrote a letter to their teacher and administration about building a rain garden as their exposition project, in order to address the muddy situation of the school yard that often creates mess in the hallways. The theme of the expo was to create a project to help protect their local environment or beautify their community. The SBWA also received the letter and began the plans for the rain garden thanks to funding from the *New Brunswick Environmental Trust Fund*.

The rain garden quickly became a fun activity for several other age groups in the school. Several teachers allowed many of their students to volunteer several hours, and many enjoyed digging and raking during recess. The final steps of planting the beautiful plants and spreading mulch was done -by the three students who spearheaded the project and a few other 7-8th graders.



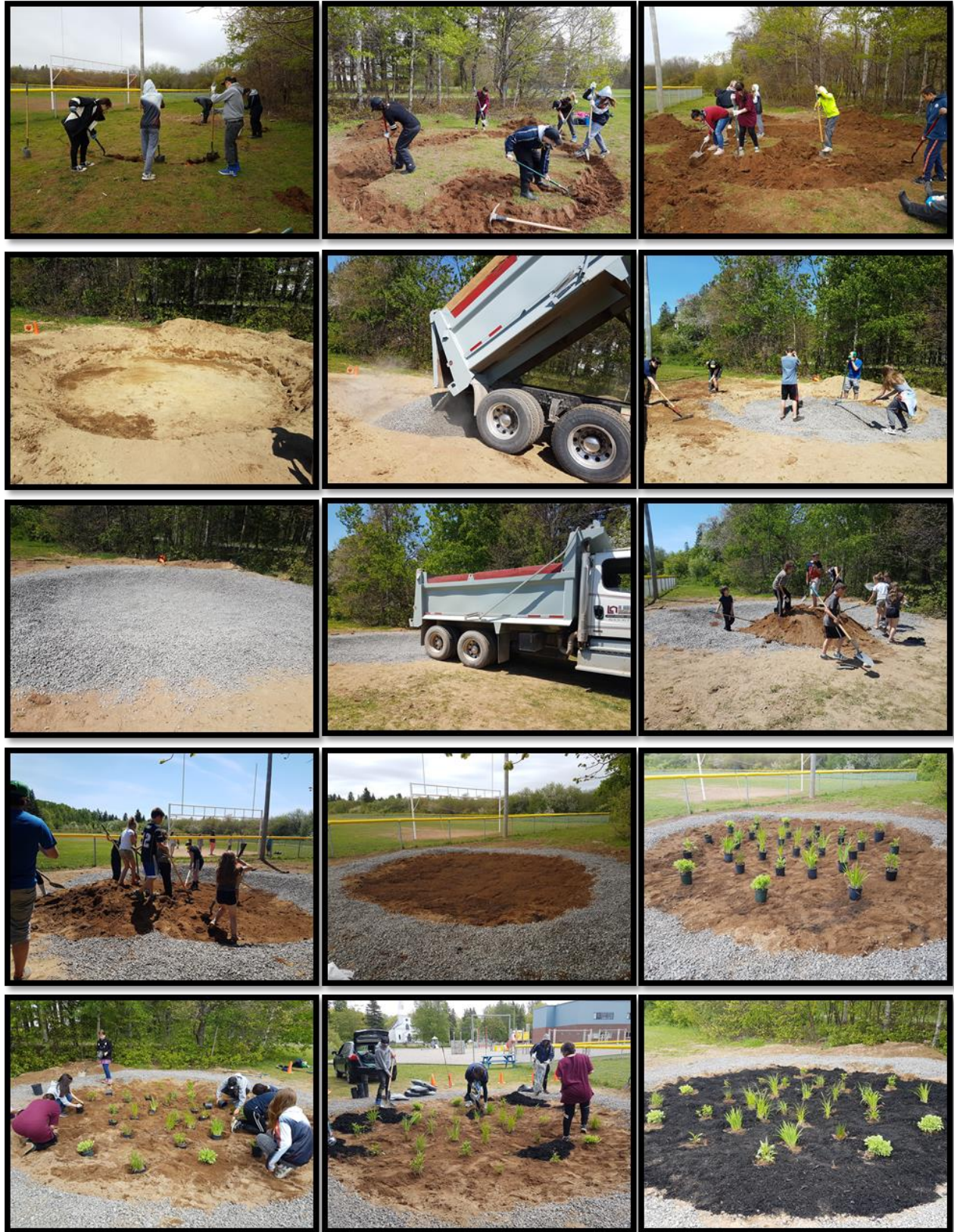


Figure 2: Rain garden construction photos Shediac Cape School, 2018

2.2 Rain Barrel Giveaway

Since the beginning of this project in 2016-2017, 100 collapsible rain barrels (200L) were distributed as a pilot project to citizens living within the communities in the Shediac Bay watershed boundaries. The project sparked interest and demand in the community.

In 2018, the SBWA decided to modify 55 Gallon food grade rigid plastic barrels into rain water collectors, in order to give away a more durable and higher-quality product. The barrels were purchased from a small Dorchester company *Eco-Containers Co.*, and the parts were purchased from local Shediac *Kent* and *Home Hardware* Stores.



Figure 3: Collapsible rain barrel setup in Shediac

During the summer, 26 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; over 30 people responded with interest and the purpose of the project was very well received. Two draws were made for 9 rain barrels. Many of the interested contest participants expressed their hopes that the program will continue in 2019.

Each rain barrel recipient received specific instructions for installation, maintenance and safety, along with a pamphlet with additional rain barrel tips and trick, rain garden pamphlet, a water conservation bookmark, and SBWA Newsletter.

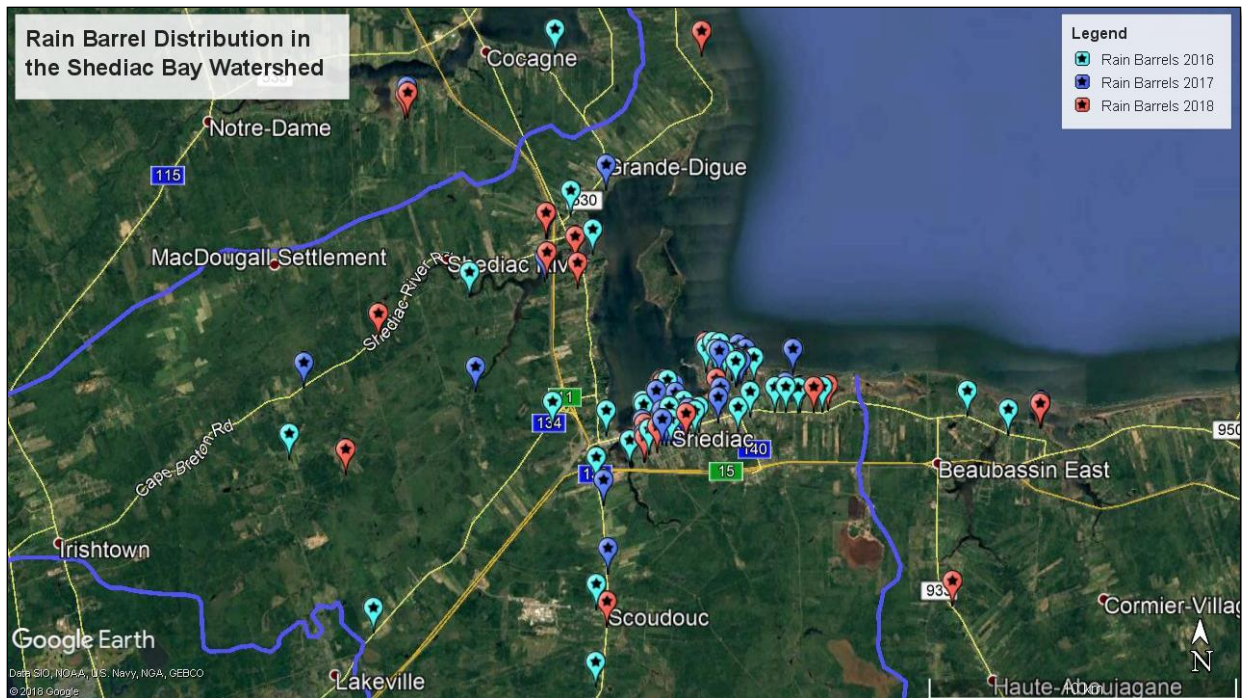


Figure 4: Map of rain barrel recipients within the Shediac Bay watershed, 2016-2018

2.3 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. Only 5 responses were received out of the 26 participants. In future years of this program, follow-up surveys will likely be made by phone in order to receive more feedback. It is important to note that the barrels were delivered late summer/early fall, and the participants will only install it for the first time in the spring of 2019. This can also explain the low survey response. The following are the results to the survey questions.

Q1: What motivated you to participate in our Free Rain Barrel Distribution Program?

| NOT AT ALL IMPORTANT- | NOT IMPORTANT- | SLIGHTLY IMPORTANT- | VERY IMPORTANT- | EXTREMELY IMPORTANT- | TOTAL- | WEIGHTED AVERAGE- | |
|--|----------------|---------------------|-----------------|----------------------|-------------|-------------------|------|
| Conservation of drinking water | 0.00% 0 | 0.00% 0 | 0.00% 0 | 40.00% 2 | 60.00% 3 | 5 | 4.60 |
| Watering plants and garden | 0.00% 0 | 0.00% 0 | 0.00% 0 | 60.00% 3 | 40.00% 2 | 5 | 4.40 |
| Flood reduction in my yard | 20.00% 1 | 20.00% 1 | 40.00% 2 | 20.00% 1 | 0.00% 0 | 5 | 2.60 |
| Reduced stormwater runoff on non-absorbent surfaces (compacted lawn, sidewalks, paved climb, etc.) | 0.00% 0 | 20.00% 1 | 20.00% 1 | 60.00% 3 | 0.00% 0 | 5 | 3.40 |
| Reduce the amount of pollution flowing into municipal storm sewers, streams and rivers | 0.00% 0 | 0.00% 0 | 0.00% 0 | 40.00% 2 | 60.00% 3 | 5 | 4.60 |
| Adaptation to climate change | 0.00% 0 | 0.00% 0 | 20.00% 1 | 40.00% 2 | 40.00% 2 | 5 | 4.20 |
| Adoption of sustainable practices and environmental awareness | 0.00% 0 | 0.00% 0 | 0.00% 0 | 60.00% 3 | 40.00% 2 | 5 | 4.40 |

Comments (0)

Q2: Did you install the rain barrel?

| CHOICE OF ANSWERS- | ANSWERS |
|---|-------------|
| - Yes - I installed it (Go to question 3) | 20.00% 1 |
| - No - This type of barrel does not suit my needs | 0.00% 0 |
| - No - I ran out of time, I'm going to install it this spring | 60.00% 3 |
| - No - I had difficulties during the installation | 20.00% 1 |
| - No - I do not find it necessary or important anymore | 0.00% 0 |
| TOTAL | 5 |

Q3: How do you rate the quality of this type of collapsible rain barrel?

| | POOR- | CORRECT- | GOOD- | VERY GOOD- | EXCELLENT- | TOTAL- | WEIGHTED AVERAGE- |
|------------------------------|------------|------------|-------------|-------------|-------------|--------|-------------------|
| - Quality of the rain barrel | 0.00% 0 | 0.00% 0 | 20.00% 1 | 60.00% 3 | 20.00% 1 | 5 | 4.00 |

Additional comments:

Have not used it yet, hard to tell

Q4: How did you find the installation of the rain barrel? (Please go to question 6 if you have not installed the barrel)

| | VERY DIFFICULT- | DIFFICULT- | MORE OR LESS EASY- | EASY- | VERY EASY- | TOTAL- | WEIGHTED AVERAGE- |
|-----------------------|-----------------|------------|--------------------|--------------|------------|--------|-------------------|
| - Barrel installation | 0.00% 0 | 0.00% 0 | 0.00% 0 | 100.00% 2 | 0.00% 0 | 2 | 4.00 |

Additional comments:

N / A have not installed it yet

Q5: Did you use the rainwater collected by the barrel? (Please go to question 6 if you have not installed the barrel)

| CHOICE OF ANSWERS- | ANSWERS - |
|---|--------------|
| - Yes - Watering flowers, plants and flowerbeds. | 0.00% 0 |
| - Yes - Watering the garden | 0.00% 0 |
| - Yes - Washing your car | 0.00% 0 |
| - No | 100.00% 2 |

Total number of participants: 2

Q6: Do you recommend the extension of this program of distribution of barrels of rainwater recovery?

| CHOICE OF ANSWERS- | ANSWERS - |
|--------------------------------|--------------|
| - Yes | 100.00% 5 |
| - No | 0.00% 0 |
| - Do you have any comments? | 0.00% 0 |
| TOTAL | 5 |

Q7: Do you have any other comments or suggestions that would help us improve this program?

| CHOICE OF ANSWERS- | ANSWERS - |
|---------------------------|-------------|
| - Yes | 0.00% 0 |
| - No | 80.00% 4 |
| Please add your comments. | 20.00% 1 |

3 Education Materials

A collection of new educational materials were developed in the 2017-2018 fiscal year, and those items were handed out during the 2018-2019 project duration. See the collection of pamphlets, fact sheets and info graphs designed in Appendix A. A bilingual newsletter was also produced and distributed (250 copies), and can be viewed in Annex 1 & 2. This year, the SBWA produced educational videos for the first time, and were diffused on Youtube and social media.

3.1 ‘How to Build A Rain Barrel’ Video

During the construction of the rain barrels for distribution, the process was filmed by the SBWA’s outreach coordinator, and edited into an educational video. One version was captioned with English subtitles, and one version was captioned in French. The videos have been shown during multiple presentations, during a workshop, and was posted to the SBWA’s Youtube channel. (<https://www.youtube.com/watch?v=O2-BStRmY2s>). A video was produced with English subtitles, and a second for French subtitles.



3.2 Stormwater Runoff Video

A video on the impacts of stormwater runoff on the water quality in the Shediac Bay was produced using footage taken by the SBWA, and graphic images designed by the communications and outreach agent. Footage was taken during heavy rainfall events; of runoff on impervious surfaces, of storm drain inlets and outlets along the Shediac coastline. The video provides simple actions that citizens can do, to do their part in water quality protection and enhancement. Grant recognition appears in the video credits. A video was produced with English subtitles, and a second for French subtitles.



3.3 'How to Build A Rain Barrel' Handout

A simple handout was produced for the 'How to Build a Rain Barrel' workshop, to complement the Youtube Video and presentation. The handout provides a material list and snapshots of each step with accompanying instructions.

How To Build a Rain Barrel

Material List

- 55 Gallon food grade plastic barrel
- 3/4" Garden hose faucet (Metal)
- Duct tape
- Teflon tape
- Drill
- 1 3/8" Hole saw bit
- Jigsaw
- Measuring tape and marker
- Scissors
- Bug Screen
- 2x 6" Plastic Flower Pots
- 3/4" PVC Bulk head fitting
- Broomstick (or any other long stick)

For installation:

- Plastic Flex Elbow or metal Gutter Elbow
- Cement blocks or sturdy wooden bench

Tip: and Tricks for rain barrel installation and maintenance:

- When filled, the barrel becomes very heavy. Place it on a solid level cement blocks on a patio slab
- Attach a plastic "Flex Elbow" or metal "Gutter Elbow" to your downspout water to your barrel
- Install at a height that allows you to fill a watering can
- Connect an overflow pipe to your waterspout or redirect it from the flowerbed
- Add a pump to connect a watering hose
- Clean the screen regularly to allow the flow of water
- Before winter, empty the barrel completely to avoid damage caused by

Safety Tips

- Keep the lid secure at all times to protect small children and keep out wildlife
- Never use barrels that have previously been used to store toxic substances
- Make sure that your plastic barrel is food grade
- Never use collected water for drinking, cooking, or bathing

Instruction:

Figure 5: How to build a rain barrel handout

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 2018 fiscal year.

4.1 Guest Speaker for the NB Power and Sails Squadron

The SBWA was contacted to be a special guest speaker for the members of the NB Power and Sails Squadron of Shediac, on May 7 2018. The presentation requested was a focus on projects in the Shediac Bay, water quality issues at Parlee Beach, and the boater awareness program. The boater awareness program aims to promote the use of pumping stations for emptying the sanitary holding tanks in boats, and to protect water quality by preventing the discharge of sewage in the bay. In total, 19 people were in attendance and the presentation was very well received.



Figure 6: Guest speaker for the NB Power and Sails Squadron, SBWA 2018

4.2 Presentation during Atlantic Datastream Launch

The SBWA was present at the launch of the Atlantic DataStream in Halifax June 4th and 5th. The conference was organized by the World Wildlife Fund and the Gordon Foundation. The presentation to the group was on the role of water data for environmental policies.



Figure 7: Atlantic DataStream launch event

4.3 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 year, the meeting was held June 7th at the Grande-Digue community centre, the Notre Centre. The guest speaker was Katie Pettie, Strategic Project Lead at the Department of Environment and local government. She presented on the New Brunswick Water strategy that was launched in 2018. The meeting was continued by a presentation from the manager of the SBWA on the achievements of the 2017-2018 programs.



Figure 8: SBWA manager presenting at the 2018 AGM

4.4 Probus Club of Shediac Shores

The manager of the SBWA gave a presentation to the Probus Club of Shediac Shores on June 19th. The presentations covered the projects of the SBWA and had a section dedicated to stormwater management and education. Approximately 50 people were in attendance.



4.5 Shediac Sailing School

The SBWA was contacted by the Shediac Sailing School and requested a presentation for their group of students, ages ranging from 6 to 16. The presentation was held on July 25th, at the Shediac Bay Yacht Club for 21 kids and teens. The theme was focused on projects evaluating the health of the Shediac Bay, the question of water quality at Parlee Beach, eelgrass monitoring and restoration, the invasive green crab, and the impacts of stormwater and climate change on the water quality in the Shediac Bay. Live green crabs were brought for the children to observe and touch.



Figure 9: Green crab display with the Shediac Sailing School

4.6 Greater Shediac Community Garden – How to Build a Rain Barrel Workshop

The SBWA organized a “How to build a rain barrel” presentation with the Greater Shediac Community Garden, on July 31st. There were 9 people in attendance, all members of the community garden or passionate gardeners looking to harvest rainwater. The presentation also covered the topic of stormwater runoff, pollution in the Shediac Bay, water quality at Parlee Beach, rain gardens, etc. Each participant received pamphlets, fact sheets, handouts, and those interested signed up to receive a free rain barrel. A few participants chose to build one themselves.



Figure 10: Photos of the community garden workshop, 2018

4.7 Presentations for Living Water Rally

The Living Water Rally is a biannual event organized by the Canadian Freshwater Alliance to bring watershed groups and environmental groups from across the country to learn and network. This conference was held at the Delta Hotel in Moncton. The SBWA hosted a tour of the Shediac Bay for delegates on September 30th. Twenty delegates had participated in the tour.

The SBWA gave a presentation on October 2nd on opportunities and challenges of the watershed groups.



Figure 11: SBWA manager presenting at the Living Waters Rally Conference of 2018

4.8 Presentation to the Town of Shediac

On January 28th, the SBWA Manager gave a presentation to the Town of Shediac Council members on the water quality results for the bay. These meetings are important to maintain a good working relationship with the Town of Shediac. These are also opportunities to talk about obstacles and challenges the Association faces, and opens the discussions for ways the Town's employees may be able to help.



4.9 Tantramar Senior's College

A one-hour presentation to help understand water quality monitoring and results for the Shediac Bay was given to a group of the Tantramar seniors' college on January 23rd. Because of poor winter road conditions, only 6 of the 15 registered participants were present. The presentation was appreciated and generated good discussions on the state of the environment around Shediac.



4.10 Climate Change Adaptation

On January 29th a public consultation and information meeting was organized for a climate change adaptation project in partnership with the Town of Shediac and the Southeast Regional Service Commission. The SBWA presented on the importance of natural areas and marshes as adaptations to storm surges and sea-level rise.



Figure 12: Public consultation on Climate Change in Shediac

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 4 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 6-8th grade students. These programs include field trips to further immerse the students in nature. The following sections report on activities and results for the 2018-2019 education program.

5.1 Fish Friends Program

The Fish Friends program has been a wonderful tool in getting children and school systems involved, and has sparked passion for conservation in most touched by this activity. Raising salmon or trout eggs in an aquarium is a hands-on approach that brings life into the classroom, and sincere love and care for those animals.

In 2018, two elementary schools participated in the Fish Friends program; the 3rd grade students of the Monseigneur-François-Bourgeois (MFB) School, and the 3rd and 4th grade students of the Shediac Cape School. The program is taught in both French and English; the MFB School is Francophone, and Shediac Cape School is both Anglophone and French emersion.

In March of 2018, 600 Atlantic salmon eggs were delivered to the schools; 300 to the Shediac Cape School, and 300 to the MFB School. The eggs were acquired from the Miramichi Hatchery (Miramichi Salmon Conservation Centre). In the following months, the kids received multiple classroom presentations on fish habitat, salmonids life cycle, salmon migration, how to protect the river's habitat, etc.

When brook trout are used, the students normally release the fish themselves during the end-of-year Fish Friends Field trip. However, Atlantic salmon must be released in the same river system in Miramichi. Given the distance, a local activity was organized instead.

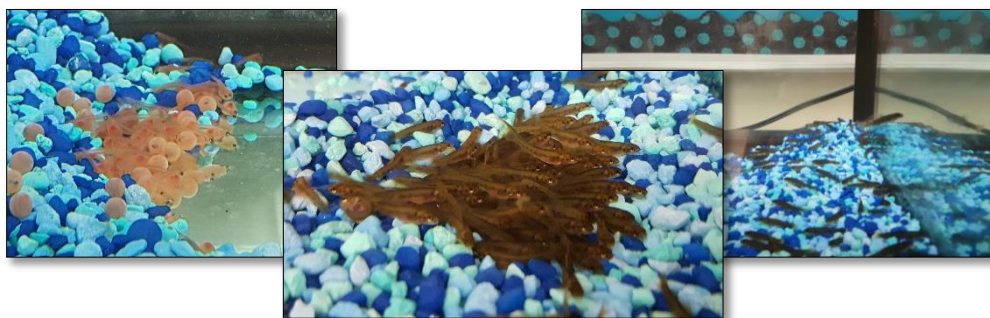


Figure 13: Fish Friends aquarium with Atlantic salmon hatchlings/fry

On June 13th, the MFB School went to the Rotary Park of Shediac, to learn about local fish species in the Scoudouc River's estuary. On the beach next to the Big Lobster statue, they observed SBWA staff perform a 30-meter beach seine 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 on their own.



Figure 14: Fish Friends field trip MFB School, 2018

On June 14th, the Shediac Cape School was supposed to do the same activity as the other school, but was sadly rained out. Luckily, thanks to a partnership with the Anglican Parish of Shediac, the group was able to access the beach off Chandler Shore Road, located just across from the school. Given the convenience of the walking distance site, the activity was rescheduled on June 19th. The same activity was performed with the beach seine, and the students were able to observe small fish, shrimps, crabs and moon jellyfish.

This year was another great success for the survival rate of the Atlantic salmon raised in the aquariums. Although no exact count was taken during the release, based on the very low number of mortality (less than 10 for each aquarium), we estimate the survival rate to be in the 96% range. The salmon were released June 25th in the Becket Brook, off South Cains River Road in Blackville. A transfer permit for the release of the salmon was received through the NB Salmon Council Inc. (licence # NB 2018-024).



Figure 15: Fish Friends field trip Shediac Cape School, 2018

5.2 Parlee Beach Field Trip

At the end of the 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 “Great Minds Think Outside!” 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 7th for the French Immersion 6-7th grade, and on June 8th English 6-7th grade.



Figure 16: Shediac Cape School during an outing at Parlee Beach Provincial Park, 2018

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 how 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

Due to the large group of students, two separate days were organized for the field trip to the Scoudouc River; the first group went on October 18, and the second group on October 19, 2018.

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. After lunch, a guided walk around the site provided the opportunity for the kids to make observations of the trees, vegetation, and traces of wildlife.



Figure 17: Group Photo of Adopt-A-River Field Trip, 2018

5.3.2 Tree Planting at Edna's Pond

The Adopt-A-River field trip takes place at an area of the Scoudouc River known as Edna's pond, an active restoration site for the SBWA. The site is a popular resting area for ATV's, being a connecting point for several public trails. The SBWA has been working with the landowners and local ATV club to reduce the sediment runoff impacting an important salmon habitat for the Scoudouc River.

Having a valid restoration permit, the second group who went on the outing crossed the river to plant 14 medium-sized trees along an eroding river bank.



Figure 18: Students of 7-8th grade of Shediac Cape School planting trees at Edna's pond

5.4 The Acadian Forest and environmental restoration

On December 5th and 6th Rémi Donelle presented the characteristics of the Acadian Forest to the grade 8 and grade 7 classes of Monseigneur François Bourgeois School in Shediac. The presentation showed different examples of the Acadian Forest and an overview of tree identification. The last section of the presentation focused on the importance of trees in restoration work to improve water quality and the environment. A field activity will be organized in the spring with these classes to practise tree identification and do some tree planting for restoration work.

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 biologist, and are always excited to receive new presentations. The teachers and school principals are all very appreciative of our work.

Table 1: Summary of Classroom Seminar Series 2018-2019

| Date | School | Language | Grade level | Topics | # Students |
|-------------------------------|--------------|------------------|-------------|--|------------|
| 04/19/2018 | Shediac Cape | French Immersion | 3-4 | Fish Friends: Alevin | 20 |
| 04/19/2018 | Shediac Cape | English | 3-4 | Fish Friends: Alevin | 22 |
| 05/02/2018 | MFB | French | 3 | Fish Friends: Alevin (3 classes combined) | 75 |
| 06/13/2018 | MFB | French | 3 | Field Trip Day | (75) |
| 06/14/2018 | Shediac Cape | English | 3-4 | Fish Friends: Salmonids, life cycle, migration | (42) |
| 06/15/2018 | MFB | French | 3 | Fish Friends: Salmonids, life cycle, migration | (75) |
| 06/19/2018 | Shediac Cape | English | 3-4 | Field Trip Day | (42) |
| New School Year | | | | | |
| 10/15/2018 | Shediac Cape | English | 6-7-8 | Adopt-A-River- Presentation | 26 |
| 10/15/2018 | Shediac Cape | French Immersion | 6-7-8 | Adopt-A-River- Presentation | 22 |
| 10/18/2018 | Shediac Cape | English | 7-8 | Adopt-A-River Field Trip | (26) |
| 10/19/2018 | Shediac Cape | French Immersion | 7-8 | Adopt-A-River Field Trip | (22) |
| 12/05/2018 | MFB | French | 8 | The Acadian Forest and environmental restoration | Unknown |
| 12/06/2018 | MFB | French | 7 | The Acadian Forest and environmental restoration | Unknown |
| Upcoming Presentations | | | | | |
| 03/12/2018 | Shediac Cape | English | 7-8 | Adopt-A-River - Macroinvertebrate identification | (26) |

| | | | | | |
|------------|--------------|------------------|-----|--|---------|
| 03/13/2018 | Shediac Cape | French Immersion | 7-8 | Adopt-A-River - Macroinvertebrate identification | (22) |
| 03/19/2018 | Shediac Cape | English | 6-7 | Water Conservation and Climate Change | Unknown |
| 03/19/2018 | Shediac Cape | English | 7-8 | Water Conservation and Climate Change | (26) |
| 03/20/2018 | Shediac Cape | French Immersion | 6-7 | Water Conservation and Climate Change | Unknown |
| 03/20/2018 | Shediac Cape | French Immersion | 7-8 | Water Conservation and Climate Change | (22) |
| 03/26/2018 | Shediac Cape | English | 6-7 | Water : Pollution and Stormwater | Unknown |
| 03/26/2018 | Shediac Cape | English | 7-8 | Water : Pollution and Stormwater | (26) |
| 03/27/2018 | Shediac Cape | French Immersion | 6-7 | Water : Pollution and Stormwater | Unknown |
| 03/27/2018 | Shediac Cape | French Immersion | 7-8 | Water : Pollution and Stormwater | (22) |
| 04/02/2018 | Shediac Cape | English | 6-7 | Erosion, Coastal Zones & Climate Change | Unknown |
| 04/02/2018 | Shediac Cape | English | 7-8 | Erosion, Coastal Zones & Climate Change | (26) |
| 04/03/2018 | Shediac Cape | French Immersion | 6-7 | Erosion, Coastal Zones & Climate Change | Unknown |
| 04/03/2018 | Shediac Cape | French Immersion | 7-8 | Erosion, Coastal Zones & Climate Change | (22) |
| 04/09/2018 | Shediac Cape | English | 6-7 | Recycling, Sorting and Life Cycle of Plastic | Unknown |
| 04/09/2018 | Shediac Cape | English | 7-8 | Recycling, Sorting and Life Cycle of Plastic | (26) |
| 04/10/2018 | Shediac Cape | French Immersion | 6-7 | Recycling, Sorting and Life Cycle of Plastic | Unknown |
| 04/10/2018 | Shediac Cape | French Immersion | 7-8 | Recycling, Sorting and Life Cycle of Plastic | (22) |

5.6 Educational Kiosks

An education kiosk was displayed on Sundays at the Shediac Farmer's market, for 10 weeks out of the summer. The main objective was to speak on water conservation and stormwater management, and giveaway water conservation kits and rain barrels. SBWA staff and summer students talked to visitors of all ages on the various other projects of the year. In the summer of 2018, staff spoke to approximately 450 visitors about the watershed group, local environmental issues and projects realized to mitigate these issues. The market kiosk is always a great tool to find people interested in receiving free rain barrels and water conservation kits for their homes.



Figure 19: Shediac Farmer's Market in the Park

5.7 Lobster Festival

In partnership with the Homarus Eco-centre, a kiosk was set up for four days at the Shediac Lobster festival from July 4th to July 7th. Our summer students spoke of our projects in the same fashion as the Shediac Farmer's market in the Park.



Figure 20: Shediac Lobster Festival



5.8 Communications and Outreach

5.8.1 Newsletter

A bilingual newsletter was produced during the 2018-2019 fiscal year. The newsletter display information and photos on the various projects that the SBWA has been doing in the year. The Association had 250 copies produced for each edition, printed on 100% recycled paper. The newsletters are distributed to various businesses, medical offices, hair salons, and anywhere else that had a waiting area or that was appropriate to leave newsletters for the public to take. The rest were distributed during the Shediac Market, during public presentations and other meetings. The newsletters can be found on the Shediac Bay Watershed Association website.

5.8.2 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. Therefore, 2018 was a turning point for social media outreach. See Table 2 for details.



www.shediacbayassociation.org



www.facebook.com/#!/shediacbaywatershedassociation

5.8.3 News Coverages

Eelgrass Restoration in the Shediac River

CBC News did a segment on the SBWA's eelgrass restoration project in the Shediac River, as a response to the construction of a new bridge as part of the twinning of Highway 11. The story aired on the evening news and an internet article was published July 20th.

<https://www.cbc.ca/news/canada/new-brunswick/eel-grass-shediac-bay-route-11-green-crabs-1.4753469>

Table 2: SBWA Social Media Outreach 2018

| Published Date | Genre | Number of times your Page's post entered a person's screen (Total Count) | Published Date | Genre | Number of times your Page's post entered a person's screen (Total Count) |
|----------------|-------------|--|----------------|-------------|--|
| 1-23-18 | Photo | 142 | 7-18-18 | SharedVideo | 112 |
| 2-2-18 | Link | 110 | 7-18-18 | Photo | 159 |
| 2-25-18 | SharedVideo | 181 | 7-19-18 | SharedVideo | 87 |
| 3-9-18 | Photo | 144 | 7-21-18 | Link | 164 |
| 3-13-18 | Photo | 138 | 7-24-18 | Video | 1048 |
| 3-21-18 | Photo | 127 | 7-24-18 | Photo | 518 |
| 3-28-18 | Photo | 105 | 7-24-18 | Link | 446 |
| 4-4-18 | Photo | 152 | 7-25-18 | Photo | 172 |
| 4-8-18 | SharedVideo | 173 | 7-26-18 | Photo | 470 |
| 4-26-18 | Link | 593 | 8-1-18 | Photo | 163 |
| 4-26-18 | Link | 427 | 8-2-18 | Video | 1004 |
| 4-26-18 | Link | 112 | 8-6-18 | Link | 194 |
| 4-27-18 | Link | 678 | 8-8-18 | Photo | 249 |
| 5-1-18 | SharedVideo | 81 | 8-9-18 | Photo | 806 |
| 5-2-18 | | 536 | 8-9-18 | Video | 4087 |
| 5-3-18 | Status | 141 | 8-14-18 | Photo | 468 |
| 5-3-18 | Status | 182 | 8-15-18 | Photo | 439 |
| 5-8-18 | Link | 431 | 8-20-18 | Photo | 574 |
| 5-10-18 | Photo | 465 | 8-21-18 | Photo | 173 |
| 5-10-18 | | 413 | 8-29-18 | Photo | 187 |
| 5-11-18 | | 75 | 9-5-18 | Photo | 163 |
| 5-16-18 | Photo | 0 | 9-7-18 | Link | 80 |
| 5-16-18 | | 272 | 9-12-18 | Photo | 143 |
| 5-20-18 | Link | 73 | 9-13-18 | Link | 362 |
| 5-22-18 | Photo | 1117 | 9-19-18 | Photo | 197 |
| 5-23-18 | Photo | 474 | 9-19-18 | Photo | 777 |
| 5-31-18 | Status | 198 | 9-20-18 | Link | 202 |
| 5-31-18 | Status | 172 | 9-20-18 | Link | 96 |
| 6-5-18 | Photo | 805 | 9-24-18 | Photo | 440 |
| 6-7-18 | Photo | 411 | 9-26-18 | Photo | 196 |
| 6-12-18 | Link | 325 | 9-26-18 | Photo | 2503 |
| 6-13-18 | Photo | 1178 | 10-2-18 | Video | 1139 |
| 6-14-18 | Photo | 64 | 10-2-18 | Video | 1400 |
| 6-19-18 | | 345 | 10-3-18 | Photo | 793 |
| 6-20-18 | Photo | 619 | 10-10-18 | Photo | 235 |
| 6-21-18 | Link | 65 | 10-16-18 | Photo | 531 |
| 6-26-18 | Link | 83 | 10-31-18 | Photo | 240 |
| 7-11-18 | Photo | 168 | 11-1-18 | Photo | 238 |
| 7-12-18 | Photo | 246 | 11-7-18 | Photo | 3352 |
| 7-12-18 | Photo | 81 | 11-14-18 | Photo | 202 |
| 7-16-18 | SharedVideo | 91 | 11-27-18 | Photo | 535 |
| 7-17-18 | Photo | 79 | | | |
| TOTAL | | | | | 37,616 |

5.9 Education Program Summary

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

Table 3: Program Summary

| Project | Deliverables | # People Reached |
|---|--|-------------------------|
| 1) Water conservation & Stormwater management | Rain Barrel giveaway | 26 |
| 2) Public outreach activities | -1 Beach Sweep event aimed to combat marine litter | 17 |
| | -TD Tree Day 2018 | 34 |
| 3) Public Presentations | -NB Power and Sails Squadron | 19 |
| | Atlantic DataStream Launch | Unknown |
| | SBWA Annual General Meeting | 21 |
| | Probus Club of Shediac Shores | 50 |
| | Shediac Sailing School | 21 |
| | Greater Shediac Community Garden – How to Build a Rain Barrel Workshop | 9 |
| | Living Water Rally | Unknown |
| | Town of Shediac Council | 12 |
| | Tantramar Seniors' College | 5 |
| | Climate Change Adaptation | Unknown |
| 4) School Programs and Presentations | - Fish Friends Program in 2 local elementary schools | 117 |
| | - Adopt-A-Stream Program | 48 |
| | -Parlee Beach Field Trip | Unknown |
| | -Students receiving presentations but who are not included in any program | Unknown |
| 5) Educational Kiosks | -Information Kiosk Market In The Park every Sunday for 10 weeks in 2018. | 450 |
| | -Kiosk at the Shediac Lobster Festival for 4 days | Unknown |
| 6) Communications and Outreach | -Educational Tools Developed – Facts Sheets, Infographics, Pamphlets | 1 |
| | -Educational video | 2 |
| | -1 televised and internet news reports with CBC News on Eelgrass Restoration | Unknown |
| | -One bilingual newsletter to the public | 250 or less |
| | -Photo albums on SBWA project and other posts shared on Facebook (Total outreach as reported through Facebook analytical data) | 37,616 views |
| | SBWA Facebook | 37, 616 |
| | SBWA Website | Unknown |

6 Conclusion

To conclude, the SBWA plans to continue to build rain gardens and give away free rainwater catchment barrels, and begin to build bioswales to control surface runoff in its watershed. This year we built our second rain garden on the Shediac Cape School property to address a low point in the school yard that remains muddy for long periods of time. The rain garden was built after a letter was written by three 8th grade students requesting a project in partnership with the SBWA, after receiving several presentations promoting the use of this functional landscaping. Several age groups were engaged to help build the garden at the school, and was a great physical and learning activity for all who participated.

A new type of rain barrel was built and distributed to 26 participants living within or near the watershed boundaries. The new rigid plastic barrel type was greatly received by everyone who received a rain collecting barrel. A Facebook contest was used for the first time and was a great success, by generating excitement for rain barrels and promoting the project funded by the *NB Environmental Trust Fund*.

The school programs for 2018-2019 has been pretty diverse. The fish friends program was successful with two schools involving 117 young students. The Adopt-A-River program targeted 48 students 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. 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.

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 18 Summer 2018

Shediac Bay Watershed Association Newsletter

Eelgrass Bed Monitoring and Restoration



Eelgrass is an essential seagrass that creates habitat and nurseries for fish, crabs, shrimps and other aquatic organisms. By setting up monitoring transects to conduct density surveys, we are studying the impact of the Invasive green crab on the eelgrass beds in the Shediac Bay. These surveys will be conducted annually

to determine if there is a loss of eelgrass in the long term.

This summer, in partnership with Hominus Eco-Centre, we have also tested different methods of transplanting eelgrass for future restoration projects. Eelgrass plants were collected from a site in the Shediac River where the future four-lane highway bridge will be built.

Beach Sweep 2018



In celebration of World Oceans Day, the annual beach cleaning event was once again a success. On the second weekend of June, volunteers joined us at the Hominus Eco-Centre to get garbage bags and gloves. A total of 21 large bags of trash were collected at different sections over 4 km of our beautiful coastline. These cleanups are important to remove harmful litter from our waters to protect aquatic life.

Watershed Association Manager's Message



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

Summer 2018 was hot and dry, but our fieldwork team was still able to complete several projects during this period.

I am particularly pleased with the eelgrass bed assessment and restoration project, which was carried out in partnership with the Hominus Eco-Centre and the Southern Gulf of St. Lawrence Coalition on Sustainability.

Working in partnership is one of the keys to the success of our projects. We have established good working relationships with neighbouring watershed organizations, municipalities and various federal and provincial departments.

The result is a great diversity of projects that we present in this newsletter.



Annex 2 – Newsletter French

Nouvelles du Courant

Numéro 18 Été 2018

Bulletin de l'Association de bassin versant de la baie de Shédiac

Surveillance et restauration des herbiers de zostères



Les herbiers de zostères sont essentiels puisqu'ils créent des habitats pour l'alimentation et la reproduction des poissons, crabes, crevettes et autres organismes aquatiques.

En installant des transects de surveillance pour effectuer des relevés de densité, nous étudions l'impact du crabe vert envahissant sur les herbiers

de zostères de la baie de Shédiac. Ces relevés seront effectués chaque année pour déterminer s'il y a une perte de zostère à long terme.

Cet été, en partenariat avec l'Écocentre Homarus, nous avons également testé différentes méthodes de transplantation de zostères pour de futurs projets de restauration. Les plants de zostères ont été prélevés sur un site de la rivière Shédiac où sera construit le futur pont de l'autoroute à quatre voies.

Ménage ton Rivage 2018



En célébration de la Journée mondiale des océans, l'événement annuel de nettoyage des plages a été encore une fois un succès. En cette deuxième fin de semaine de juin, des volontaires se sont joints à nous à l'Écocentre Homarus pour obtenir des sacs à ordures et des gants. Au total, 21 grands sacs de déchets ont été ramassés dans différentes sections sur 4 km de notre magnifique littoral. Ces nettoyages sont importants pour éliminer les déchets nuisibles de nos eaux et ainsi protéger la vie aquatique.

Message du Gérant de l'Association



Robert Swelle est gérant de l'Association de bassin versant de la baie de Shédiac depuis 2013. Un conseil d'administration, composé d'une vingtaine de citoyens de la région permet d'assurer le direction de l'organisme.

L'été 2018 était chaud et sec, mais notre équipe de terrain a tout de même pu accomplir plusieurs projets pendant ce temps.

Je suis particulièrement content du projet d'évaluation et de restauration des herbiers de zostères qui a été réalisé en partenariat avec l'Écocentre Homarus et la Coalition pour la viabilité du sud du golfe du Saint-Laurent. Travailler en partenariat est l'une des clés du succès de nos projets.

Nous avons établi de bonnes relations de travail, que ce soit avec les organismes de bassins versants avoisinants, les municipalités et les divers ministères fédéraux et provinciaux.

Le résultat est une grande diversité de projets que nous présentons dans ce bulletin de nouvelles.



Appendix A – Educational Materials Collection

The pamphlet is divided into several sections:

- Climate Change: Increased Rainfall Events:** Discusses how climate change is leading to more frequent and intense rainfall events, which can cause flooding and damage to property.
- Tips for Water Conservation at Home:** Lists various ways to save water, such as fixing leaks, taking shorter showers, and using water-efficient appliances.
- Rain Barrels:** Explains how rain barrels can be used to collect rainwater for use in the garden, reducing the need for tap water.
- Water Conservation in the Workplace:** Provides tips for conserving water in office settings, such as turning off faucets and using water-saving devices.
- Conservation de l'eau & Gestion des eaux pluviales:** The French version of the pamphlet, covering the same topics as the English version.

Figure 21: Water Conservation & Stormwater Management pamphlet

The figure contains several infographics and posters:

- 10 WAYS YOU CAN SAVE WATER:** A poster listing ten simple actions to conserve water, such as fixing leaky faucets, taking shorter showers, and using drip irrigation systems.
- 10 FAÇONS D'ÉCONOMISER L'EAU:** The French version of the 10 ways poster.
- PREVENTING STORMWATER RUNOFF:** A poster explaining how non-absorbent surfaces like concrete and asphalt prevent water from soaking into the soil, leading to runoff. It suggests using permeable surfaces and rain gardens to reduce runoff.
- LA PRÉVENTION DU RUISSELLEMENT:** The French version of the runoff prevention poster.
- THE RAIN GARDEN:** A poster describing a rain garden as a planted area that captures rainwater and filters pollutants before they reach streams and rivers.
- LE JARDIN PLUVIAL:** The French version of the rain garden poster.
- PLUS D'AJOUTER UNE VALEUR DÉTACHÉE À VOTRE TERRAIN, LE JARDIN PLUVIAL PEUT DE:** A poster listing the benefits of a rain garden, such as reducing erosion, filtering pollutants, and providing habitat for wildlife.
- ÉCONOMISER LE POINT DE DÉPART DU RUISSELLEMENT:** A poster providing tips for preventing runoff at the source, such as using permeable surfaces and avoiding parking cars on lawns.

Figure 22: Infographics and posters

WATER QUALITY IN A WATERSHED

The health of our watersheds: Essential for water quality.

A watershed is a region in which rainwater and snowmelt flow toward a common body of water, such as a river, lake, or bay.

Watersheds are home to a wide variety of ecosystems that serve as a habitat to numerous species of animals and plants. Just like them, we all live in a watershed, since our cities and towns are a part of them.

We depend on the water in this region for our drinking water, watering for livestock and agriculture. The quality of the water is greatly influenced by activities that occur in a watershed. The health of aquatic ecosystems depends on good environmental practices from its population.

If our watershed, water that runs off the surface through farmers' fields, lawns, parking lots, and roads enters the many streams that join with the Shediac and Souris rivers, these two major rivers flow directly into the Shediac Bay.

Sustainable Management

Despite certain challenges to own we are lucky to have a watershed good health.

By adopting a common vision, we business, and grass-roots can work together to maintain it.

The following conditions allow excellent water quality:

- Reduction of aquatic waste
- Improvement of stormwater drainage
- Protection of aquatic ecosystems
- Reduction of surface water runoff, barnyard and building yard runoff
- Protection of fish and wildlife and in sediment control measures
- Reduce sediment on the effects through trees
- Application of sustainable agricultural practices
- Long-term planning of land use
- Climate change adaptation

Water Quality Monitoring in Our Rivers

Water quality monitoring is conducted by the Shediac Bay Watershed Association, since 1999, to ensure:

- Detect long-term changes in water quality to ensure the health of a
- Confirm the need for environmental protection
- Measure the effectiveness of the work undertaken

With the help of the community and from its partners, the SBWA has projects to improve the health of the watershed. Visit our website or Facebook page to learn more: www.shediabayassociation.org

QUALITÉ DE L'EAU DANS UN BASSIN VERSANT

La santé de notre bassin versant, essentielle pour la qualité de l'eau.

Un bassin versant est un territoire sur lequel les eaux de pluie et de la fonte des neiges s'écoulent vers un plan d'eau commun comme une rivière, un lac ou une baie.

Les bassins versants abritent une grande variété d'écosystèmes qui servent d'habitat à de nombreuses espèces animales et végétales. Tout comme eux, nous vivons tous dans un bassin versant, puisque nos villes et villages en font partie.

Nous dépendons de l'eau qui coule sur son territoire pour notre eau potable, l'élevage des animaux, et l'agriculture.

La qualité de l'eau est grandement influencée par les activités qui ont lieu dans le bassin versant. La santé des écosystèmes aquatiques dépend des bonnes pratiques environnementales de la population.

Notre bassin versant, l'eau qui coule à la surface des terres des champs agricoles, des parcs, des stations et des routes, rejoint les nombreux ruisseaux qui s'écoulent vers les rivières Shediac et Souris. Ces deux cours d'eau rejoignent et deviennent directement dans la baie de Shediac.

La gestion durable de notre bassin versant

Malgré certains défis à relever sur notre territoire, nous avons la chance d'avoir un bassin versant avec des cours d'eau relativement en santé.

En adoptant une vision commune, les municipalités, les citoyens, les entreprises et les groupes responsables du bassin versant peuvent travailler ensemble pour maintenir la qualité de l'eau.

Les conditions suivantes permettent de trouver un excellent état de préservation des écosystèmes et le développement économique sur notre territoire :

- Réduction des déchets aquatiques, des marins et des autres déchets
- Diminution du ruissellement des eaux de surface, en particulier des eaux de pluie et de fonte des neiges
- Protection des écosystèmes aquatiques, des marins et des autres habitats
- Réduction de l'érosion des berges et mise en place de mesures pour le contrôle des sédiments
- Sensibilisation sur les effets de la coupe des arbres dans les zones d'eau
- Valorisation de la biodiversité et respect des habitats sensibles
- Planification à long terme de l'aménagement du territoire
- Adaptation aux changements climatiques

Surveillance de la qualité de l'eau dans les cours d'eau

La surveillance de la qualité de l'eau effectuée depuis 1999 par l'Association du bassin versant de la baie de Shediac (ABVBS), vise à :

- Détecter des variations de contamination
- Vérifier les changements dans la qualité de l'eau à long terme pour assurer
- Confirmer les besoins d'amélioration des pratiques
- Mesurer l'efficacité des mesures entreprises

Avec l'appui de la communauté et de ses partenaires, l'ABVBS entreprend plusieurs projets et initiatives pour améliorer la santé de notre bassin versant. Visitez notre site web ou notre page Facebook pour en apprendre davantage: www.shediabayassociation.org

STORMWATER RUNOFF

The Impacts of Stormwater Runoff

In natural environments, most of the water from melting snow or heavy rainfall events gets absorbed by trees and plants. The excess water that has not been absorbed is evaporated into the atmosphere.

In our towns and villages, natural habitats have been replaced by non-absorbent surfaces, such as roofs, paved parking lots and streets, and compacted lawns. During heavy rain or after snow melts, these surfaces prevent water from being absorbed into the ground.

Stormwater runoff picks up a wide range of pollutants found on the ground, such as vehicles (from fertilizers, pesticides, road salt, petroleum products, and animal waste), dog and cat waste, and leaves. These pollutants are washed into storm drains and ditches. They eventually make their way into streams and rivers that flow into the Shediac Bay.

Stormwater runoff also contributes to bank erosion and sediment transportation in aquatic habitats.

Furthermore, it can cause flooding, which can lead to damage to municipal and residential infrastructure.

Preventing Pollution

Water quality gets in stormwater run, many and some develop activities like: recycling, car care, etc.

By being responsible, reducing runoff and preventing pollution, you can help protect the water quality in the Shediac Bay.

Here are 10 ways to reduce stormwater runoff:

- Plant indigenous water, ferns, etc.
- Build no lawn, collect water for
- Replace sod or grass
- Walk a mile a day
- Know the best plants for your soil
- Use mulch to keep soil moist
- Wash your car
- Wash your vehicle
- Pick up your pet
- Help us spread it better

The Shediac Bay Watershed Association, in partnership with the Municipality of Shediac, is proud to present the "Stormwater Runoff" campaign in the Shediac Bay region.

• Workshops and presentations on stormwater runoff and the construction of rain barrels

• Workshops and presentations on stormwater runoff and the construction of rain barrels

Visit our website or follow us on Facebook to www.shediabayassociation.org

LE RUISSELLEMENT DES EAUX PLUVIALES

Les impacts du ruissellement des eaux pluviales

Dans l'environnement naturel, une bonne partie de l'eau de pluie et de la fonte des neiges est absorbée par les arbres et les plantes. Le surplus d'eau s'évapore dans l'atmosphère. Le surplus d'eau qui n'est pas absorbé est évaporé dans l'atmosphère.

Dans nos villes et villages, les habitats naturels ont été remplacés par des surfaces imperméables comme les toits, les trottoirs, les allées, les routes, les routes compactées et les surfaces pavées. Pendant la fonte des neiges, ces surfaces empêchent l'eau de s'écouler dans le sol.

Ces eaux de ruissellement transportent divers polluants qui se trouvent sur le sol comme les véhicules (engrais, pesticides, sel de route, produits pétroliers, déchets animaux, etc.), les déchets de chiens et de chats, les feuilles, etc. Ces polluants sont lavés dans les égouts pluviaux et les fossés. Ils se retrouvent ensuite dans les ruisseaux et les rivières qui coulent vers la baie de Shediac.

Le ruissellement des eaux pluviales contribue également à l'érosion des berges et au transport de sédiments dans les habitats aquatiques. De plus, le ruissellement peut causer des inondations qui nuisent à l'aménagement municipal et résidentiel.

Prévention de la pollution

La qualité de l'eau dans les eaux pluviales est affectée par de nombreuses activités. En adoptant des pratiques responsables, vous pouvez aider à protéger la qualité de l'eau dans le bassin versant de la baie de Shediac.

Voici 10 façons d'éviter ou de réduire le ruissellement des eaux pluviales:

- Planter des plantes indigènes, des arbres, des arbustes, des herbes, etc.
- Construire un jardin sans gazon, collecter l'eau pour arroser
- Remplacer le gazon par des plantes
- Marcher un mile par jour
- Connaître les meilleures plantes pour votre sol
- Utiliser du paillis pour garder le sol humide
- Laver votre voiture
- Laver votre véhicule
- Ramasser les déchets de votre animal domestique
- Éviter de laisser votre animal domestique se promener dans les zones d'eau
- Aider à diffuser le message et à partager vos actions responsables

L'Association du bassin versant de la baie de Shediac, en collaboration avec la municipalité de Shediac, est fière de présenter la campagne "Eaux pluviales" dans la région de la baie de Shediac.

• Ateliers et présentations sur le ruissellement des eaux pluviales et la construction de barils de pluie

• Ateliers et présentations sur le ruissellement des eaux pluviales et la construction de barils de pluie

Visitez notre site web ou suivez-nous sur Facebook pour en apprendre davantage: www.shediabayassociation.org

Figure 23: Fact Sheets on Stormwater Runoff and Water Quality

LA RÉCUPÉRATION D'EAU PLUVIALE

Le baril de récupération d'eau de pluie est un moyen simple et efficace de recueillir l'eau de pluie qui s'écoule des toitures. L'eau accumulée peut être utilisée pour arroser les pelouses et les jardins ou pour laver votre véhicule.

CONSEILS PRATIQUES POUR L'INSTALLATION ET L'ENTRETIEN

Une fois rempli, le baril devient très lourd. Le placer sur une base solide comme deux blocs de ciment sur une dalle de patio.

Installer à une hauteur qui permet de remplir un arrosoir.

Brancher un tuyau de débordement au drain de gouttière ou le diriger loin de la fondation vers une plate-bande.

In addition to conserving water, rain barrels also help to reduce surface water runoff. This runoff transports pollutants into storm drains, streams, and rivers.

Runoff can also cause flooding and erosion-related damage.

The impact of reducing runoff is considerable when the barrels are used by a high percentage of the population. Keep the conversation going!

COLLECTING RAINWATER FROM YOUR ROOF

Rain barrels are a simple and effective way to collect rainwater that runs off from rooftops. The water collected can be used to water lawns and gardens, or to wash your vehicle.

TIPS AND TRICKS FOR RAIN BARREL INSTALLATION AND MAINTENANCE:

- When filled, the barrel becomes very heavy. Place it on a solid base, such as two cement blocks on a patio slab
- Install at a height that allows you to fill a watering can
- Connect an overflow pipe to your waterspout or redirect it from the foundation and into a flowerbed
- Cover the lid hole with a fine-mesh screen to prevent debris and bugs from entering
- Add a pump to connect a watering hose
- Clean the screen regularly to allow the flow of water
- Before winter, empty the barrel completely in order to avoid damage caused by freezing

Safety tips:

- Keep the lid secure at all times to protect small children and keep out insects, pets, and wildlife
- Never use barrels that have previously been used to store toxic substances
- Never use collected water for drinking, cooking, or bathing

Figure 24: Rain Barrel Pamphlet



Figure 25: Interpretation panels developed in 2017



Figure 26: Interpretation panel collection developed in 2015