



Working Together to Develop a Shediac Bay Watershed Management Plan

What We Heard

A Public Engagement Summary Report



Photo credit: GNB stock

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Cover page photo credit: Photograph of the Scoudouc river taken by the Shediac Bay Watershed Association.

1. INTRODUCTION

The Government of New Brunswick is committed to the protection of water quality. In recent years, water quality at Parlee Beach has been an area of concern for residents. While water quality data collected in 2017, 2018, and 2019 indicates water quality at Parlee Beach is very good, government has been supporting further study to gain a better understanding of water quality in the Shediac Bay Watershed.

The findings of the Steering Committee from a number of projects and studies in 2017-2018 can be found in the *Parlee Beach Water Quality Shediac, New Brunswick Final Report*. Of the 14 recommendations presented to government by the Steering Committee in its final report, the development of a Shediac Bay Watershed Management Plan (WMP) was identified as an important next step in addressing water quality concerns in the Shediac Bay Watershed.

The first step in developing the Shediac Bay WMP was to engage with First Nations, local stakeholders, the public, and the formation of a Technical Working Group that would be tasked with developing the plan. This “What we Heard” document summarizes the results of the early engagement process and outlines the next steps and future opportunities for interested parties to participate. This continued participation will ensure the Shediac Bay WMP is developed in collaboration with those who care about the health of the watershed. All feedback received will be taken into consideration by the Technical Working Group while developing the plan.



Photo credit: Photograph of a watercourse in the Shediac Bay watershed taken by the Shediac Bay Watershed Association.

2. EXECUTIVE SUMMARY

The Government of New Brunswick is committed to the protection of water quality. In recent years, water quality at Parlee Beach has been an area of concern for residents. While water quality data collected in 2017, 2018, and 2019 indicates water quality at Parlee Beach is very good, government has been supporting further study to gain a better understanding of water quality in the Shediac Bay Watershed.

The findings of the Steering Committee are from several projects and studies undertaken in 2017-2018 can be found in the *Parlee Beach Water Quality Shediac, New Brunswick Final Report*. Of the 14 recommendations presented to government by the Steering Committee in its final report, the development of a Shediac Bay Watershed Management Plan (WMP) was identified as an important next step in addressing water quality concerns in the Shediac Bay Watershed. The first step in developing the WMP was for the Government of New Brunswick to engage with First Nations, local stakeholders, the public, and form a Technical Working Group that would be tasked with developing the plan.

Those who participated in the public, stakeholder and First Nation engagement process said they value good surface water quality, safe drinking water and clean air. The participants also value their local beaches, natural areas, outdoor recreational opportunities, wetlands and biodiversity.

Respondents were most concerned about stormwater impacting water quality in the watershed and causing flooding, the impacts of agriculture activities in the watershed, the Greater Shediac Sewerage Commission (GSSC)'s lift stations, some of which may overflow during heavy rain events, inadequate on-site septic systems in the watershed, land development, wetlands and riparian zone management to name a few.

Respondents suggested the Watershed Management Plan should include baseline water quality information, identify issues that need to be addressed, propose goals and actions to address the issues (ex. develop stormwater management techniques, identify the sources of bacteria in stormwater and address these sources). It was further suggested that best management practices should be developed to improve agriculture practices in the watershed, and new regulations or development plans should be created to limit development in environmentally sensitive areas. Finally, it was suggested that the WMP should clearly define roles and responsibilities, and reliable funding should be made available to help the local community address the issues.

A Technical Working Group was formed in October 2019 to develop the WMP. The group includes 13 representatives from various provincial government departments, local

governments, First Nations, non-government organizations and the academic community. Its purpose is to develop the Shediac Bay Watershed Management Plan while taking into consideration the feedback received during the engagement process and summarized in this document. The engagement process will continue throughout the development of the WMP and once a draft plan has been created, there will be further opportunities for the public, stakeholders and First Nations to provide input.

3. THE ENGAGEMENT PROCESS

In October 2019, the Department of Environment and Local Government (DELG) began the engagement process for the development of a Shediac Bay WMP. A technical workshop took place in the afternoon of October 17th, 2019. The workshop was followed by an open house in the evening. Both events took place at the *Club Boishébert* in Shediac. Almost 100 stakeholders were invited. The stakeholder categories include businesses, federal and provincial government departments, local government, members of the academic community and non-government organizations etc. The stakeholder categories are represented in Figure 3.0 below.

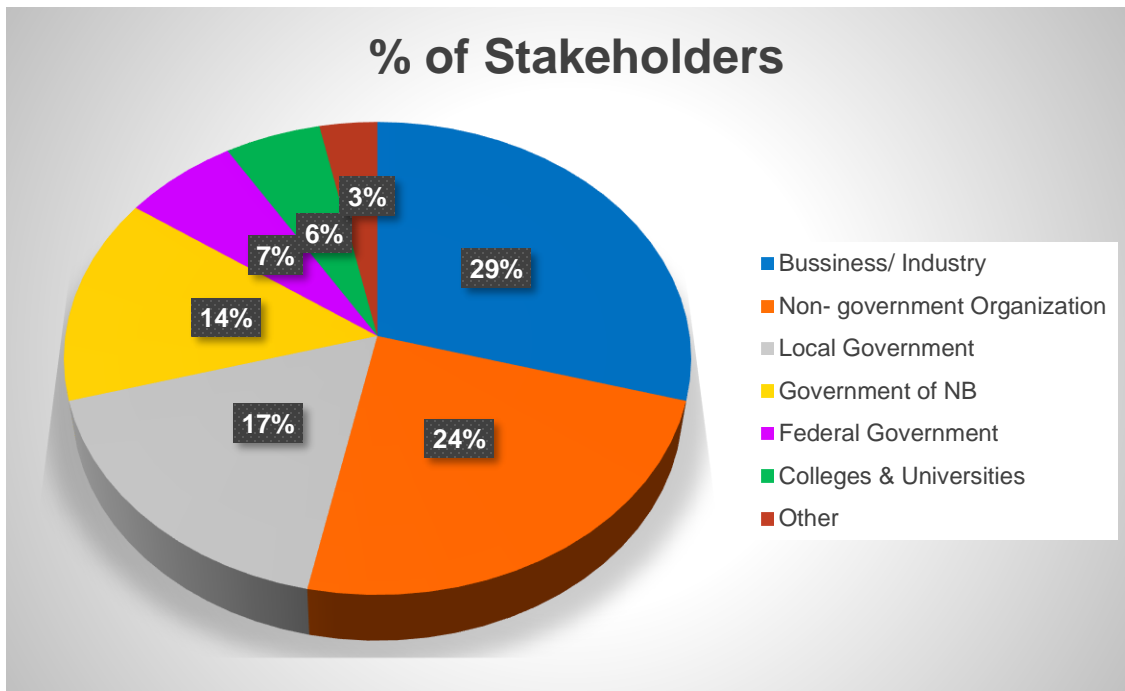
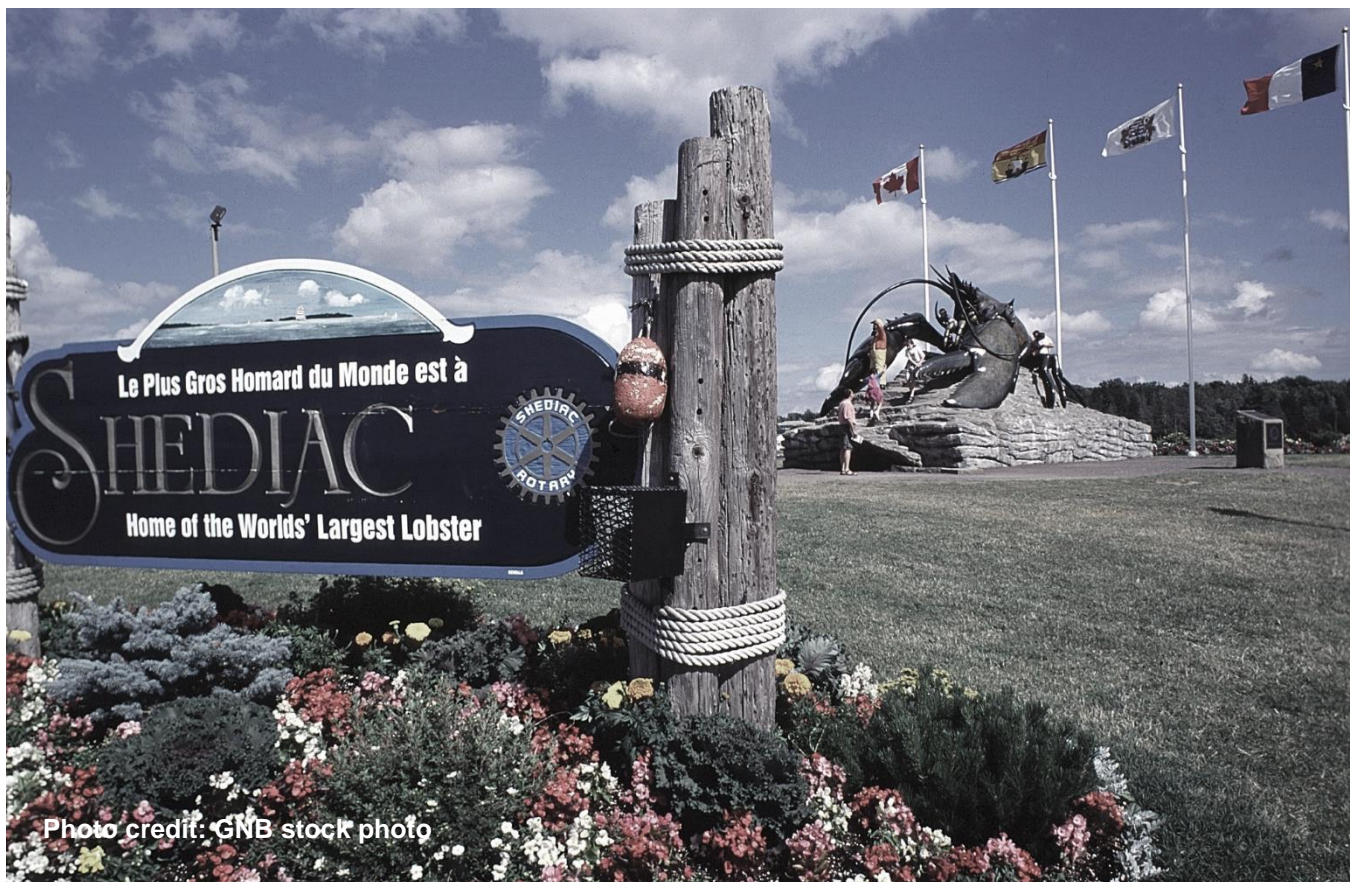


Figure 3.0: Percentage of stakeholders by category.

The open house was announced in two local newspapers: *l'Acadie Nouvelle* and the *Moncton Times and Transcript*. Posters were erected at key locations throughout the watershed (e.g. Town office, stores, gas stations etc.), and two questionnaires were developed. One for use at the stakeholder workshop, and the other was available to fill out at the open house and was also posted on DELG's website for the month of October 2019. The questions were chosen to gather information needed to help with the development of the WMP. Examples of the two questionnaires are attached in Appendix A.

DELG reached out to Migmawel'i Tplu'taqnn (MTI) and Kopit Lodge to inform them of the project and to invite them to participate in the development of the WMP.

A Technical Working Group consisting of 13 members was formed in October 2019. The group includes representatives from various provincial government departments, local governments, First Nations, non-government organizations and the academic community. Its purpose is to develop the Shediac Bay WMP. The working group began meeting in November 2019 and will continue to meet regularly until a draft WMP is completed.



3.1 Engagement with First Nations

“Love of money and ignorance will contaminate clear drinking water. Contaminated water will eventually eliminate life on reserves as we know it. Clear water gives life to everyone regardless of race, color or creed. So, we must protect our drinking water at all costs”. Vince Barlow, Mi'gmawe'l Tplu'taqnn Inc. (MTI) Elder.

The Department of Environment and Local Government has reached out to MTI, the First Nation communities of Indian Island, Fort Folly and Buctouche, and a representative of MTI has been appointed to the Technical Working Group tasked with developing the watershed management plan. Although engagement with MTI and three communities will be on-going throughout the development of the watershed management plan, the following is a summary of the feedback received to date:

Clean air and clean water are of great importance to First Nations. Concern was expressed around the potential impact of poor water quality on the use of traditional medicinal plants such as muskrat root which grows along slow-moving rivers or streams and in wetlands. Medicinal plants cannot be used if the water they grow in is polluted. Concern was also expressed around garbage washing up on beaches and whether commercial fisherman and recreational boat owners are properly disposing of their waste. It was further suggested that more policing of waterways is needed, and fines should be issued when people are caught discarding waste into the water. One respondent was concerned of potential sewage contamination at Parlee Beach and suggested the sewage facility and infrastructure should be updated. Clear cutting was also identified as a concern. It was suggested that clearcutting should be prohibited and replaced with select-cutting. Finally, it was suggested that the use of chemical sprays such as Glyphosate as well as fracking should be banned.

The concept of Two Eyed Seeing was shared with the Technical Working Group. Etuaptmumk is the Mi'kmaw word for Two-Eyed Seeing. Etuaptmumk (Two-Eyed Seeing) is often explained by saying it refers to learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of Western knowledges and ways of knowing ... and learning to use both these eyes together, for the benefit of all (<http://www.integrativescience.ca/Principles/TwoEyedSeeing/>). In essence, it is important that Indigenous knowledge be considered in addition to Western knowledge when developing the Shediac Bay watershed management plan.

4. WHAT WE HEARD

The following section provides a summary of the comments and suggestions gathered during the early engagement process. The feedback is summarized first by question, then by common theme. More detailed comments are available in Appendix B.

4.1 What People Value Most in the Shediac Bay Watershed

The respondents value good surface water quality, safe drinking water and clean air. The most common responses received when people were asked what they value most are summarized in the word cloud below.

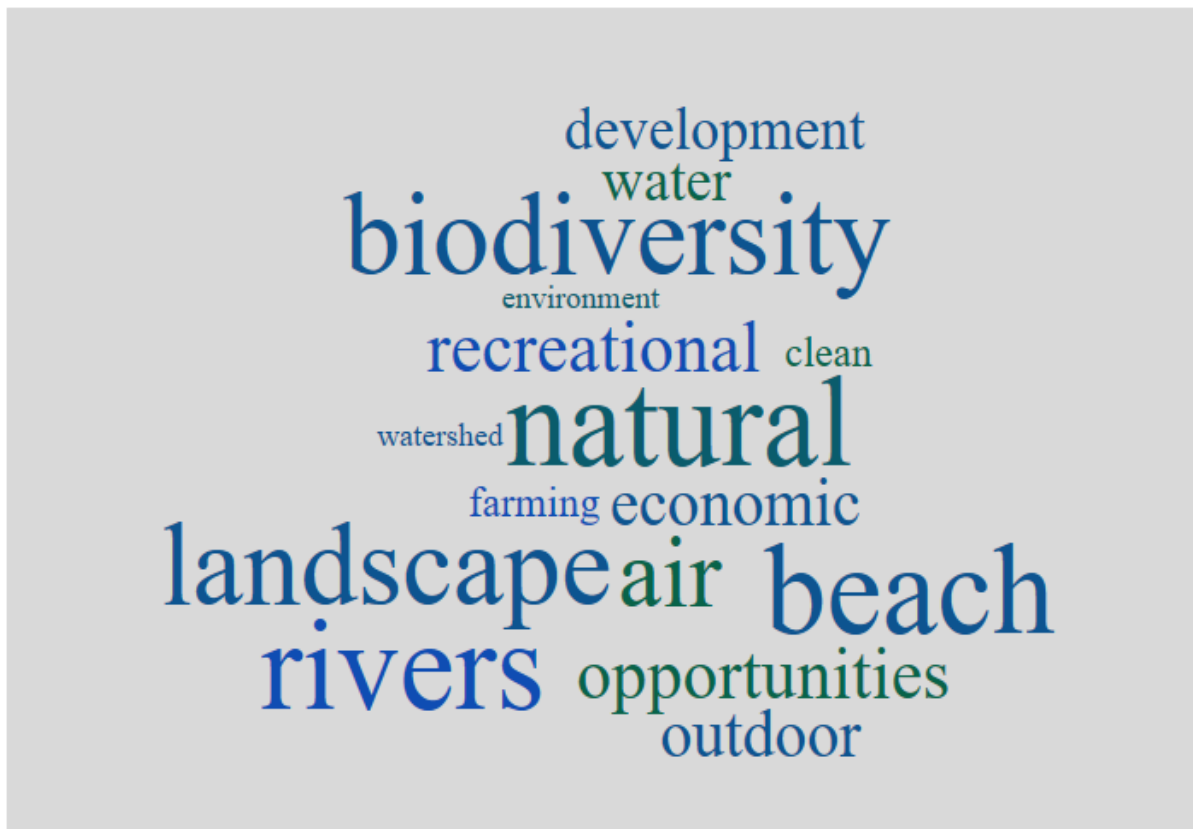


Figure 4.1: Word cloud describing what people value most in the Shediac Bay Watershed.

Beaches, rivers and streams

Local community members value their beaches and rivers. They want good water quality in the watershed, at Parlee Beach and in Shediac Bay now, and for future generations.

Natural areas, landscape and biodiversity

The Shediac Bay Watershed contains important habitats that sustain a rich diversity of species. The community recognizes the value of maintaining and protecting its local biodiversity. In addition, they spoke about the beauty of the natural features in this watershed (e.g. wetlands, forests, and rivers).

Clean air

We heard that having clean fresh air was very important to the local community.

Outdoor recreational opportunities

The Shediac Bay Watershed offers many recreational opportunities for locals and visitors. Some of these outdoor activities include: accessible walking trails; swimming at Parlee Beach; hunting and fishing; aquatic sports such as kayaking and boating as well as camping.

Economic development

The community recognizes and supports economic development in the watershed. The natural resources located in Shediac Bay provides the community with many opportunities for development (e.g. aquaculture, farming, and tourism). However, the community would like development to be sustainable. The respondents value the natural areas and the fact that the watershed is not fully developed.

Farming, fisheries and aquaculture

It is also important to some residents that they be able to continue making a living from agriculture, fisheries and aquaculture activities.

4.2 Water Quality Concerns in the Watershed

We asked the question: “*What are your biggest concerns related to water quality in the Shediac Bay Watershed?*”. The following section summarizes the responses by common theme. The word cloud below highlights the most common response themes.

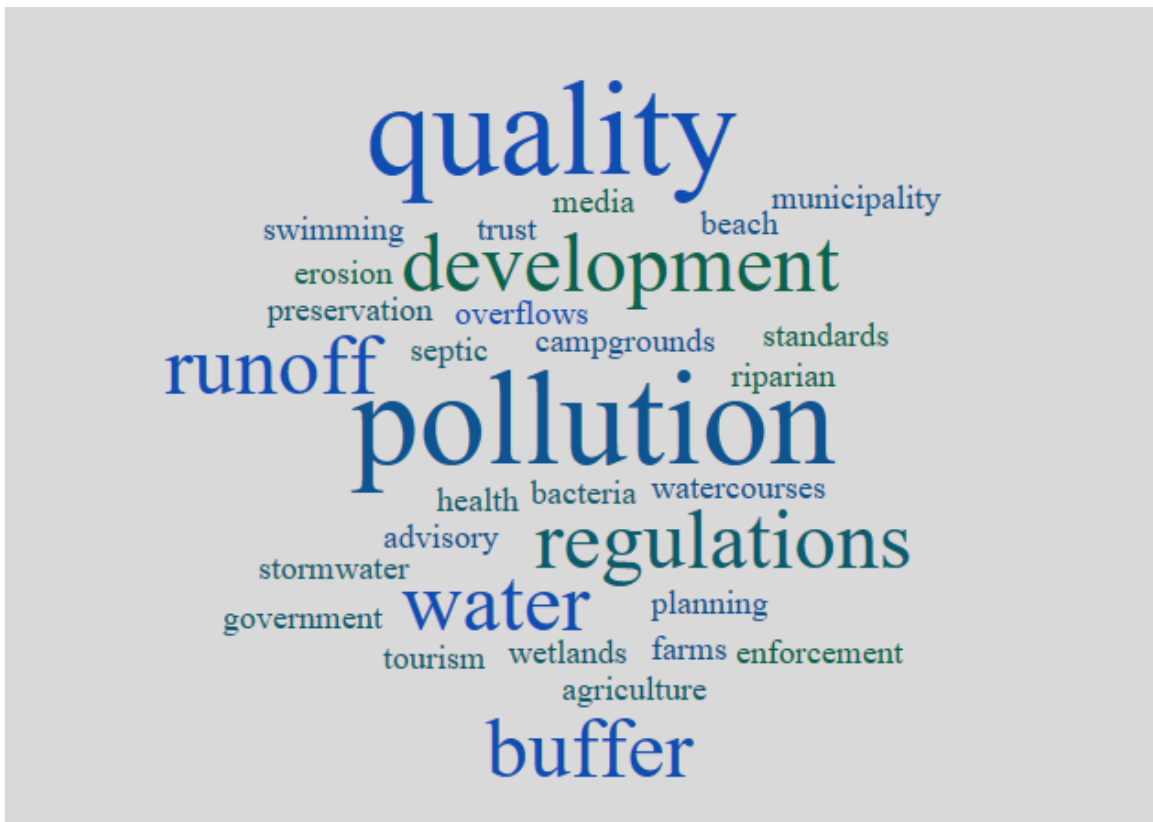


Figure 4.2: Word cloud describing the most common water quality concerns.

Stormwater

The community shared its concerns related to water quality in the watershed, and the potential impacts of poor water quality on the natural features and biodiversity. For example: stormwater management (including stormwater quantity and quality), runoff coefficients, the impacts of climate change, and flooding. Some respondents were concerned about the pollutants that are found in stormwater (e.g. bacteria, glyphosate, micro-plastics, chlorine, herbicides, pesticides, and manure etc.).

Some were concerned fecal bacteria found in stormwater and at Parlee Beach, and whether it originates from birds or other animals. Others expressed concerns for the health of the marine

ecosystem, and protection of the bay. For example: pollution at the marine dock, boats too close to the beach, the low flushing nature of the bay, the sources of bacteria, persistent pollutants in the environment, and industrial waste being discharged into the bay.

Health (drinking/swimming)

Respondents expressed the importance of safe, clean drinking water. They are concerned about the quality of their well water, and whether contaminants in the watershed are making their way into the groundwater aquifer and affecting their wells.

In addition, concerns were expressed about the safety of recreational water, mainly at the swimming areas in the watershed and at Parlee Beach. Some respondents questioned the delays in the water quality testing process at Parlee Beach, the manner in which the results are shared with the public, and the elimination of the rainfall advisories.



Photo credit: GNB stock photo

Communication/media

During the past several years, there has been a lot of media attention focused on Parlee Beach. Some participants believe that certain issues around water quality at the beach have been misunderstood by the media and the public. The negative and sometimes non-factual information has impacted the image of the region, the tourism industry and the local economy.

Some people believe government should have been more transparent with issues related to water quality at Parlee Beach and they question the water quality results and the results of other studies that were published. This has resulted in a lack of trust with government. It was also mentioned that more communication is needed between all government agencies involved.

Agriculture

Farming activities were mentioned as a concern mainly in relation to the application of chemical fertilizers and manure near watercourses and wetlands. Furthermore, people are concerned about the lack of buffer zones near watercourses, and the absence of monitoring during the fertilizer application process to determine whether the products are being used in accordance with best management practices.

Land development

We heard that excessive land development in the watershed (particularly within riparian zones) is an issue of concern, and some participants are worried about the effects it may have on the environment such as increasing overland runoff and flooding. These respondents indicated building standards and codes may have changed, and it appears there is less control over new developments than before.

Wastewater management and on-site septic systems

Wastewater management and on-site septic systems in the Shediac Bay Watershed were key issues of concern raised during the early engagement process. Some people are concerned about overflowing pumping/lift stations that occur during heavy rain events or power outages while others are concerned about older on-site septic systems not functioning properly. People are concerned that some properties do not have an on-site septic system or have a septic system that does not meet current standards. There were some questions related to wastewater management at local campgrounds that are not connected to the Greater Shediac Sewage System (GSSC).

Regulations, compliance and enforcement

Some participants believe there are too many regulations within varying levels of government (e.g. regional, municipal, provincial), while others were concerned about the lack of regulations for farming activities, on-site septic systems, innovative waste management systems, and runoff management. Furthermore, some people are concerned about the absence of enforcement of old on-site septic systems, and the continuing practice of developing along shorelines even though there are regulations in place that should prohibit this. We also heard there is a lack of follow-up and inspections after construction work is completed.

Wetlands and buffer/riparian zone management

Respondents told us they value the presence of marshes and wetlands in their watershed. They want to protect and preserve these ecosystems, and do not support construction and new development in these sensitive areas.

A well-defined buffer zone is very important for the protection of aquatic life and the environment. We heard concerns related to the 30m buffer zone regulation not being enforced everywhere, and the effects of clear-cutting practices on water temperature and fish. Furthermore that the current regulated wetland buffer zone is not wide enough to protect against the effects of global warming.



Photo credit: Photograph of a wetland taken by the Shediac Bay Watershed Association

Other concerns

Some of the concerns expressed did not fit into the above common themes, for example:

- Some people believe politicians, local groups etc. should be more concerned about water quality and pollution in the area, and
- Some were concerned about the presence of green crab in the bay (i.e. a non-indigenous invasive species).

4.3 Proposed Solutions

We asked the public to propose actions or solutions they believe could be undertaken to minimize or eliminate their concerns. The following section summarizes what we heard.

Stormwater

Many of the suggestions related to stormwater involve the use of stormwater management techniques to reduce runoff. For example: building retention ponds, and catchment systems (e.g. rain barrels), building rain gardens, wetland restoration, restoration of riparian zones (e.g. tree planting), developing a zero net runoff policy for new development, reducing impervious surfaces by removing some paved surfaces and utilizing permeable pavement solutions.

As for the concerns related to bacteria in stormwater, it was recommended that the source(s) of bacteria be identified, a plan be developed to mitigate the impacted areas, options should be identified to reduce nutrient loading in the watershed, the population of bustards should be controlled, and a portable laboratory should be used to speed up the process of analyzing water samples collected at Parlee Beach.

Furthermore, the installation of garbage cans at the entrances of all beaches was recommended, as well as the development of a routine stormwater quality monitoring program. Some people indicated that government should adopt best management practices (such as Manitoba's), and everyone should work together to develop the plan that addresses stormwater quality.

Education

Members of the community believe education, awareness and communication are essential in minimizing misunderstandings and confusion around water quality issues. Here are some of the proposed topics that some felt should be better communicated: rainfall advisories versus bacteria advisories, pesticide use (e.g. risk and best practices), best management practices for

the use of fertilizers, manure spreading and storage, maintenance of on-site septic systems, and garbage disposal. It was suggested that education campaigns should target campgrounds, boaters, dog owners, septic system owners, farmers and the media.

It was further suggested that there should be more communication between government agencies and the public. Government should be more open and transparent about the water quality issues in the watershed. It should indicate how the issues will be addressed and provide more accessible and comprehensive information for the public.

Land development

Many participants were concerned about land and coastal development. Some respondents suggested that local development plans should be updated to ensure they are taking into consideration the projected impacts of climate change. Plans should forbid development in the sea level rise zone and should manage the negative impact of development on the environment. New construction should be built away from shorelines to protect beaches and the coastal environment. On the other hand, some respondents want to see a viable economy maintained through sustainable development.

We heard land development should be limited in environmentally sensitive areas, all construction should be linked to a property identification number (PID) and permitting information should be more publicly accessible. Some people believe there should be a moratorium on all coastal development.

Wastewater management and on-site septic systems

The GSSC pump/lift stations that overflow during heavy rainfall events was a topic of concern. Suggestions on how to mitigate this issue included: identifying and fixing the cause of the overflows; preventing the release of untreated sewage (overflows) into the bay; active monitoring of the overflows; developing a protocol for beach closures after sewage overflows; system failures planning, upgrading existing infrastructure; investing in new technology; expanding the capacity of the GSSC system; checking the line between the Parlee Beach park restaurant and washrooms to the new line; communicating GSSC overflows to the public, and prioritizing improvements to the sanitary and stormwater systems. We also heard there should be independent testing of the wastewater treatment plant outflow and the lagoon, wastewater disinfection should be mandatory at the wastewater treatment plant, and the sewage lagoon needs to be independently ruled out as the principle cause of bacteria.

In relation to on-site septic systems, the following actions were suggested: all septic fields around the watershed should be eliminated; there should be a study of the old septic tanks in

Cap-des-Caissie, Shediac Bridge and Cap Barachois; the septic systems close to watercourses in rocky or sandy areas should be inspected, and the ones considered defective should be repaired or replaced.

Regulations, compliance and enforcement

There were many discussions around the different levels of regulations (i.e. regional, municipal, provincial, and federal). Participants told us there should be only one set of regulations to comply with. Overlaps and contradictions between regulations should be avoided. Every regulatory body should work together towards the same goals.

We also heard regulations should be improved and there should be better enforcement related to on-site septic systems (i.e. they should meet current standards prior to allowing upgrades to a property). There should be better regulations to manage the overflows of the GSSC system, agriculture practices, buffer zones, land use planning, manure and fertilizer storage and spreading near watercourses, development standards, the illegal impacts to watercourses and wetlands, and pesticides and herbicides should be prohibited. Some said there should be stricter regulations, issuance of fines, and more policing throughout the watershed.

Wetlands, buffers and riparian zone management

The local community appreciates the value of marshes and wetlands and would like better protection of these natural areas. New development and construction should be prohibited in wetlands and construction permits should not be issued within 30 meters of wetland and watercourses.

A buffer zone regulation should be implemented and there should be wider non-ploughed buffers to reduce runoff. There should be wider buffers between deforestation and watercourses, and we should promote the growth of vegetation along the coast to stabilize the dunes.

Funding

Reliable funding plays an important role in addressing the environmental concerns expressed by the community. We heard that funding and grants are necessary for projects such as: replacing old on-site septic tanks; proper emptying of septic tanks; free sewage dumping stations for boats; funding to assist farmers in the implementation of best management practices; infrastructure upgrades for the town and GSSC; funding for local organizations for restoration work, and for the creation or updating of regulations.

Other suggestions

Some of the suggestions heard did not fit into the above common topics. For example:

- Continue implementing the 14 Steering Committee recommendations.
- Implement more effective actions to help combat the invasion of green crabs that feed on molluscs and destroy eelgrass in Shediac Bay.
- The practice of trading with Ducks Unlimited (i.e. wetland compensation) needs to stop. Develop a long-term vision for the watershed.
- Reduce or ban the use of single use plastics in stores.
- The old trail is not maintained, and culverts are not diverting drainage. Dig the old trail out to restore the area to its original state or maintain the culverts.
- We need to unite as a community to address issues. We are currently divided with the Shediac council, businesses, environmental groups, the Chamber of Commerce and the Southeast Regional Service Commission not being on same page.
- We need a knowledgeable, trusted and independent authority figure that will not only inform but unite us.
- The Province of New Brunswick has demonstrated that it supports the protection of our coastlines as it relates to flooding caused by storms. Everyone must follow this direction and do everything necessary to reduce these impacts.
- We need to map all wetlands, waterways, soil, water, air and biodiversity (trees, plants, animals, birds, insects etc.).

4.4 Changes in the Shediac Bay Watershed Over the Years

The next two sections summarize the information we gathered from questions that were unique to the on-line questionnaire. We asked the local community: “*What changes have you noted in the Shediac Bay Watershed over the years?*”. The word cloud below highlights the common response themes.



Figure 4.4: Word cloud describing changes noticed in the Shediac Bay Watershed over the years.

Water quality

Some people feel water quality in the watershed has deteriorated over the years. Participants told us they have noticed an increase in pollution throughout the watershed, some watercourses are shallow and becoming stagnant.

Others believe water quality at the beach and in Shediac Bay has deteriorated. We heard there has been an increase in the number of beach closures, the amount of garbage on the beach,

the presence of algae and nutrients in the bay, the number of boats along the shoreline, and the number and duration of shellfish closures imposed by the Department of Fisheries and Oceans Canada.

On the other hand, we heard some people believe water quality at Parlee Beach has improved and acknowledge the Government of New Brunswick has dedicated a lot of resources to improving water quality issues.

Education

When it comes to education and awareness, some participants feel people are more aware of the water quality at Parlee Beach and are participating in keeping it clean. We also heard the GSSC is more transparent when it comes to informing the public about sewage overflows.

Some participants believe the Shediac Bay Watershed Association (SBWA) is not communicating enough and that government is being more secretive with information.

Land development

Over time, members of the community have noticed an increase in development (i.e. cottages) along the coast and an increase in deforestation throughout the watershed. They feel there is more emphasis being placed on increasing development regardless of the environmental cost.

Wetlands, buffers and riparian zone management

Some respondents believe the buffer zones are cleaner than they used to be and there seems to be an increase in awareness of the importance of maintaining these buffer zones. We also heard there are illegal developments causing the destruction of wetlands without any consequences, and rip-rap along the coast is making erosion worse and is destroying bird habitat.

Wastewater management

Some people recognize that improvements have been made to the local GSSC wastewater treatment system. However, some lift stations continue to overflow into the Shediac Bay.

Other changes

Some of the changes noted over the years did not fit in one of the above common themes such as: the Anglican Church has changed its initial positions with respect to campgrounds, and some respondents believe the Shediac Bay Watershed (including Parlee Beach) is not ready for climate change. The beach keeps disappearing during storms and must be regularly restored at huge expense. It was further stated that the restoration work may cause damage as well.

4.5 Watershed Management Plan Priorities

We asked the community: “*What do you feel should be the priorities in the Watershed Management Plan?*”. Participants made the following suggestions: water quality; wetlands; buffer and riparian zone management; air quality; soil; development; wastewater management, education and awareness.

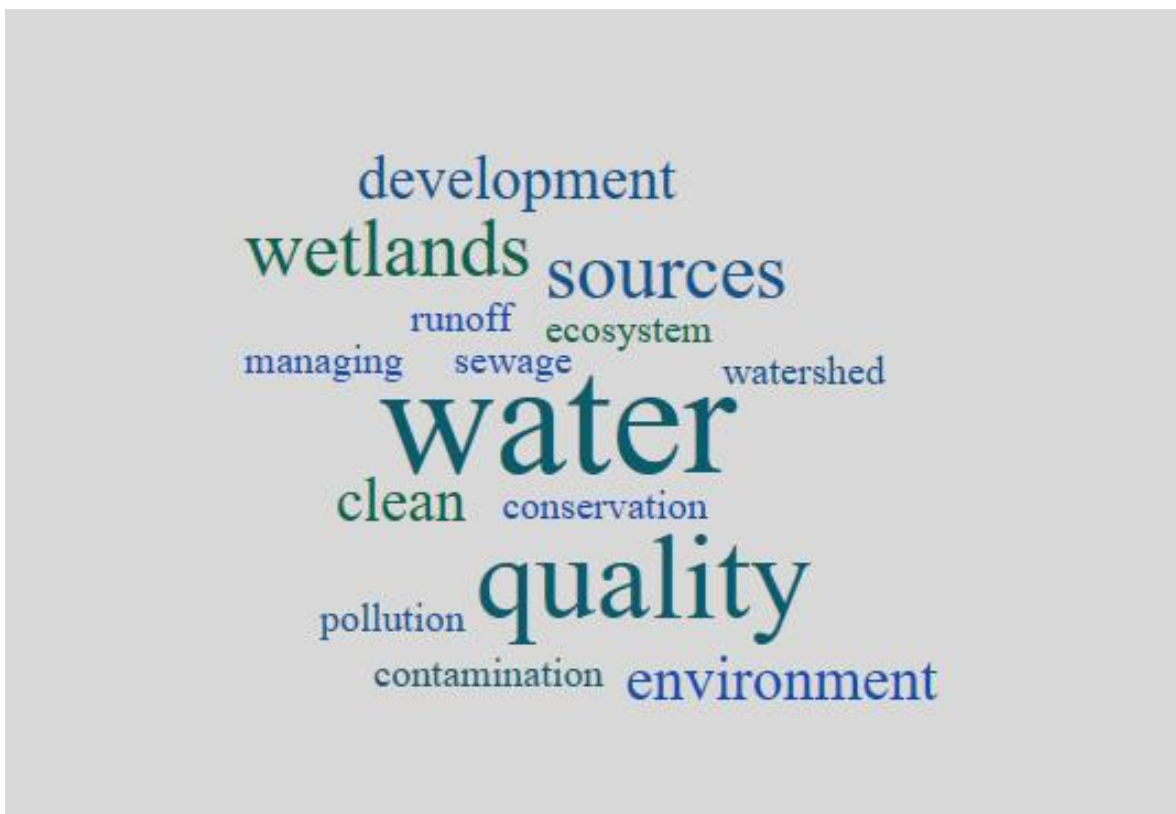


Figure 4.5: Word cloud highlighting the proposed priorities for the WMP.

Water Quality

Some respondents would like the Shediac Bay WMP to focus on maintaining good water quality for future generations. The focus should be on making sure water quality is excellent for swimming, fishing and drinking. They want the bacteria sources throughout the watershed to be identified and addressed.

Wetlands, buffer and riparian zone management

A high priority rating was given to the conservation of wetlands, buffer and riparian zones. Participants want to see more protection and restoration of wetlands and forested areas within the watershed. It was also stated that this should be accomplished by maintaining and protecting the riparian zones and implementing sustainable practices for the forestry and agriculture industries.

Education

Some participants would like focus to be put on developing a centralized location for all data and information to be stored. They believe that by educating the community about the Shediac Bay WMP, it will help get their buy-in. A newsletter should be developed to inform the public about the progress of the WMP, and there should be measurable objectives to complete the proposed actions in a timely manner.

Land development

Some respondents would like more emphasis on new land development. However, it should be done responsibly (especially along shorelines) to minimize impacts on the environment. There should be restrictions on some development, and options or alternatives for managing run-off should be considered for new developments. It was further suggested that everyone needs to work together when changes to existing developments or new developments are being proposed.

Wastewater management

We heard fixing the issue with the overflowing pump stations should be a priority in the WMP and doing a thorough investigation near the shore to make sure every household is connected to the GSSC system.

Other proposed priorities

- We need a trusted independent leader who can help all parties work together.
- Protect valuable ecosystems that protect us from climate change.
- Public transportation. It reduces pollution, traffic and benefits those who do not have a car.
- Hold the Regional Services Commission accountable for respecting the laws.
- A sustainable long-term development plan should be created that takes into consideration population density changes, new building standards, flood protection, and environmental protection.
- Long-term consideration for tourism should be secondary to improving the current state of the watershed.
- Laws should be good for all. Our fish are affected and the health of the public, it's urgent!
- Wildlife.
- Regular inspections.
- Get more citizens involved in the planning.
- Climate change adaptation plans.

4.6 Watershed Management Plan Components

The following section includes information gathered during the stakeholder workshop. Some of the questions from the workshop were more oriented towards the development and/or structure of the plan. More detailed information is available in Appendix B.

At the workshop, stakeholders were asked: “*What components should be part of the Shediac Bay Watershed Management Plan?*”. Common responses are highlighted in the word cloud below.



Figure 4.6: Word cloud highlighting proposed components of the Shediac Bay WMP.

Below is a summary of the proposed components that respondents thought should be part of the WMP:

- Characterization of the watershed:
 - Identification of sensitive areas to be protected.
 - Identification of areas that can be developed.

- Water quality information:
 - Historical/baseline.
 - Accessible.
 - Science-based.

- Identification of polluted areas:
 - Identify problem areas on a map.
 - Identify potential sources of contaminants.

- Goals (i.e. what are you trying to achieve?):
 - They should be concrete and measurable.

- Actions:
 - They should be concrete and reasonable.
 - Solutions to protect and improve water quality.
 - Reasonable time frame.
 - Short-term and long-term actions.

- Examples of actions:
 - Long term monitoring plan.
 - Surface water and stormwater management plan.
 - Stewardship plan (include landowners, farmers, industry etc.).
 - Wetland management plan.
 - Land development plan (consistent regulations and enforcement).
 - Education program.
 - Best management practices.

- Regulations:
 - Should be consistent.
 - Make recommendations for changes or new regulations.

- Plan for stakeholder involvement:
 - Identify stakeholders and partners.
 - Identify their roles and responsibilities.

- Funding:
 - Identify sources of funding to help with implementation.
 - Core funding for continued monitoring or other actions.

- Evaluation of goals and actions:
 - Setting measurable targets.

- Reporting:
 - Annual report cards (i.e. what was done, what worked or didn't work).

- Timeline:
 - Determine WMP timeline (5,10 years etc.).
 - Revision schedule (i.e. how often will the plan be revised).

4.7 Challenges and Opportunities

We asked local stakeholders: “What are the challenges and opportunities with respect to developing a WMP for the Shediac Bay Watershed?”

Challenges

The most common challenges identified are highlighted in the word cloud below.



Figure 4.7: Word cloud describing challenges in developing a WMP for the Shediac Bay Watershed.

Below is a summary of the common challenges mentioned during the workshop:

- Funding (i.e. finding a constant source).
- Differences in interests and opinions between stakeholders.
- Balance between development, the economy and the environment.
- The need for more resources for enforcement. Rules are not being consistently applied.
- Keeping stakeholders' interest.
- Communicating and educating the plan.

- Getting public buy in.
- Political will.
- Prioritizing actions.

Opportunities



Figure 4.7.1: Word cloud describing opportunities to develop a WMP for the Shediac Bay Watershed.

Some of the common opportunities mentioned during the workshop were:

- Working together and increasing partnerships between stakeholders, the public and government.
- Financing opportunities.
- Prioritizing issues that need to be addressed.
- Developing new education programs.
- GNB commitment.
- Improvement of regulations.
- Likely to improve water quality.
- Increase in watershed organizations' capacity.

4.8 Watershed Management Plan Implementation

During the workshop we asked stakeholders: “*Who should be responsible for implementing the Watershed Management Plan?*”. Various suggestions were made, and these can be found in Appendix B. Here are some of the common suggestions heard:

- It shouldn't be a one-person job. Multiple parties should be involved in WMP implementation.
- Parties involved have different roles.
- GNB should own/lead and manage the WMP (budget, enforcement etc.).
- The WMP should be developed in partnership: government, watershed groups, stakeholders etc.
- There should be a steering committee/board responsible to advise and monitor progress etc.
- Implementation should be done more on a local level (watershed groups, municipalities, Regional Service Commission etc.).

4.9 Watershed Management Plan Schedule of Revisions

During the workshop we asked stakeholders: “*Who should be responsible for updating the WMP?*”. We heard the following suggestions:

- An advisory board, management committee or working group with representation from government, and local stakeholders, etc.
- Watershed groups.
- GNB.
- Environmental consultants.
- Regional Service Commissions.

5.0 Next Steps

The engagement process with the public, stakeholders, and First Nations will continue throughout the development of the WMP. Once a draft WMP has been completed, there will be more opportunities to provide input.

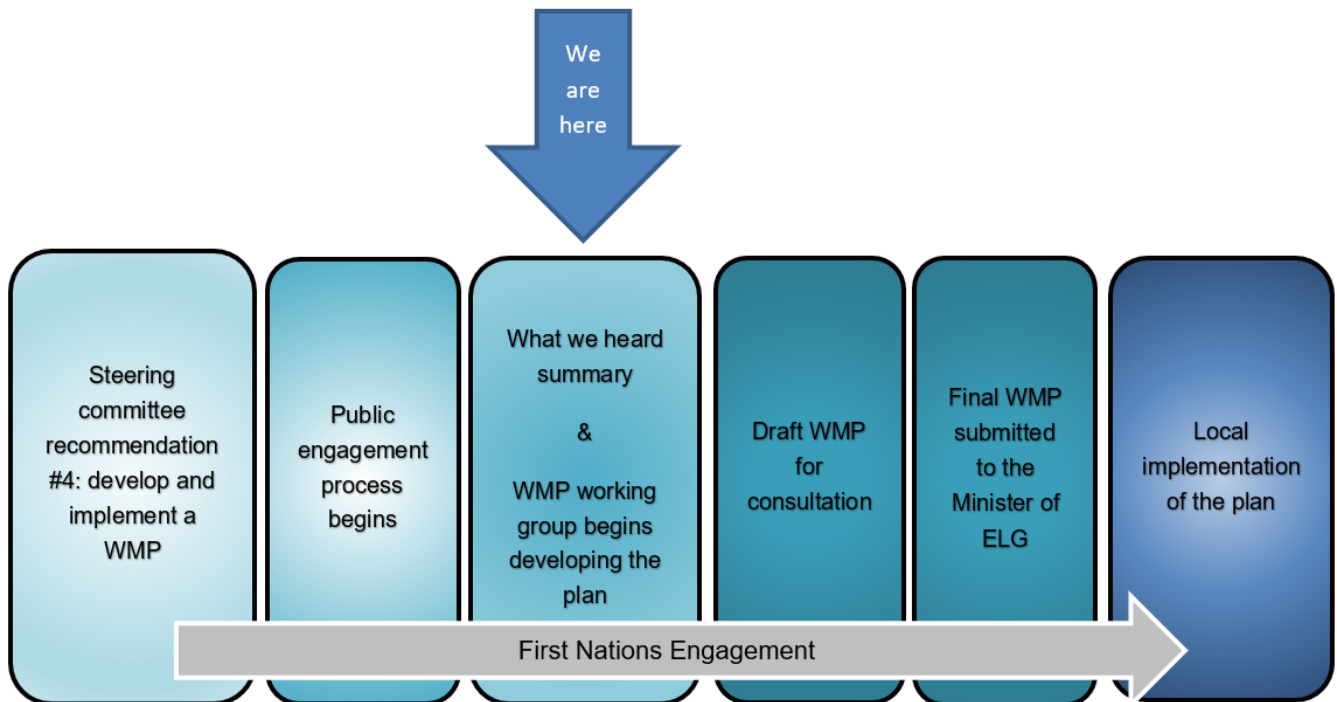



Figure 5.1: Shediac Bay WMP timeline.

APPENDIX A

On-line questionnaire:



Working Together to Develop a Shediac Bay Watershed Management Plan

A **watershed management plan** is a document that characterizes a watershed and designs and structures a working plan to establish a set of goals and objectives that protect and improve water quality and natural resources within its boundaries. A watershed management plan describes the actions and process of implementing sustainable land-use practices and water management programs that allows us to accomplish and achieve these goals.

QUESTIONNAIRE- WE WANT YOUR IDEAS

From what perspective will you be answering these questions (Please check one)?

- As an individual
- As a business (please specify the type of business)
- As a representative of a community group or organization (please specify position and organization)
- Other (please specify) _____
- Prefer not to say

Please take a few minutes to consider the following questions:

1. *What do you value in your watershed?*

- Outdoor recreational opportunities like hunting, fishing, boating, camping
- Farming and making a living off the land
- The beach, rivers and creeks
- Economic development
- Fresh air
- Natural areas/ landscape/ biodiversity
- Other _____

2. A) *What are your biggest concerns related to water quality in the Shediac Bay Watershed?*

B) *According to you, what actions or solutions could be undertaken to minimize or eliminate your concerns?*

3. *What changes have you noted in the Shediac Bay Watershed over the years?*

4. *What do you feel should be the priority in a watershed management plan?*

5. *Is there other information you feel would be beneficial in the development of the Shediac Bay Watershed management plan?*

You may submit your completed questionnaire at the open house or e-mail it to wmpfeedback/pgbvcommentaires@GNB.ca by October 31st, 2019.

Thank you for your input!

Workshop questionnaire:



WORKSHOP

Introduction

A **watershed** is a land area (also referred to as a catchment area), that captures and channels rainfall and snowmelt towards a common discharge point (i.e. reservoir, bay, the ocean).

A **Watershed Management Plan (WMP)** is a document that characterizes a watershed and designs and structures a working plan to establish a set of goals and objectives that protect and improve water quality and natural resources within its boundaries. A WMP describes the actions and process of implementing sustainable land-use practices and water management programs that allows us to accomplish and achieve these goals.

Questions

1. *What do you value in your watershed?*

- Outdoor recreational opportunities like hunting, fishing, boating, camping
- Farming and making a living off the land
- The beach, rivers and creeks
- Economic development
- Fresh air
- Natural areas/ landscape/ biodiversity
- Other

2. *A) What are your biggest concerns related to water quality in the Shediac Bay Watershed?*

B) What actions or solutions could be undertaken to minimize or eliminate your concerns?

3. What components (water quality issues, goals, measure of success etc.) should be part of the Shediac Bay Watershed management plan?

4. With respect to the development of a watershed management plan for the Shediac Bay Watershed:

a. What are the challenges?

b. What are the opportunities?

5. Who should be responsible for implementing the watershed management plan?

6. Who should be responsible for updating (revising) the watershed management plan?

Thank you for your input!

APPENDIX B

Original comments grouped by common theme:

What people value in their watershed

Beaches, rivers, and creeks:

- 19 people selected this heading on the questionnaire.
- Surface water quality (e.g. rivers and beaches).
- Aquatic species.
- Water flows, and the cycle of water.
- Aquatic life (i.e. oxygen levels, temperatures, etc.).
- Parlee Beach because it is affected by the watershed.
- Clean rivers and streams, clean shellfish, snails, and beaches.
- Dune protection and restoration.
- A clean, healthy environment (i.e. do not turn this area into an industrial zone).
- Clean air and soil.

Natural areas/landscape/biodiversity:

- 18 people selected this heading on the questionnaire.
- Wildlife and flora.
- Scenery, landscape, shoreline, and views.
- Natural education experiences.
- Protect biodiverse aquatic and animal life.
- Biodiversity rich in animals including birds and aquatic life.
- A natural environment that includes wetlands, forests, rivers, and the dykes of Grand Digue.
- Protect Shediac Island.

Fresh air:

- 16 people selected this heading on the questionnaire.

Outdoor recreational opportunities:

- 10 people selected this heading on the questionnaire.
- Hunting, fishing, boating, camping, and swimming.

- Recreation (i.e. kayaking, canoeing, fishing and swimming).
- Access to walking trails.
- Leisure (i.e. access to public beaches, trails and docks).
- Tranquility

Economic development:

- 7 people selected this heading on the questionnaire.
- Aquaculture and fisheries.
- Tourism.
- Balance between commercial (economic opportunities) and the natural environment.
- Economic development but not along the shoreline.

Farming and making a living off the land:

- 6 people selected this heading on the questionnaire.
- Agriculture.
- Aquaculture (e.g. oysters).

Other values:

- Drinking water supplies.
- Communities, people within the watershed, and seasonal residents.
- Replenish municipal and private wells.
- Good treatment of sanitary sewer.
- Stormwater management.
- Integrated watershed management.
- Environmental engineer in NBDTI design branch.

Biggest concerns related to water quality in the Shediac Bay Watershed

Stormwater quality:

- Stormwater management (e.g. controlling quality and quantity).
- Coliform levels in tributaries, ditches, and flat roof tops (i.e. from animals including dogs and birds).
- Increase in runoff coefficients (e.g. increase in paved areas, manicured lawns, decreasing storage, filling in and piping ditches).
- We don't know what is in our streams (e.g. sewerage, run off from agriculture fields, herbicides, pesticides etc.).
- The tidal creek at the beach is contaminated. There has been a study on it but no solutions. There is not enough flow and needs cleaning out. The fecal content is high.
- Culverts need opening.
- Salt water pollution.
- Pollution at the dock for marine life.
- Releases from fish factories and other businesses in the bay.
- Bacteria from the watershed contaminating Parlee Beach.
- Still no definitive cause for intermittent problems at Parlee Beach.
- How can we all help ensure no bad material flows into Shediac Bay, which has difficulty flushing.
- Glyphosates.
- Micro-plastics.
- Chlorine.
- Herbicides.
- Pesticides.
- Runoff from paved surfaces that causes pollution in waterways.
- Bustards that are overpopulated = E. coli.
- Pollution levels vary from day to day and the source of the pathogens remains unknown.
- Water quality at the beach.
- Purity of water (i.e. no pollution).
- I assume Shediac watershed includes the bay. The bay and the waters that flows into it should be clean to support all life, plants, animals and humans.
- Impact on our values.
- Pollution and lack of biodiversity.
- Climate change (i.e. flooding and erosion)
- Boats in beach area.
- Overuse of area for camping sites is affecting water quality at the beach.
- Clean water is our most precious asset. There can be no compromise in its safety.

Health (drinking/swimming):

- Healthy safe water for drinking and swimming.
- Wellfield protection.
- Where is the water coming from in our aquifers?
- How does water in the watershed affect our well water?
- Rainfall advisories for swimming was dropped but it was a tool of safety.
- Delays in identifying fecal content.

Communication/media:

- Misunderstanding of the issues by the media and the public.
- Image of the region.
- Negative publicity, often one sided.
- The overall situation should be far more transparent than what I have seen to date.
- Questioning the validity of results in what is being published. Some people believe there is a cover up.
- Loss of tourism.
- Impacts to the environment and the economy.
- A lack of trust has resulted from secret pre-meetings held by the Shediac council.
- Church leaders not answering messages etc.
- The Department of Health and Environment and Local Government do not talk (i.e. mostly Local Government and planning authority).

Agriculture:

- Agriculture prevention.
- Illegal use of watercourses (e.g. manure stored or spread too close to stream banks or at the wrong time of year).
- Manure, fertilizers.
- Farmers raising cows near small streams.
- Farms are not monitored for their fertilizer and manure applications.

Wetlands:

- Construction should not take place in marshes and wetlands!!
- The preservation of our wetlands, which are so important for filtering the water.
- Destruction of our wetlands.
- Government approved development in our wetlands.

Land development:

- Excessive development within the sea level rise zone that causes unnecessary flooding and excessive stormwater run off during rain events and spring snow melt.
- There has been a lot of development in the past 10 years with little control. Standards have changed.
- Concern about land development and how it is affecting natural areas and the environment.
- Concern about the old and new trail built between Pointe du Chene Rd and Parlee Beach Rd. They are not being properly maintained to ensure drainage is working properly.
- Illegal RV trailers.
- Unsightly premises.
- Waste disposal in the watershed.
- Construction and demolition debris (C & D) disposal sites.
- Urban building in rural areas (i.e. not adapted).
- Limit pollution and over use of the area.

Regional wastewater management and on-site septic systems:

- Septic systems.
- Pump station spills.
- Private sanitary systems not meeting current standards.
- Overflows from inadequate municipal sewage system occurring regularly even though the sewage system operator says it is not at capacity (engineer's solution).
- Old or absent septic tanks from over crowding of homes and cottages.
- GSSC pumping stations that overflow. These will become more and more frequent. It is a danger for our health.
- The Shediac sewer system is a major problem. The system is dumping directly into the Bay when it rains.
- Sewage emptying into bay when lift stations fails.
- Some people believe there is a cover up with respect to the sewerage treatment ponds because other people in the area (Cap- Brulé) have done their own testing. Very much like to see a round of independent testing to compare the results with GSSC results.
- The bluff area (summer villages) has a lot of old systems. Speculation is some residents are not connected to the GSSC system.
- There's a small campground off Gold Beach NW that is not serviced by the GSSC. How is this system managed? Do they have septic clean out?
- Note: The comment originally located here was deleted on September 1st, 2020 as it named a specific local campground, implied it had its own private sewage lift station and questioned whether it was working properly. This information was verified to be incorrect as the campground in question is serviced by the Greater Shediac Sewerage Commission therefore, the comment was deleted. The report remains unchanged in every other respect.
- Campgrounds are controversial because of surface water runoff and people have their own pipes going into the bay.

Regulations, compliance and enforcement:

- Pollution - Ignorance of the effects of the laws.
- Regulatory bodies working in silos (e.g. health, planning commission, and Local Government).
- Lack of follow up when construction is completed.
- Lack of regulations for farms and septic systems (i.e. no laws on how a septic system should be installed in 2019).
- Lack of inspections, and lack of follow-up (the Shediac Bay Watershed Association is afraid to challenge farmers).
- Lack of enforcement of older septic systems (i.e. maintenance and inspections).
- Innovative systems (not regulating).
- Shoreline development is occurring even with regulations in place.
- No regulations on stormwater collection and runoff.
- Municipalities can choose not to comply with provincial laws.
- There is no concerted effort by government to probe more deeply to find out what are the sources of water pollution in Shediac Bay and then to systematically address this in a thorough and long-lasting way. Officials seem to hide from the issue (at best).
- Weldon Street has a smell of sewage. Is there a law or regulation that requires citizens to be forced to connect to municipal system?
- The GSSC should be forced to follow municipal and provincial regulations (i.e. there's too much politics).

Buffer and riparian zone management:

- The 30-metre buffer zone regulation is not applied everywhere.
- Effects of clear cutting on fish and water temperature.
- The current buffers zone are insufficient based on what we can expected from global warming.

Other concerns:

- Future generations.
- There is little concern from politicians, church leaders etc. about the quality of water and pollution in the area.
- The green crab invasion.

Actions or solutions that could be undertaken to minimize or eliminate concerns

Water quality and stormwater management:

- Stormwater management techniques.
 - Retention ponds (e.g. Sackville).
 - Catchment systems (e.g. rain barrels).
 - Rain gardens and wetlands restoration.
 - Buffer zone enhancement around small streams.
 - Zero net runoff policy on new development.
 - Pavement removal and permeable pavement options.
- Natural retention ponds for stormwater management (e.g. Moncton).
- Better management of the land to reduce runoff.
- More surfaces that absorb the water when it rains.
- Stormwater treatment.
- Determine sources of coliform in the watershed.
- Develop programs that decrease the coliform levels in the watershed.
- Install rain gardens in large quantities to reduce runoff.
- Identify and manage sources of contamination.
- Develop a strategy to mitigate sources of bacterial contamination as per the observations and recommendations made in the various studies undertaken in the recent years.
- Use portable labs to speed up the process of testing for bacteria.
- Maintain a set percentage of land as permeable surface (e.g. by-law). The By-law needs to be enforced after permits are delivered.
- Plant more low trees, shrubs and rain gardens.
- Install garbage cans at the entrances of all beaches (e.g. Vieux Pierre, Bois Jolie, and Pointe à Bouleaux).
- No more dumping in the ocean.
- Overuse of the area for camping sites.
- Inspection of various waterways on a regular basis.
- Develop programs to minimize risk of increasing coliform levels.
- Use best practices like in Manitoba.
- Get all the groups together and develop one plan to address water quality and coastal protection issues now!
- In addition to reducing sources of bacteria and sediments, nutrient loads should be reduced to avoid the growth of algae and cyanobacteria. Nitrogen and phosphorus come from farms and wastewater, including industrial wastewater.
- Increase stormwater storage and minimize runoff.
- Natural stormwater treatment and filtration (natural).
- Control the population of bustards.
- Put less emphasis on the blue flag designation and more on health.

Education/awareness:

- Better education related to rainfall advisories vs water quality advisories.
- Education for the media and reporters.
- Education campaigns for campgrounds, boaters, and dog owners.
- Education about pesticide use (e.g. risky, best practice).
- Education about the use of fertilizers, and development of farming Best Management Practices.
- Education related to septic system maintenance.
- Educate people about the sources of pollution related to farming.
- More open communication. People want their questions answered.
- Educate the public about discarded waste.
- Be very open and transparent about the issues, and the steps taken to address the situation.
- Easier access to comprehensive information.
- Get accurate information out to avoid negative publicity.
- Media (better managed).
- Once we voice our concerns, I trust we can get a knowledgeable independent authority to lead us with facts and help unite the community in addressing the problems...with concerted action. The person should have environmental and development knowledge. Different sides have different views. We need to reach a consensus or problems will continue.
- Identify problems and solutions using the best possible science and communicate this to the public as clearly as possible. Do not hide problems!!
- Clearly stated and communicated outcomes should be achieved through the coordination with ALL players.
- More education on healthy environments.

Municipal wastewater management and on-site septic systems:

- Better planning for GSSC system failures.
- Upgrade existing infrastructure.
- Investing in new technologies.
- Develop a protocol for beach closures after sewage overflows.
- Expanding the capacity of the GSSC system.
- Overflows should be regulated.
- Check the line between the park restaurant and washrooms and the new line.
- Prevent the release of untreated sewage into the bay during heavy rainfall events and power outages.
- The town should upgrade its sewer lines or create a more trustworthy method of controlling overflows.
- There should be active monitoring of overflows at the lift stations.
- Identify and correct reasons for pollution.

- There should be independent monitoring of the wastewater treatment plan outflow.
- Would like to see elimination of all septic fields around the watershed, a centralized drinking water source, and better communication from the GSSC about overflows.
- The GSSC does its own testing twice a month. Independent testing of the lagoon discharge done by some local residents shows very different results.
- Make disinfection mandatory at wastewater treatment plants.
- Inspect septic systems close to watercourses in rocky or sandy areas and repair defective ones.
- Address all issues related to the GSSC system in and around Shediac.
- Study old septic tanks (Cap-des-Caissie, Shediac Bridge, and Cap Barachois).
- The sewage lagoon needs to be independently ruled out as the principle cause of bacteria.
- The City of Shediac should prioritize the improvement of its sanitary and storm sewer systems.
- Long-term upgrades to the GSSC facility.
- Lift stations need generators.

Land development:

- We want the vision and long-term plan for development to take into consideration climate change (e.g. moving away from banks and shorelines).
- Start looking at creating a better development plan that will protect the beach and maintain viable economic development.
- Limit population in affected areas.
- Implement a moratorium on coastal development.
- Manage the negative impacts of development.
- Eliminate development that does not make a positive contribution to water quality, air quality and the environment.
- Everything should be linked to a Property Identification Number (PID) (e.g. construction).
- Easier access to permitting information.
- The first step would be to stop all development in the sea level rise zone. Let that space function as a useful buffer to hold off water runoff.
- Stop development near rivers and the coast and evaluate the environmental impacts.
- Consider climate and global warming and their impact on the health of our land.

Regulations, compliance and enforcement:

- Be pro-active.
- Audit septic tanks and agriculture.
- Regulatory requirements to have septic systems meet current standards prior to allowing upgrades to a property (e.g. Public Health Act).

- Regulatory bodies should have common goals with respect to enforcement.
- Better enforcement, increase awareness and regulate the illegal use of watercourses.
- Prohibition the use of pesticides and herbicides.
- Regulations on pesticide and fertilizer application.
- Law enforcement related to manure and fertilizer application near watercourses (e.g. buffer zone -5 metres or more 30 metres).
- Enforce the laws related to land use planning.
- Municipalities should have an obligation to comply with provincial laws.
- Consequences for people who do not communicate.
- Stricter regulations with fines.
- Strong regulatory regime and enforcement of activities near wetlands.
- NB needs strong regulations coupled with enforcement.
- More buffer zones regulated to avoid clear cuts.
- More policing in the watershed.
- There are various plans out there. The watershed plan cannot be overridden by a department or municipality (everyone needs to be on the same page).
- Overflows of the GSSC should be regulated.

Wetlands, buffers and riparian zone management:

- Protection of watercourses and riparian zones to slow runoff and provide natural filtration.
- Natural conservation of buffer zones and wetlands in the region.
- Mandatory buffer zones along streams (e.g. agriculture).
- Buffer zones between deforestation and waterways.
- Wider non-ploughed buffers along watercourses to avoid runoff from manure applications into watercourses.
- Implementation of buffer zone regulations throughout the territory.
- Monitor small streams, allow vegetation to grow along the edges of the coast, stabilize the dunes.
- Make ditches. Keep existing wetlands.
- Swamp protection.
- No construction permits in wetlands and marshes or within 30 metres of watercourses.
- Respect the Water Act.
- Permanently ban all development in wetlands.
- Protection of sensitive lands.
- Natural preservation of marshes, buffer zones, forests and wetlands in the region.

Funding:

- Grant programs to replace old septic tanks.
- Financing to help develop new regulations.

- Grants for farmers.
- Government should finance more actions that could fix the problems.
- Grants to improve septic systems or proper emptying of private septic tanks and for free boat dumping stations.
- Money to fix existing and build new infrastructure.
- Federal and provincial funding for upgrades to the GSSC.
- Give more funding to organizations that do field restoration work.

Other proposed actions and solutions:

- Continue to implement the 14 steering committee recommendations.
- More action to combat the invasion of green crabs that feed on molluscs and destroy eelgrass.
- The practice of trading with Ducks Unlimited needs to stop.
- Develop a long-term vision and stick with it.
- Reinvent marketing (packaging) to reduce disposable waste in stores.
- The old trail is not maintained, and culverts are not diverting drainage. Dig the old trail out to restore the area to its original state or maintain the culverts.
- We need to unite as a community to address problems. We are divided right now with the Shediac Council, businesses, environmental groups, the Chamber of Commerce and the Regional Planning Commission not being on same page.
- We need a knowledgeable, trusted, independent authority figure that will not only inform but unite us.
- The Province of New Brunswick has demonstrated that it supports the protection of our coastlines as it relates to flooding caused by storms. Everyone must follow this direction and do everything necessary to reduce these impacts.
- We need to map our wetlands and waterways including flora and fauna.
- Protect sensitive lands.

Responses to the Online Questionnaire

Changes noted in the SBW over the years

Water quality

- Water is cleaner at Parlee Beach but still has hiccups.
- More garbage found at the beach (e.g. diapers are found in the water etc.).
- I scuba dive and have seen several sites in the bay where there is a large accumulation of algae that chokes out the shellfish. (i.e. too much nutrients, phosphorus etc.).

- More pollution in the watershed.
- Water quality at beach has changed.
- Declining quality of sea water.
- Contamination.
- Declining water quality in the watershed impacting beach water quality.
- An increase in unsafe water situations.
- Water courses are shallow, and some areas are becoming stagnant.
- Greatly increased incidence and duration of shellfish prohibitions by Federal Fisheries and Oceans (red posters).
- Too many boats.
- GNB has dedicated a lot of resources in improving the water quality at Parlee Beach.
- Terrible odours near streams and in coves during low tides.
- Inadequate agriculture practices.
- More bad water days.

Wastewater management:

- Sewage keeps overflowing into the bay.
- Improved sewage systems.

Land development:

- More emphasis on development regardless of the environmental concerns.
- The coastline is being developed without any concern for the sensitivity of the coast.
- Planning commission is still too liberal about development close to shores.
- More cottages along the shoreline.
- Deforestation.
- Urban development.
- Houses are built higher, but they adversely affect neighbours.

Wetlands, buffers and riparian zone management:

- Illegal developments and the destruction of wetlands.
- Destruction of wetlands continues without consequences, thereby harming the environment.
- The installation of rip-rap along most of the coast is removing habitat for birds, increasing erosion, and exploits quarries.
- Cleaner buffer zones and increase the awareness of regulatory requirements.

Education and awareness:

- People are more aware of water quality at Parlee Beach and are participating in

helping keep it clean.

- There is a bit more transparency now because we get informed when there is an overflow.
- Now we are more aware of the pollution.
- No communication from the Shediac Bay Watershed Association.
- More secrecy.

Other responses:

- The Anglican Church has changed its initial position with respect to campgrounds.
- The watershed is not ready for climate change.
- The beach keeps disappearing and having to be restore at huge expenses.
- The watershed is neglected.
- Storms are contributing to erosion (e.g. docks being pulled up onto the beach and large cement blocks overturned).

What do you feel should be the priority in a WMP?

Water Quality:

- Ensure water quality is excellent for animals and humans for the next seven generations.
- Improve the quality of water for swimming, fishing, and drinking.
- Good water quality in rivers and beaches.
- Find and address the bacteria sources which exist throughout the watershed.
- Identify the sources of the pollution and remedy them.
- Water quality.
- Clean safe water.
- Bacteria contamination.
- Managing sources of contamination including wastewater sources.
- Priority should be given to the environment. Development at all costs is a detriment.
- Ensuring clean air, water and soil.
- Maintain the quality of our environment.

Wetlands, buffers and riparian zone management:

- Plant more low-rise trees and shrubs and rain gardens.
- Natural conservation of wetlands and marshes that function like a sponge and filter the water.
- Riparian zones.
- Rain and bioswale gardens.
- Conservation and restoration of natural areas such as marshes and forests.

- Protection of our wetlands and ecosystems.
- Restoring wetlands to their original state to maintain natural water filtration that helps clean the environment.
- Restoring the largest wetlands would have the biggest impact and will protect us from sea level rise.
- Managing forestry and agricultural practices to minimise runoff of sediment-laden water into watercourses.
- Protecting wetlands.

Land development:

- Responsible development along shorelines.
- Development should be better controlled near the shoreline.
- Restricting development.
- Consider developments that will manage their run-off.
- Being able to work with community members and citizens when changes to existing or new developments are proposed.

Wastewater management:

- Resolve sewage overflows from lift stations during rainy events.
- Force the city of Shediac to repair their sewage pumping systems.
- There are some streets near the water that have nauseating smells. Are they connected to the sewer system, and how to know if they are or not? Hard to believe they are connected with that smell.

Education and awareness:

- Consideration should be given to developing a centralized place for storing all information.
- Get and publish the facts by objective measurements that lead to corrective actions in a timely manner.
- Newsletters to make the public aware of progress.
- Educate land owners and communities to get their buy-in.

Other suggestions:

- We need a trusted independent leader who can help all parties work together.
- Value ecosystem services that protect us from erosion and enhance the flora and fauna.
- More public transportation = less pollution, less traffic and benefits those who do not have a car.
- Hold the South East Regional Services Commission accountable for respecting the

laws.

- A sustainable long-term plan should be developed that includes population density changes, building standards, flood protection, and environmental protection.
- Long-term consideration for tourism should be secondary to improving the current situation.
- Laws should be good for all. Our fish are affected and the health of the public, it's urgent!!!
- Wildlife.
- Regular inspections.
- Get more citizens involved in planning.
- Climate change adaptation plans.

Other information beneficial in the development of the Shediac Bay WMP

- Think about our children and grandchildren when making decisions.
- Go in the field regularly and enjoy nature.
- Think of our children, not money.
- The local team works well. Now we need to control external forces and the interference of politicians who change the rules according to their tastes.
- There must be ways to measure and monitor the health of the watershed. Put all the data in one database. We should be amalgamating all our information about each watershed into one database to examine their health and biodiversity. These would just be layers in the database like you have now on the Geo NB site.
- Why would lagoons be built at sea level when they smell of sewage at low tide? E.g. Pointe-du chene.

Workshop Questions:

What components should be part of the Shediac Bay WMP?

- Water quality data (historical/baseline).
- Transparency with water quality data.
- Continued sampling programs.
- Mapping of pollution sources (e.g. identify areas that are continuously showing high pollution).
- Surface water and stormwater management plan.

- Core funding for continued monitoring of water quality.
- Stewardship plan for landowners, farmers, industry, campgrounds, and marinas.
- Setting concrete measurable goals such as emissions in climate change.
- Reduction of water quality advisories.
- Increase in green infrastructure projects.
- Prioritize infrastructure upgrades and implement them!
- Awareness programs done by industry.
- Better planning for developments.
- Uniform accreditation for beaches.
- Regulations for campgrounds
- Wetland management.
- Accessible information (i.e. data).
- Stakeholder involvement.
- Indicate what are you trying to achieve.
- Identify who will enforce?
- Long-term monitoring program.
- Help identify areas of concern that require attention and manage developments around those concerns.
- Concrete action plan that is reasonable.
- Science-based information.
- Regulations must be applied the same way.
- Develop best management practices and implement them.
- Education programs.
- Climate change (e.g. sea level rise).
- Bench marking water quality throughout the watershed. Consider changes in nutrients, algae, bacteria, overall health and drinking water after every major event.
- Surface water and snow melt equal stormwater run off.
- Public reporting - asking for local input and develop the plan together.
- Methodology, timeline.
- Water and wastewater management.
- Mapping, set targets, identify potential sources of contamination.
- Develop water quality objectives.
- Isolating the problems.
- Revision schedule.
- Roles and responsibilities are defined.
- Current regulations must be improved and enforced
- Identification and characterization of the watershed.
- Problematic location.
- Identify sensitive areas to be protected.
- Identify areas that can be developed.
- Short-term actions and long-term vision.
- Water quality data.

- Measurable monitoring (e.g. annual report card. Identify what works or doesn't work).
- Evaluation (goals and objectives).
- Identification of stakeholders and partners.
- Solutions to conserve or improve water quality with a reasonable timeframe.

What are the challenges/opportunities with respect to the development of a WMP for the Shediac Bay Watershed?

Challenges	Opportunities
<ul style="list-style-type: none"> • Funding • Stakeholder buy-in. • Difference in interests amongst various stakeholders. • Industry/economy vs the environment (i.e. favorizing jobs over the environment). • Enforcement and inspections (i.e. not enough resources). • Existing outdated infrastructure. • Enforcement across different municipalities/counties (local government). • Constant source of funding. • Diverging opinions. • Keep stakeholders interested. • The problem belongs to whom? • Very large geographical area. • Climate change. • Uncontrollable wildlife (source of contamination). • Large territory with different stakeholders. • The watershed includes incorporated and non-incorporated areas. Who applies? • Money. • Communicate adequately to get public buy-in. • Political will. • Find an acceptable compromise between development and the environment. • Understanding the value of environmentally sound development. • Difference of opinions amongst different stakeholders. 	<ul style="list-style-type: none"> • Guidance into a transition towards a greener environment. • Prioritizing issues that need to be resolved. • Adopt best practices that are used elsewhere (e.g. national, worldwide). • Cohesive approach with stakeholders (i.e. eliminating the silos and bringing people together). • Education. • Measurable results to identify gaps. • Stakeholder interest is there (let's make an effort to keep their interest). • Possibility of financing. • Publication of data from previous years - "Do not press reset". • Better GNB commitment. • Stability / long term. • Apply uniformity- provincial regulations. • Society awareness. It is the responsibility of all. • Public promotion of best practices. • Clarify regulations. • Water quality objectives. • Sustainable development (e.g. buying properties that are already threatened by storm surges and converting them for eco-tourism and walking trails). • Be a model like Shediac Bay biosphere. • What are people's responsibilities in terms of tidal surges? • The WMP will guide. • Improvement of the regulations. • Increased partnerships. • The WMP will give power for water

<ul style="list-style-type: none"> • Loss of opportunities. • Apply rules consistently. • Keeping the group active- targets both in terms of human resources and finance. • Smart goals and enforcement. • Better legislation is needed. • Prioritize and identify actions (i.e. use a short, medium, and long-term scale). • Resources, money and time (i.e. we need to increase resources for the watersheds organizations). • Partnerships with stakeholders (i.e. regular communication). • Education for the public and elected members. • Communication. 	<p>protection.</p> <ul style="list-style-type: none"> • The WMP will influence zoning. • Improved water quality. • Encourage the public to get involved. • Encourage green investments. • Increase watershed organizations capacity.
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Who should be responsible for implementing the Watershed Management Plan?

- The Provincial Government (i.e. a watershed crosses municipalities, LSDs, etc.) should own the WMP via policies and regulations.
- Government, environmental consultant & watershed groups should develop the WMP.
- Watershed board/committee, including different levels of departments, and a department/Minister should manage the WMP.
- There should be a board representing each Department (Env., Tourism, Agriculture, Health, Forestry, etc.) public, university/academic representation, representation from First Nations.
- Local environmental groups/watershed groups, municipalities, RSCs and citizens should implement the WMP.
- Municipalities/RCS/citizens, community champions should enforce the WMP.
- GNB is the glue between local stakeholders.
- Local working group will be at the core of the success of the plan. Need «watch dogs».
- SBWA / Vision H2O.
- SERSC (e.g. zoning subdivisions).
- DELG (main responsible).
- SBWA (e.g. education, monitoring, research, and best management practices).
- Shediac (e.g. stormwater by-law).
- Commission Regional Beaubassin-est.
- Steering committee led by DELG and made up of local stakeholders to advise and monitor progress.
- DTI (e.g. stormwater regulation).
- Stakeholder group made up of municipalities, LSD, DELG, SBWA (i.e. multi-collaborative group of stakeholders).
- Be in the plan.
- Conflict resolution process.
- Someone with facilitation skills should be responsible for implementing.
- Consensus driven when possible.
- Government should be responsible for facilitating (not everyone agrees).
- Competing interests.
- Run it like a Regional Service Commission.
- Appropriate representation.
- Watershed group (e.g. implementation and in charge of actions).
- Government (e.g. management, deliverables, and budget).
- Enforcement.
- Financing.
- Expertise.
- Academic community (e.g. local university).
- Expertise.
- Local Service Commission (e.g. management).
- Money.
- Link between DELG and watershed organizations.

Who should be responsible for updating the WMP?

- A politically neutral party should review the progress.
- An advisory board (i.e. independent reporting).
- Masters students/University committee.
- Watershed group.
- Environmental consultants.
- The document must be alive to ensure long-term continuity.
- Must ensure participation of local stakeholders (7-8 local entities).
- Maintain a portion of funding to continue evaluating successes and achievements.
- A management committee
- GNB involvement (e.g. the Department of Environment and Local Government, the Department of Agriculture, Aquaculture and Fisheries, and the Department of Transportation and Infrastructure).
- The Chamber of Commerce
- Developers.
- Regional Service Commission.
- New DELG Branch for watershed management planning.
- Working group managed by DELG with local stakeholders.
- Umbrella organization under DELG who provides workable examples from outside the region.
- Whoever implements should be responsible.
- Impacts of advancing technology must be considered.
- Need regulatory support that is enforceable.
- Links with federal government (new papers on fisheries, wetlands, sea-level rise etc.).
- Minimum 1 year (as needed).
- Created during the development.
- Make sure the plan has a good mission and clear goals.