

Parlee Beach Provincial Park

Best Management Practices



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This document presents the Best Management Practices (BMP) for Parlee Beach Provincial Park, located 5 km east of Shediac, New Brunswick, along the shoreline of the Northumberland Strait, as shown in Figure 1.

These guidelines are intended to steer best management practices at the beach and identify areas where improvements or adjustments can be made to make the beach a more visitor friendly, environmentally sound, and safe swimming area.

This report will organize the guidelines into four main categories, as summarized below:

- 1.0 Environmental Education and Information
- 2.0 Water Quality
- 3.0 Environmental Management
- 4.0 Safety and Services



Figure 1 Parlee Beach Provincial Park

1.0 Environmental Education and Information

1.1 Information about Parlee Beach must be displayed:

Addressed through the implementation of a new updated Parlee Beach Information Board, beach goers are informed of the current beach water quality status, beach facilities and amenities, community events, relevant safety information, sensitive environments, shoreline habitat, etc.

The Parlee Beach Information Board should be strategically placed where it is most visible to the beach goers, maybe at entrance points to the beach or another high-traffic area. There should be an Information Board every 500 metres. The information board shall be consistent in design with the current Department of Tourism, Heritage, and Culture's (DTHC) branding for all New Brunswick Provincial Parks. The Information Board will highlight all of the Parlee Beach improvements being undertaken through the best management practices as well as provide a consistent style that is going to be adopted by all provincial parks in NB.

The Parlee Beach Information Board should include the following:

- Parks NB logo
- Name of beach
- Brief introduction of Parlee Beach and history
- Contact information for Parlee Beach management and necessary Emergency Services
- Updated information about water quality
- Code of Conduct
- Information about the local environment
- Map of the beach indicating facility locations
- Safety precautions
- Length of the bathing season at your beach
- Information about environmental education activities

1.2 Environmental Education Initiatives must be offered and promoted to beach users:

Parlee Beach offers various educational activities through the Get Outside NB! program run by the DTHC. Parlee Beach should offer a minimum of five different environmental education initiatives per season to keep all ages and demographics that visit the beach engaged and interested.

Additional organizations that could aid in promoting educational initiatives include the Shediac Bay Watershed Association, the Lifesaving Society, Nature Trust NB, Nature Moncton, and Club les Ami(e)s de la Nature du la Sud-Est.

Examples of other events and ideas that could be implemented at Parlee Beach as educational initiatives include Environmental Movie Nights (successful example at Gimli Beach, Manitoba) and the Junior Naturalist Programs (successful in Wasaga Beach, Ontario). Comparable programs include the iNaturalist application and BioBlitz events, both promote environmental education and engagement. Other educational ideas include Beach Clean Up and Invasive Plant Species Removal days as well as Shoreline Exploration days that highlight the importance of protecting natural habitats for species at risk.

The value of such a diverse collaboration of people with a variety of perspectives not only attracts more people to Parlee Beach and further connects people to the area but also provides valuable information resources to the DTHC, for example, birding groups who have identified many species in the area (i.e. Club les Ami(e)s de la Nature du la Sud-Est who have identified over 130 species of birds in 2000 in the Cap Brule region) or through an app such as iNaturalist that uses the power of public engagement to gather and document information for free.

1.3 Local Ecosystem Information:

Parlee Beach's ecosystem is unique and not meant to be a sterile sandbox, it is imperative to understand the proper care and maintenance specific to this beach ecosystem. Any important features that must be protected and left undisturbed should be displayed on the Parlee Beach Information Board and any tourist destinations or visitor information centres. Important features can include things such as:

- Environmentally Sensitive Areas
- Species at Risk
- Important Bird Areas
- Unique Features like Coastal Dunes
- Function of Riparian Shoreline Habitat
- Wetlands and their roles in watersheds
- Local fish populations

1.4 A map of the different facilities:

A standard map is required that can be included along with the other pertinent information on the Parlee Beach Information Board. Features to be included on this map include:

- "You are here" pointers
- Lifeguards or lifesaving equipment
- The area patrolled by lifeguards
- First aid equipment
- Telephones
- Toilets
- Drinking water

- Car and bicycle parking areas
- Authorised camping sites near the beach
- Recycling facilities
- Location of water sampling point(s)
- Access points and access for disabled persons
- Zoning (swimming, boating, kayaking, etc.)
- Nearby public transport
- Footpaths
- Parlee Beach boundaries
- Location of other information boards
- Rivers and inflows
- Local landmarks
- Storm water outlets
- Nearby natural sensitive areas, etc.
- Compass
- Scale bar

1.5 **A Code of Conduct that reflects appropriate laws governing the use of the beach and surrounding areas:**

Beaches need to be protected and respected by their users, the code of conduct can help inform the public on ways in which they can keep their beach healthy and clean. These rules can be posted on the Parlee Beach Information Board and other important areas of concern (i.e. entrance points, high traffic areas, etc.)

The Code of Conduct references DTHC's Provincial Parks and Attraction's Manual.

2.0 **Water Quality**

2.1 **Water Quality information:**

Parlee Beach water quality is publically displayed on the Government of New Brunswick (GNB) website, the Parlee Beach Information Board, and the Parlee Beach website.

The water quality of Parlee Beach is currently being monitored by the Department of Health (DOH) NB and is following the guidelines as set out in the [Parlee Beach Water Monitoring Protocol](#) (document is referenced at the end of this report), a public document is made available through the GNB website. The requirements of the Parlee Beach Water Monitoring Protocol are in accordance with the Canadian Recreational Water Quality guidelines.

2.1.1 **No Industrial, wastewater, or sewage-related sewage related discharges should affect the beach area.**

The collection, treatment, and discharge of wastewater in the community must meet [Canada's Wastewater Systems Effluent Regulations](#), established under the Fisheries Act.

There should not be any discharge of industrial pollution, urban wastewater, or sewage into the Parlee Beach swimming zone or surrounding area. If there are discharge points in the vicinity of the beach, these must be documented and monitored. Any such discharges must not negatively affect Parlee Beach or compromise the water quality.

The Parlee Beach swimming zone should be outlined on the Parlee Beach Information Board. This swimming zone should be continually monitored for potential sources of pollution with a description provided of the physical, geographical, and hydrological characteristics of the bathing water. The Parlee Beach Water Monitoring Protocol covers the testing requirements for monitoring the water quality.

3.0 Environmental Management

3.1 The local authority/beach operator (DTHC) must establish a Parlee Beach Community Advisory Committee:

Parlee Beach Provincial Park would more effectively implement its best management practices, as described in this report, with the help and guidance of a Parlee Beach Advisory Committee. This Committee should be a collaborative group that represents the diversity of views of all the concerned perspectives involved at Parlee Beach, including the views of the operators, beach managers, relevant stakeholders, and citizens that use the beach on a regular basis.

This committee should meet on a quarterly basis every year. As a committee, it is important to raise public awareness of beach issues, rules and projects and actively work to fulfill past goals and move forward with new goals. The Parlee Beach Advisory Committee would be part of the solution for regular monitoring, educational outreach, providing support to the beach manager, and aid in maintaining the best management practices at Parlee Beach.

3.2 Beach Nourishment at Parlee Beach:

The beach nourishment of the sand dunes at Parlee Beach is an ongoing program that requires special attention and a specific management plan. These dunes serve Parlee Beach in a variety of important ways, offering protection against flooding and erosion, as well as providing habitat for shoreline birds and sea turtles. As a result, these areas need to be specially managed to mitigate environmental damage, protect the habitat of marine animals, limit foot traffic, and allow the natural vegetation to grow and help stabilize the dunes.

Protection can be achieved by continuing the beach nourishment program and maintaining the physical barriers such as sand fencing along the boundary of the dunes. Marram grass (native beach grass) should continue to be grown and maintained along the beach and sand dunes to help protect the dunes from erosion and provide shoreline animals with shelter, food, and natural habitat.

Important factors to consider for the beach nourishment at Parlee Beach include:

- Volume of sand added
- Grain size and shape
- Design of beach slope

The volume of sand added to Parlee Beach varies from year to year according to the severity of storm damage that can occur and the amount of ice scour that can remove beach sand during the offseason. This requires the beach to assess the amount of sand volume required on a year-to-year basis. Currently, Parlee Beach has engineered their sand dunes mainly to protect against flooding and erosion.

Grain size and shape of the dune nourishment program can be an issue when the sand being added does not match the size and shape of the natural sand. Too fine of grain size sand diameter, relative to the natural beach sand, will result in an excess of sand being washed away and transported from the beach after nourishment. Too large of grain size sand diameter, relative to the natural beach sand, will result in little to no movement of the added sand and the natural profile of the dunes will not form, potentially leading to erosional issues along the shoreline. Additionally, too large of grain size sand diameter can be aesthetically unpleasant for both the appearance of the beach and the feel of the sand for beach users. The grain-size for the beach nourishment program at Parlee Beach functions effectively because the sand is collected at a location just north of the beach from sand that shares the same physical characteristics as Parlee Beach's dunes.

The beach slope at Parlee Beach has grown dramatically from the late 1980's when the nourishment of the sand dunes began. This has resulted in dunes that now more effectively serve to protect the Parlee Beach infrastructure from flooding and water damage as well as protect the shoreline from erosion. The engineered sand dunes are shown in Figure 2.

For monitoring the beach nourishment at Parlee Beach going forward, it is suggested that some objectives are defined. These include:

- to document and evaluate whether the dune nourishment is performing as designed,
- to identify maintenance and re-nourishment requirements, and
- to evaluate project impacts.

One effective method for documenting and evaluating whether the dune nourishment is functioning as predicted is to perform regular surveys of the beach profile. This will help monitor the sand volume being lost and the volume required to nourish the beach on an annual basis. Survey monitoring will require measuring elevations along a series of perpendicular cross-sections along the length of the Parlee Beach shoreline, approximately every 100 metres.

It will also provide an in-depth understanding of where the most erosion and sand migration is occurring along the shoreline. This will help in the comprehension of the geomorphology of Parlee Beach and lead to more effective application of beach nourishment along the dunes. If possible, collection of post-storm profile information is advised because it is helpful in evaluating the cross-shore response of the dune nourishment to storm waves and tides (Haney et. al., 2007).

As the purposes of the beach nourishment program at Parlee Beach are shore protection and re-establishing the local sediment supply, an evaluation of long-term nourishment needs is necessary for planning future beach maintenance. Monitoring will show the effectiveness of the nourishment project and should provide information on (Haney et. al., 2007):

- the occurrence of down drift accretion on beaches,
- the presence of areas highly susceptible to erosion as indicated by the beach surveys and longshore beach width, and
- the future nourishment volumes needed to maintain the sediment supply.



Figure 2 Parlee Beach's engineered sand dunes

Monitoring reports should be created as well, these reports are effective as they measure profiles before, during, and after dune nourishment each year to document the volume of sand placed. These reports are suggested to be made on an annual, or bi-annual basis and should summarize all data collected, including general information regarding the wave climate and storm activity, changes in sand volume over time, and measured shoreline changes. The information can then be used to evaluate dune nourishment performance, assess any adverse environmental impacts, and estimate future re-nourishment requirements (Haney et. al., 2007).

3.3 The Beach must be kept clean:

The beach must be maintained and kept clean; this is required to maintain a high standard and positive public experience at Parlee Beach as a recreational park attraction. Some approaches to cleaning can include mechanical grooming and hand-picking more sensitive areas to avoid extensive damage to certain beach ecosystems.

Regardless of the cleaning process implemented it is necessary to protect and not interfere with the natural beach fauna: such as shorebirds, turtles, and frogs as some of these species burrow into the ground and can be harmed by mechanical grooming.

3.4 Seaweed Management Strategy:

Seaweed naturally washes ashore and is deposited upon Parlee Beach. This seaweed is then collected daily or as required and moved off-site into a seaweed and debris pile located at the north-end of Parlee Beach.

Currently, Parlee Beach collects the seaweed by machine and places it in one pile at the north-end of the beach. This collection system does not separate the man-made litter and other inorganics from the seaweed and naturally-deposited debris.

The seaweed management strategy for Parlee Beach recommends in future handling of the on-shore debris to hand-pick any man-made litter from the seaweed and natural debris before collecting it to separate potential harmful trash from the natural debris. The seaweed management strategy recommends using this extra seaweed to help stabilize and nourish the sand dunes that are rebuilt each year at the end of the beach bathing season. This helps stabilize the dunes and protect against erosion, releases nutrients into the dunes, and provides foraging habitat for the shorebirds and fauna that call the dunes home.

If not applicable right away, it is recommended that the seaweed be dried out and used as fertilizer, or at the minimum it be composted.

3.5 Garbage bins must be available at the beach in adequate numbers and they must be regularly maintained:

The garbage disposal system at Parlee Beach is in need of improvement and modernization. As shown in Figure 3 and Figure 4, the current system is inefficient and not aesthetically pleasing. The inefficiencies of this system include:

- inefficient compaction of the garbage currently being disposed,
- inefficient trips made by beach maintenance staff resulting in wasted labour and fuel,
- non-intuitive disposal system results in poorly sorted trash and recyclable items,
- aesthetically unpleasant disposal bins with open access to the outside environment (potential access to animals and releases foul odours/gases to the atmosphere and beach), and
- waste overflow.



Figure 3 Parlee Beach Solid Waste disposal bins.



Figure 4 Current inefficient solid waste system at Parlee Beach

As part of the Parlee Beach best management practices, it is suggested that the solid waste disposal system be upgraded and improved to demonstrate the importance Parlee Beach and DTHC places on efficient and environmentally conscious solid waste collection systems.

A solar-powered solid waste disposal system is an example of an upgrade that is successfully used all over North America, an example of such a company that makes these systems is Bigbelly Solar. The waste disposal system is powered by solar energy, compresses the trash at specified intervals, provides intuitive

instructions to public on how to sort the waste (providing recycling services as well as composting), uses smart-technology (application can be downloaded to any smart-phone) to alert maintenance staff when bin is nearing capacity, is aesthetically pleasing and can be customized to fit the environment, has up to 80% reduction in collection and fuel costs, has increased storage capacity (compared to traditional bin), provides total waste containment, stores data (i.e. counts passers-by, amount of trash deposited over time, and recycling diversion rates), eliminates visible/odorous waste, prevents overflows, and can act as a wifi-hotspot for the visitors to the beach (Bigbelly, 2017).

These bins can also serve as an educational information panel for the beach through customizable side panels and can provide critical information to beach goers. A set up such as solar-powered solid waste disposal would improve the entire solid waste system at Parlee Beach Provincial Park and set a standard for all parks and beaches to follow, as well as positively impact the Shediac municipal waste collection system as over 350,000 people visit Parlee Beach every year and inevitably end up producing waste.

3.6 Recycling bins must be made available at the beach:

There should be an adequate number of recycling bins spaced appropriately along the beach that are regularly maintained and service the entirety of the beach. The recycling bins should serve all the recycling services the area provides (i.e. plastics and papers). This system can be integrated into Section 3.5 regarding the waste disposal system recommendations.

3.7 Toilets and Restroom facilities at the beach:

3.7.1 An adequate number of toilet or restroom facilities must be provided on the beach:

The toilet/restroom facilities must be equipped with clean towels, soap, sinks (or a hand dryer). There should be enough restrooms to service the average number of beach users that visit Parlee during the peak season. Restrooms should be easy to locate with effective signage and spaced appropriately along the beach. They should be indicated on maps and cleaned and maintained daily.

Restrooms must be easily accessible and safe for wheelchairs.

3.7.2 The toilet and restroom facilities must be kept clean:

Washrooms should be kept clean and orderly throughout the day and this will be dependent on number of visitors during peak attendance days. Eco-friendly, non-toxic cleaning products are required for use to protect both the beach goers and the environment.

If paper towels are used, they should be made of post-consumer recycled material.

3.7.3 The toilet and restroom facilities must have controlled sewage disposal:

The Parlee Beach restrooms must be connected to the municipal sewage treatment systems and ensure that their sewage is being treated properly. It is required that the sewage system does not leak into the groundwater.

3.7.4 Camping, driving, and dumping are prohibited on the beach:

To keep the beach clean and protect the natural ecosystem and its flora and fauna. Camping, driving, and dumping are prohibited on the beach. There should be adequate signage provided and clearly communicated to the public to help prevent any infringement of this law. If applicable, relevant by-laws should also be provided to enforce this requirement.

3.7.5 Domestic animals must be prohibited on the beach:

With the exception of guide dogs for the visually impaired, pets are not allowed on Parlee Beach. They're permitted on the pathways and the parkways but not on the beach itself. Any pets within the Parlee Beach pathways and parkways should be leashed and picked up after.

If required by public demand, a dog-friendly area can be created on the beach outside of the established swimming and beach visitor zone.

There should be adequate signage to indicate the regulations regarding pets on the beach.

3.7.6 All buildings and beach equipment must be properly maintained:

Facilities should be maintained with the smallest environmental footprint possible. The beach facilities should be kept at a high level of excellence and maintained in a clean, safe, and orderly manner. Facilities should include eco-conscious products such as LED lights, environmentally friendly cleaners, low-VOC content in paints, low-flow flush toilets, and motion sensor taps.

Any new constructions should take place outside of the Parlee Beach bathing season and should avoid impacting the environmentally sensitive areas along the beach.

3.7.7 All buildings and beach equipment must be properly maintained:

Due to the adverse effect private transportation has on the environment, sustainable means of transportation should be promoted and made accessible to Parlee Beach. Examples include building and improving infrastructure that allows biking, walking, and public transportation. Recommendations to improve sustainable transportation include:

- Maintaining and improving the pedestrian and biking paths that allow beach goers to travel from Shediac and surrounding area into the Parlee Beach Provincial Park, constructing bike lanes if necessary,
- Providing Parlee Beach Provincial Park Staff with mountain bikes to sustainably move around the park in a healthy and efficient manner, and
- By promoting public shuttle services through effective communication, signage, and advertising. Cooperation with the surrounding municipalities will help with establishing and promoting this shuttle service.

The benefits of promoting sustainable transportation include reducing the negative impact it has upon the environment as well as reducing traffic congestion within the provincial park and the Shediac municipality. Travel times to and from the park during peak season will improve dramatically and Parlee Beach will be encouraging healthier living, getting outside, and becoming more connected with nature.

4.0 Safety and Service

4.1 Appropriate public safety control measures must be implemented:

To ensure that Parlee Beach is safe, an aquatic safety audit should be performed on an annual basis to assess any new risks or changes from one year to another. Parlee Beach uses lifeguards and there are two required on the beach at all times. It may be required to increase the number of lifeguards during peak times of the season (i.e. weekends or holidays). Lifeguards must have their updated certification from an accredited institution, such as the National Lifesaving Society (NLS).

Additionally, the lifeguarded area must be defined on the Parlee Beach Information Board's map, with information about when lifeguards are on duty and clear signage indicating where lifeguard stations can be found.

4.2 First Aid services must be available at the beach:

First aid must be available at Parlee Beach by one of the below-listed methods or all of the methods:

- a lifeguard on site,
- an attended first aid station with trained personnel,
- equipment located in a shop or other beach facilities at the beach, and/or
- first aid kit on the beach.

First aid equipment and stations should be easily visible and displayed clearly on the maps, signage, and Parlee Beach Information Board.

4.3 Emergency plans to cope with pollution risks must be in place:

Preparedness can make the difference in being prepared to deal with any pollution risk or emergency that arises along the beach. Risks or natural disasters that could occur include:

- oil spills
- toxic waste spills
- toxic algal blooms
- sewage discharge
- flooding
- extreme weather
- The emergency plan should include (at minimum):
- List of people to contact and their responsibilities
- Evacuation procedure if necessary
- Communications procedure to warn the public

Any change in status due to a pollution risk or emergency should be immediately communicated to the public through updated signage, media outlets, and other potential communicative methods. This process of public communication is detailed in the Parlee Beach Water Monitoring Protocol report and the process will follow the guidelines stipulated within that document.

4.4 There must be management of different users and uses of the beach so as to prevent conflicts and accidents:

Healthy outdoor activities should be encouraged at Parlee Beach Provincial Park, including things like paddle boarding, kayaking, canoeing, etc. to encourage people to become engaged and get active outside in the natural ocean setting at Parlee Beach.

Swimmers and beach goers should be safely buffered from pleasure craft activity at Parlee Beach to prevent any type of collision as well as to buffer them away from the pollution produced by these vehicles. To accomplish this task, it is recommended that the beach and the water lot be zoned accordingly, for example:

- a designated swimming zone closest to the beach to allow for recreational swimming and other water activities for people,
- a designated people-powered recreational zone that is outside the swimming zone and allows for kayaking, canoeing, paddle boarding, etc., and

- outside of these zones, an area that allows pleasure crafts to freely travel in the water, separating the crafts with buoys, markers, and effective signage from the swimmers and other beach goers.

All these zones are required to be separated by Transport Canada-approved buoys and signage as well as advertised on signs throughout the park and displayed on the Parlee Beach Information Board's map.

4.5 There must be safety measures in place to protect the users of the beach:

Access to the beach must be safe. Beach pathways and promenades should be well-maintained and kept safe. Parking lots should be well-maintained and the beach should be accessible by wheelchair.

Barriers should be kept in place to ensure the safe travel of pedestrians and whoever else is using walkways that are 2 metres or more above the beach.

4.6 A clean supply of drinking water should be available at the beach:

There should be a safe potable source of water at the beach.

4.7 Parlee Beach must provide and maintain access and facilities for the physically disabled:

Beaches should provide safe and efficient access for wheelchair users to get on to the beach and even consider the ability for them to enter the water.

The beach and facilities must comply with provincial and national regulations regarding access and facilities for people with disabilities. In addition, parking areas should have reserved spaces for accessible parking.

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