



Protected areas
in Québec:

A Lifelong Heritage

Réserve aquatique de l'Estuaire-de-la- Rivière-Bonaventure



CONSERVATION PLAN

Québec 

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Introduction

On June 20, 2005, the Québec government authorized the Minister of Sustainable Development, Environment and Parks to assign the legal status of proposed aquatic reserve to the estuary of the Bonaventure river under the *Natural Heritage Conservation Act* (R.S.Q., c. C-61.01). The legal status became effective on September 7, 2005, prohibiting the main industrial activities likely to threaten the conservation of the natural environment (logging, hydroelectric generation and mining).

The proposed aquatic reserve covering the estuary of the Bonaventure river was created with the following objectives:

- conservation of an outstanding estuary in the Appalachians natural province;
- stronger protection for the habitat of species of flora designated as threatened or vulnerable, or likely to be so designated;
- preservation of the biodiversity in the aquatic ecosystems and riparian ecotones;
- development of the natural and cultural heritage;
- involvement of local communities in the protection of the site;
- acquisition of additional knowledge about the natural and cultural heritage, as required.

It is important to note that this type of ecosystem is not currently represented in the network of protected areas. Despite its small size, the Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure will make a highly significant contribution to the network.

On July 25, 2006, the Minister of Sustainable Development, Environment and Parks asked the Bureau d'audiences publiques sur l'environnement (BAPE) to conduct an inquiry and public hearing on the Réserve de biodiversité projetée du karst de Saint-Elzéar and the Réserve aquatique projetée de l'estuaire de la rivière Bonaventure under section 39 of the *Natural Heritage Conservation Act*, which provides for a period of public consultation before the Québec government is asked to grant

permanent status to land set aside as a protected area. The BAPE inquiry began in August 2006 and ended in December 2006. The BAPE commission held public hearings in Saint-Elzéar and Bonaventure on September 19 and 20 and October 24, 2006. The report on the BAPE inquiry and public hearing (rapport 234) was submitted to the Minister of Sustainable Development, Environment and Parks in December 2006, and released by the Minister in February 2007.

The Commission noted widespread acceptance for the project in the community, as expressed by individuals, community organizations and public authorities. Like these participants, the Commission recommended that the protected area be granted permanent protection status as soon as possible.

This conservation plan was drafted by the Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP) following the BAPE hearing and recommendations. It sets out the MDDEP's vision concerning the conservation and development of the land included in the Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure and repeats much of the content of the document prepared by the MDDEP in July 2006 for the public hearing, released as part of the BAPE inquiry and public consultation process. The conservation plan reflects the concerns of all the governmental and non-governmental stakeholders involved, in connection with this project, in the implementation of the strategic action plan for protected areas.

1. Area covered by the aquatic reserve

1.1 Historical background to the conservation project

The land in the Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure formerly belonged to Emballages Smurfit-Stone (Canada) Inc. The company transferred it, on November 8, 2001, to the Ministère de l'Environnement under the Ecological Gifts Program and the tax certificate provided for in the Québec *Taxation Act* and the Canadian *Income Tax Act*.

The objective of the donation was to strengthen the protection provided for certain threatened or vulnerable species of flora found on the islands in the Bonaventure river estuary, namely two species of plant listed as threatened under the *Act respecting threatened or vulnerable species* and one species likely to be designated as threatened or vulnerable.

Since 2005, all the islands in the estuary have been listed as forming part of the Barachois-de-Bonaventure plant habitat in the *Regulation respecting threatened or vulnerable plant species and their habitats*, enacted under order in council 757-2005 dated 17 August 2005 (*Gazette officielle du Québec*, 31 August 2005, no 35). A map of the plant habitat was published in the *Gazette officielle du Québec* on May 26, 2006. The conservation status associated with these actions provides special protection for the habitat of threatened or vulnerable species of flora; several activities are thus prohibited or subject to MDDEP authorization.

After the adoption of the *Natural Heritage Conservation Act* in 2002, the MDDEP organized several information sessions and workshops for community organizations to explain the reasons for creating an aquatic reserve covering all the land in the Bonaventure river estuary acquired under the Ecological Gifts Program, taking into account the concerns of the MDDEP and the community for both the conservation and the

development of the area. During these meetings, the main conservation, management and development problems were identified and discussed with the local and regional stakeholders concerned by the future of the Bonaventure river estuary.

Following the meetings, the MDDEP asked the Québec government to grant the area the status of proposed aquatic reserve, a form of protection status that was compatible with all current land uses. On June 20, 2005, the Québec government granted legal status as a proposed aquatic reserve to the Bonaventure river estuary, and the status became effective on September 7, 2005.

During the public hearing, it was proposed that the boundaries of the aquatic reserve be moved to exclude the marina and the beach beside the municipal campground. The proposals received almost unanimous public support. The goal of the exclusion is to maintain public acceptance for the project in the specific context of a conservation project located within an inhabited environment. The MDDEP agreed to exclude the two following areas from the aquatic reserve:

- the public beach on the Beaubassin sand spit: the need to include the sand spit in the aquatic reserve has often been questioned; the public beach and its narrow connection to the mainland, close to the municipal campground, is popular and the land has already been disturbed; the use of the area is incompatible with the conservation focus of the aquatic reserve;
- the body of water between Route 132 and the Bonaventure marina: a project to extend the marina and the dredging work needed to combat the sedimentation process in this part of the estuary and maintain access to the fishing port appear to be incompatible with the conservation focus of an aquatic reserve; since the facilities are of structural importance for the community, the MDDEP agreed to exclude the sector to facilitate the management of the reserve. The exclusion has little effect on biodiversity.

On the other hand, there were several reasons for including the plant habitat in the aquatic reserve:

- the islands are an integral part of the ecological and geomorphologic unit of the Bonaventure river estuary;
- the islands are, in fact, wetlands and the status of aquatic reserve highlights the importance of protecting wetlands;
- the planning of activities and the management of the estuary as a whole will be more coherent if the question of threatened or vulnerable species is also taken into account;
- the presence of a plant habitat adds an important showcase for raising public awareness about the question of threatened or vulnerable species;
- the technical description of the area covered by the aquatic reserve is simplified.

1.2 Toponym

The toponym selected by the MDDEP for the aquatic reserve following a favourable report by the Office de la langue française is “Réserve aquatique de l’Estuaire-de-la-Rivière-Bonaventure”. The name highlights the ecological context of the Bonaventure river estuary.

1.3 Geographic location

The location and boundaries of the Réserve aquatique de l’Estuaire-de-la-Rivière-Bonaventure are shown on the maps in Schedule 1.

LOCATION

The Réserve aquatique de l’Estuaire-de-la-Rivière-Bonaventure is located in the Appalachians natural province, which covers the Estrie, Bas-Saint-Laurent and Gaspésie—Îles-de-la-Madeleine administrative regions.

The aquatic reserve lies within the Gaspésie—Îles-de-la-Madeleine administrative region between 48°01’ and 48°03’ latitude north and 65°27’ and 65°29’ longitude west, in the territory of the Ville de

Bonaventure and the regional county municipality of Bonaventure.

AREA AND BOUNDARIES

The aquatic reserve covers an area of 180.4 hectares in the estuary formed at the mouth of the Bonaventure river.

The boundaries of the aquatic reserve match those of the property transferred by Emballages Smurfit-Stone (Canada) Inc. to the Ministère de l’Environnement under the Ecological Gifts Program, except for the two sectors described in Section 1.1, namely the Beaubassin beach and the body of water between Route 132 and the marina.

The aquatic reserve comprises the bodies of water up to the high water mark and the bed of the river, of the adjacent shallow basins, and of the lagoons and delta shoals. It includes the islands located in the estuary, particularly Île des Prés, Île Arsenault, Île aux Sapins and Île des Chardons, forming part of the plant habitat. Two barrier beaches, or sand spits, oriented north-west – south-east separate the estuary from the marine environment; the sand spit located to the south-east, referred to locally as Île aux Pirates, forms part of the aquatic reserve. The proposed aquatic reserve extends in two places into Chaleur Bay, bordering the sand spit.

Various infrastructures and facilities are excluded from the protection perimeter, including Route 132, the foot bridge and the three decommissioned bridges along the former Route 6 as well as the electric power distribution equipment and its 9-metre wide right-of-way. All the land immediately adjacent to the aquatic reserve is privately owned, and is mainly occupied by dwellings and businesses.

ACCESS

The Bonaventure river estuary is one of the most accessible estuaries on the Gaspé peninsula. It is crossed by Route 132. To the south of the harbour, the long sand spit is accessible from Cap-de-Sable road, a residential road located one kilometre southeast of Rue des Vieux-Ponts.

A hiking trail has been created along the old Route 6. It includes bridges to three of the islands situated in the mouth of Bonaventure river.

The aquatic reserve is also accessible by boat, either from the Bonaventure river or the shore, and by foot from the beach on the eastern sand spit.

The sand spits were formerly used extensively by off-road vehicles (ATVs, motorbikes, four-wheel drives), an activity that is now prohibited by the regulations under the *Environment Quality Act*. In winter, a snowmobile trail crosses the western barachois basin. A tourist lookout area has been created next to the Musée acadien, with a view over the marshes in the Bonaventure river estuary.

1.4 Ecological and social background

1.4.1 Overview

The aquatic reserve is located in the Appalachian natural province, within which the Bonaventure river is one of the major watercourses.

The natural province corresponds, in large part, to the Appalachian mountain range, which was formed between 450 and 290 million years ago. The geological foundation is mainly composed of folded and deformed sedimentary or volcanic rocks.

The dominant landscape feature of the aquatic reserve is the river delta, typically triangular in shape. Its maximum altitude is a few metres above sea level.

The barachois, oriented southwest, is affected by semi-daily and seasonal tides; its currents, water level and salinity vary on a daily basis. Between 80 000 and 1 000 000 cubic metres of salt water pass through the estuary at each tide. The influence of the salt water is felt up to 350 metres upstream from the Route 132 bridge, especially during low water periods. The Bonaventure river estuary is one of ten barachois estuaries in Québec. The

barachois is composed of sand, gravel and silt, with a small percentage of clay.

The reserve has a wide range of plant groups: algal communities (on the foreshore), saltgrass communities, shrubby swamps, wooded bogs, peat bogs, fens, meadows, gravel and limestone flats, channels and pools, are all examples of habitats found in the mouth of the Bonaventure river. Their singularity lies in the fact that they are exposed to tides and to a degree of salinity.

Because of the wide range of habitats it offers, the Bonaventure barachois is attractive to bird life, and inventories have recorded the presence of around 240 different species.

Since the late 19th century and particularly since the early 1960s, the configuration of the estuary has been affected by the construction of a log-driving channel (to a sawmill that no longer exists), Route 132 and Avenue de Grand-Pré, a causeway, harbour facilities and a marina. The construction work involved backfilling and dredging that caused considerable disturbance to the natural water flow and the sedimentation process in the lagoon environment. As a result, several channels, shallows and pools gradually filled in and stabilized because of the reduced or non-existent inflow and outflow of seawater. To correct the situation, restorative work began in the 1990s. The causeway between Route 132 and the Beaubassin sand spit was demolished, and a culvert was built under the highway to improve the circulation of water in the northwest basin.

The Bonaventure barachois is an estuary system influenced by tidal ebbs and flows, and periods of high and low water. As a result, it constitutes a dynamic coastal wetland in a state of constant change. It comprises four ecological units each with its own distinctive morphology: the delta, the lagoons, the sand spits and the foreshore. These ecological units interact with each other and present specific conservation problems in terms of land occupation and human use.

1.4.2 Description of ecological units

THE DELTA

The ecological unit comprising the delta includes the tidal stretch of the Bonaventure river and all the islands to the north of Route 132. It is subject to silting.

ECOLOGY

The Bonaventure river has its source in the Chic-Choc mountains at an altitude of 487 metres. It has an average slope of 3.3 m/km, and is incised along most of its length. It flows from the north to the south until it reaches the coast, when it turns to the southwest. The river, which has a total length of 125 kilometres, empties into Chaleur Bay.

The Bonaventure river, which has a watershed of 2 391 square kilometres, carries a large quantity of sediments into the barachois, especially during spring flooding. Because of the river currents, this ecological unit has coarse sediments. The average flow of the Bonaventure river, 46 m³/s, is one of the highest on the Gaspé peninsula, after the Ristigouche and Matapédia rivers.

The islands consist of marine deposits that are coarser to the north of Route 132 than in the rest of the barachois. They are separated from each other by the secondary channels of the Bonaventure river. Over the years, the shape of the islands has changed as the result of the erosion and sedimentation caused by recurrent high water and ice scouring.

FLORA

The river channel has been colonized by extensive beds of filamentous algae, especially hollow green weed, a species highly tolerant of changes in salinity.

To the northeast of the former Route 132, the banks of the islands are covered by wooded swamps of black spruce, American elm and balsam poplar; beds of grasses and shrubs with a wide range of species are found in the freshwater marshes on the islands. Broad-leaf cattail is the most common species in the freshwater marshes,

while the wet meadows are home to bluejoint reedgrass, side-flowering skullcap, bloodroot and swamp loosestrife. The shrubby swamps generally contain speckled alder, Bebb willow and woolly willow, almost always accompanied by sweet gale and bloodroot. The slight rises are covered by stands of white spruce and eastern white cedar.

Wildlife

Two species of Salmonids are found in the Bonaventure river: Atlantic salmon, with an adult population of around 2 500, and brook trout. Rainbow smelt also use the river for reproduction; it is one of the most important spawning grounds for the species in the region. The fish pass through the estuary when migrating between the sea where they grow to maturity and the river where they spawn. Other species such as smooth flounder and winter flounder are also found in the river or estuary.

The channel between Île Arsenault and Île des Prés is a favourite sector for waterfowl during migration periods. The most abundant species are the Canada goose, mallard and green-winged teal.

Outstanding elements

The islands in the estuary constitute a plant sanctuary of outstanding importance and interest, and are home to three threatened or vulnerable species in Québec.

Macoun's fringed gentian, an annual herbaceous plant, grows along the shores of freshwater or brackish estuaries. In eastern Canada, the species is found only on the shores of the Great Lakes and in Québec, in particular around James Bay and in the Bonaventure river estuary, the only site on the Gaspé peninsula. The species was designated as a threatened species in Québec in February 2001 under the *Act respecting threatened or vulnerable species*. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated it as of special concern in 1987.

Anticosti aster, a plant endemic to the Gulf of St. Lawrence, is extremely rare in worldwide terms. In February 2001, it was designated as a threatened species in Québec under the *Act respecting threatened or vulnerable species*. It was also designated as threatened in 1990 by the Committee on the Status of Endangered Wildlife in Canada, a status that was maintained following a re-examination in May 2000.

Mat mulhy, a plant found on the shoreline and on limestone flats, occurs sporadically in North America. In Québec, it grows on around fifteen sites in the Lower Saint Lawrence, the Gaspé peninsula and Anticosti Island. The species is likely to be designated as threatened or vulnerable in Québec under the *Act respecting threatened or vulnerable species*.

Gaspé peninsula arrow-grass, which grows in the intertidal zone of salt marshes around the Gulf of Saint Lawrence, is found in the aquatic reserve and is listed as a threatened or vulnerable species or a species likely to be so designated. In early 2007, a committee of botanists was formed by the MDDEP to review changes to the list and recommended that it be removed; the MDDEP will implement this recommendation at the next publication of the revised list. For this reason, the species is no longer considered to be a threatened or vulnerable species within the aquatic reserve.

The islands are also home to 27 vascular plants that are seldom found in the region, including the rare small yellow water-crowfoot and the unusual marshland variety of New York aster.

LAND OCCUPATION AND USE

Facilities and infrastructures

- Avenue de Grand-Pré, crossing from Île Arsenault to Île des Chardons (footbridge and decommissioned bridges).
- Old log-driving channel.
- Biopark on the northeast shore.
- Cottages and houses in the surrounding area.

Activities

- Duck hunting.
- Sports fishing (salmon is fished upstream from the reserve in the ZEC de la Rivière-Bonaventure).
- Waterborne activities (canoeing, kayaking, use of motorized vessels).
- Avenue de Grand-Pré is frequently used for recreation and hiking.
- Swimming.

CONSERVATION CONCERNS

- Waste from ice fishing (abandoned fishing huts).
- Conservation of Atlantic salmon, brook trout and rainbow smelt populations and habitats in the Bonaventure river.
- Ongoing protection for the habitats of species designated as threatened or vulnerable, or likely to be so designated.
- Monitoring of the populations of rare plants on the islands in the estuary.

LAGOONS

This ecological unit covers all the shallow pools in the barachois.

ECOLOGY

The extremely weak currents in the pools and secondary channels promote the sedimentation of fine particles such as sand and silt. In addition, the weak river current, combined with the action of the spring tides, allows saltwater from Chaleur Bay to intrude into the sectors upstream from the barachois, which in turn receive more freshwater during flood periods. Over the years, human activities and constructions have led to a decrease in the biological productivity of the lagoons.

Flora

The flora in the pools is dominated by eelgrass, often accompanied by hollow green weed, a filamentous algae species that is tolerant of changes in salinity and is especially abundant along the shores of Île aux Pirates. Other plants include sea lettuce, sea grass and horned pondweed. The lagoons are, in places, adjacent to saltwater or brackish marshes. The most

common paludal species are Baltic rush, scaly sedge, red fescue, freshwater cordgrass, New York aster and saltmarsh spikerush.

Fauna

The main species of plankton present are copepods and crustacean nauplii. Fourteen benthic species are present, the most common being rag worm and swamp hydrobia. The lagoons offer possibilities for shelter, food, reproduction and spawning for around fifteen species of fish. The most abundant are sticklebacks and silversides. Mummichog, grubby, smooth flounder, winter flounder, eel, rainbow smelt, Atlantic herring and Atlantic tomcod have also been identified.

Several bird species are found in the mudflats at low tide. These migratory species include shorebirds and web-footed water birds that stay on the mud flats long enough to feed and regain their strength. They include several species likely to be designated as threatened in Québec or of special concern in Canada, or that are rarely seen on the Gaspé peninsula; in the first case, these include the yellow rail and the red-headed woodpecker and, in the second case, the American coot, little gull, common black-headed gull and great egret.

LAND OCCUPATION AND USE

The various types of construction introduced since the 19th century have increased sedimentation in the Havre area, and the silting of the lagoons accelerated following the construction of Route 143 in 1971. The degree of sedimentation has caused problems for recreational sailing and harbour activities, especially since the end of regular dredging.

Equipment and infrastructures

- Route 132.

Activities

- Migratory bird hunting.
- Sports and ice fishing.
- Snowmobiling in the west pool.
- Waterborne activities (kayaking,

canoeing, use of motorized vessels, etc.).

- Bird-watching.

CONSERVATION CONCERNS

- Maintaining the ecological integrity of the lagoon ecosystems:
 - impact on biodiversity of possible dredging work and control of the sedimentation process in the Bonaventure river estuary, as well as a possible extension of the marina;
 - waste water outflows;
 - waste from ice fishing (abandoned fishing huts);
 - impact of personal watercraft: disturbance for residents and birds.
- Maintaining bird habitats and the quality of bird-watching sites.

THE SAND BAR

To the southwest, the Bonaventure barachois is separated from Chaleur Bay by a two-kilometre sand bar divided at its centre point by a deep channel which, in ecological terms, belongs to the shoreline environment. Although the two sand spits are identical in terms of geomorphology, they constitute two separate sub-units with regard to their occupation and use.

ECOLOGY

The sand bar of the Bonaventure river barachois is made up of coarse sediment – including sand, gravel and pebbles – in varying proportions at different places. The beaches adjacent to the sand bar are composed of an upper section in the form of a mound of accumulated sediment and a lower section made up of mud flats. The sand bar encloses an inner basin, the Beaubassin harbour, in which saltwater and freshwater mingle. The eastern section of the sand bar, the sand spit known as Île aux Pirates, is part of the aquatic reserve.

Flora

Because of their sand and gravel composition and their elevation above the

water table, the sand spits have been colonized by psammophilous¹ and xerophytic² vegetation. On the eastern sand spit, the most common plants are marram grass, sea lyme grass, beach pea, toadflax, pitseed goosefoot, sea rocket and sea-beach sandwort.

In contrast, on the western sand spit, which is not included in the aquatic reserve, the vegetation has been extensively disturbed and contains plant species commonly found in manmade environments. The most common are yellow sweet clover, quackgrass, yarrow, scentless chamomile and smooth brome. The range of species introduced is quite broad, and includes redstem filaree, oak-leaved goosefoot, common peppergrass, kochia, grassleaf orache and climbing nightshade.

The upper beach is home to extensive beds of smooth cordgrass, accompanied by Canada sandspurry, common glasswort, sea plantain and sea blight. The muddy tidal flats are dominated by eelgrass and, sporadically, by seaweed groups.

Fauna

The shores of the sand bank are visited by a large number of birds, especially water and shore birds.

LAND OCCUPATION AND USE

Equipment and infrastructures

Several infrastructures and facilities are found close to the aquatic reserve:

- campground;
- fishing jetty;
- marina;
- houses;
- businesses.

Activities

- Motor vehicles: ATVs and 4x4s on the beaches.
- Swimming along the entire sea front.
- Recreation and hiking.
- Campfires on the beach.

¹ Growing on a sandy substrate.

² Able to withstand drought.

- Bird-watching.
- Hunting.
- Fishing.

CONSERVATION CONCERNS

- Degradation of the vegetation on Île aux Pirates because of intense foot and motor vehicle traffic, especially ATVs, motorbikes and 4x4s.
- Fires on the beach.
- Waste.
- Increase in sea levels and erosion of the sand bank.

SHORELINE

The aquatic reserve includes a small area of land below the low tide limit close to Île aux Pirates.

ECOLOGY

Water flows between the barachois and the sea through a gap known as the "gut". The gut in the Bonaventure river estuary has an average depth of 2.7 metres during an outgoing tide and 2.1 metres during an incoming tide, with an average width of 182 and 167 metres respectively. This passage controls the hydrological conditions in the barachois and ongoing changes by influencing the sedimentation process.

Flora

In general, below the line of the lowest tides, the vegetation is mainly composed of beds of eelgrass. An eelgrass bed stretches almost 5.5 kilometres from the beach at Pointe de Beaubassin to the marsh at Saint-Siméon. Offshore from Bonaventure, the substratum also supports an underwater prairie of brown algae, mainly composed of blade kelp. The rocky seabed is covered by algae, mainly from the species rockweed, bladder wrack, Irish moss, sea colander, knotted wrack and dulse.

Fauna

The coastal waters are home to a number of marine invertebrates such as blue mussel, soft-shelled clam, giant scallop, Iceland scallop, green urchin, common periwinkle, common starfish, snow crab and lobster.

The water plant communities also provide refuge and food for the common crab, sand shrimp and lugworm. Last, almost thirty species of fish have been identified, including Atlantic tomcod and American eel, two species given priority in the St. Lawrence Vision 2000 federal-provincial agreement.

The Bonaventure shoreline is important for migratory birds, especially waterfowl and shorebirds, and has been designated as a waterfowl gathering area. Barrow's goldeneye, a species of duck whose situation is considered of special concern in Canada, has been observed on the Bonaventure shore. In addition, the area is used by several species of marine mammal, including the minke whale, fin whale, harbour seal, grey seal and porpoise.

LAND OCCUPATION AND USE

- Sports fishing.
- Commercial and recreational navigation.
- Swimming.
- Hunting.

CONSERVATION CONCERNS

- Degradation of the vegetation.
- ATV traffic on the foreshore.

2. Conservation and development

The primary objective of an aquatic reserve is the preservation of aquatic and terrestrial ecosystems, the conservation of the biological processes that depend on it, and the protection of its biotic and abiotic components.

The Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure will be managed in such a way as to meet two main ecological objectives: to protect threatened or vulnerable species, or species likely to be so designated, and their habitats; and to maintain the ecological integrity of the barachois and the estuary.

Another goal of protected areas is to preserve land for the benefit of present and

future generations. Local communities should be the first to benefit, and should therefore be involved in managing the areas. For similar reasons, the MDDEP encourages recreational activities compatible with the conservation status of a protected area.

2.1 Protecting threatened or vulnerable species and their habitats

The establishment of the aquatic reserve will confirm the conservation status of the islands that have been recognized as a plant habitat, and strengthen the protection they enjoy. It will also provide protection for species whose situation is of concern.

The islands in the Bonaventure river estuary constitute a plantlife sanctuary of outstanding importance and interest compared to other coastal wetlands on the Gaspé peninsula. They are home to several threatened or vulnerable plant species. This is why, since 2005, all the islands have been recognized as a plant habitat under the *Regulation respecting threatened or vulnerable species and their habitats*, a conservation status that provides permanent protection for plant habitats. The *Act respecting threatened or vulnerable species* restricts all activities that may alter the existing ecosystem, the present biological diversity or the physical or chemical components peculiar to that habitat.

Several threatened or vulnerable species of bird are also found in the protected area, including the bald eagle, a vulnerable species, the harlequin duck, Barrow's goldeneye and the red-headed woodpecker, all species likely to be designated as threatened or vulnerable.

The establishment of the aquatic reserve should provide more control over activities close to the plant habitats and, if needed, prevent the future impact of such activities on biodiversity. The boundaries of the aquatic reserve extend beyond the plant habitats, and the reserve thus acts as a buffer zone. In addition, the establishment of the aquatic reserve should lead to greater

public awareness of the question of threatened or vulnerable species of flora and fauna.

2.2 Maintaining ecological integrity

The Bonaventure river estuary is a wetland environment that, in the past, has been subjected to many different human disturbances. The establishment of the aquatic reserve will result in the prohibition of activities that are incompatible with the protection status of an aquatic reserve and the control of activities that be permitted within the reserve to ensure that they are pursued in a way consistent with the natural support capacity of each environment and its natural character.

2.3 Involving stakeholders

The MDDEP supports the involvement of local and regional stakeholders in the conservation and development of protected areas.

This is why the MDDEP intends to draft an action plan, in partnership with community organizations, to guide the management of the aquatic reserve towards the protection and development of the land and its resources.

The Table de concertation du littoral de Bonaventure (TCLB), because of its mission and the representative nature of its member organizations, has agreed to be the MDDEP's key partner in drafting the action plan and planning the management of the aquatic reserve. The drafting of an action plan to plan conservation and management activities within the reserve will be included in its mission.

2.4 Maintaining access to and recreational uses of the site

The area covered by the aquatic reserve has enormous potential for educational and recreational activities, because of its natural aspect, its location in the heart of an urban

environment, its accessibility and the importance of its natural heritage.

Several current uses of the area are, generally speaking, compatible with the status of aquatic reserve. However, they must be maintained, extended and managed in a way that takes into account the fragility of some environments and obstacles to the construction of recreational facilities.

Some current activities are likely to have a negative impact on biodiversity in the aquatic reserve or to alter its natural aspect.

For these reasons, the MDDEP intends to:

- maintain recreational use of the Bonaventure river estuary;
- ensure, as far as possible, that activities in the aquatic reserve, new activities and the construction of new infrastructures do not have a negative impact on biodiversity;
- supervise activities likely to have an impact on biodiversity in the aquatic reserve or to jeopardize the peaceful enjoyment and safety of others users.

The MDDEP suggests that the plan of action should, among other things:

- plan for the implementation of a program to monitor activities in and around the aquatic reserve to assess their impact on biodiversity in the area;
- define possible ways to solve various problems, including:
 - a reduction in the waste from ice fishing;
 - ensure the safety of various activities, including hunting and campfires on the beach;
- reduce, if possible, the disturbance caused by personal watercraft.

3. Activities in the aquatic reserve

3.1 Legislative framework under the *Natural Heritage Conservation Act*

Activities in an aquatic reserve are generally governed by the provisions of the *Natural Heritage Conservation Act*.

An aquatic reserve is intended to protect a natural environment. For this reason, activities that may have a major impact on ecosystems and biodiversity are prohibited, especially those of an industrial nature. In this type of protected area, however, less harmful activities and modes of land occupation are permitted, such as recreational, wildlife-related and educational activities. Within the protected area, human beings are considered to form part of the ecosystem; the presence of humans is permitted, and a certain level of development is possible.

The aquatic reserve must be considered as an area devoted to the protection of the natural environment, the enjoyment of nature and recreation.

Under the *Natural Heritage Conservation Act*, the main activities prohibited in an area with aquatic reserve status are:

- mining, gas and petroleum exploration and development;
- forest management activities within the meaning of section 3 of the *Forest Act* (R.S.Q., c. F-4.1);
- the development of hydraulic resources and any production of energy on a commercial or industrial basis;
- any type of activity likely to degrade the bed, banks or shoreline of a body of water or watercourse, or to affect its integrity.

Although these prohibitions are essential for the long-term protection of the land and its ecosystems, they do not introduce all the standards required for the proper management of the aquatic reserve and the conservation of the environment. Under the Act, the government may specify, in the conservation plan, the legal framework that will apply in the territory of a reserve.

Provisions in Schedule 2 prohibits activities in addition to those prohibited under the Act and provides the framework for the various activities permitted so as to better protect the natural environment in keeping with the conservation principles and other management objectives established for the aquatic reserve. Accordingly, certain

activities require the prior authorization of the Minister and compliance with the conditions determined by the Minister.

Several of the provisions in Schedule 2 provide for authorization from the Minister, an approach that allows for the introduction of appropriate conditions in specific circumstances.

For example, the construction of some types of buildings (such as a reception centre or shelter) and trails may fall within the management and conservation objectives of the reserve, while other types of construction may have a negative impact on the environment and biodiversity and will not be considered appropriate – and will not be authorized.

Many of the standards in Schedule 2 have been designed to allow the Minister to exercise an appropriate level of supervision, taking the context into account and with the flexibility needed when the circumstances and the characteristics of the target environment allow, so as to provide adequate guidance for various activities.

It is important to note that the measures in the Schedule target new interventions in particular within the reserve, and do not generally affect existing facilities or current activities, preserving many compatible existing land uses.

Since the terms of the framework set out in Schedule 2 cannot indicate whether an application for authorization will be accepted or refused, the MDDEP will make public the criteria it will use in its management to analyze the applications made. Guides, instructions or directives will be drawn up and made public.

For example, the MDDEP will establish a list of activities mentioned in Schedule 2 that will only be authorized in exceptional circumstances, or only in a few cases, because they are considered *a priori* to have a negative impact.

In contrast, despite the introduction of control mechanisms, many other activities may be seen as compatible with the objectives of the protection status. For these

cases, the authorization process will be used to ensure that the MDDEP is aware of the activities, and is able where necessary to impose improvements to the approach proposed by the applicant.

Last, to avoid the imposition of control measures of little use because of the low risk of a negative impact, or because they duplicate other control measures under other legislation, Schedule 2 also lists exemptions to the requirement of obtaining authorization for certain activities: routine maintenance work, for example, on existing facilities.

3.2 Activities governed by other statutes

Certain activities likely to be carried on within the reserve are also governed by other legislative and regulatory provisions, including provisions that require the issue of a permit or authorization or the payment of fees. Certain activities may also be prohibited or limited by other Acts or regulations that are applicable within the reserve.

A special legal framework may govern permitted activities within the reserve in connection with the following matters:

- Environmental protection: measures set out in particular in the Environment Quality Act (R.S.Q., c. Q-2) and its regulations.
- Removal of species of flora designated as threatened or vulnerable: measures set out in the Act respecting threatened or vulnerable species (R.S.Q., c. E 12.01) prohibiting the removal of such species;
- Development and conservation of wildlife resources: measures set out in particular in the Act respecting the conservation and development of wildlife (R.S.Q., c. C 61.1), including the provisions pertaining to outfitting operations and beaver reserves and the measures contained in applicable federal legislation, in particular the fishery regulations.

- Archaeological research: measures set out in particular in the Cultural Property Act (R.S.Q., c. B-4).

- Access and land rights related to the domain of the State: measures set out in particular in the Act respecting the lands in the domain of the State (R.S.Q., c. T 8.1) and in the Watercourses Act (R.S.Q., c. R 13).

- Operation of vehicles: measures set out in particular in the Act respecting the lands in the domain of the State (R.S.Q., c. T 8.1) and in the regulation on motor vehicle traffic in certain fragile environments made under the Environment Quality Act.

- Construction and layout standards: regulatory measures adopted by regional and local municipal authorities under the Acts applicable to them.

3.3 Protection of threatened or vulnerable species and their habitats

Species designated as threatened or vulnerable under the *Act respecting threatened or vulnerable species* are governed by either the *Act respecting threatened or vulnerable species* (R.S.Q., c. E-12.01), for flora, or the *Act respecting the conservation and development of wildlife* (R.S.Q., c. C-61.1) and its regulations, for fauna. In the case of the aquatic reserve, this includes two plant species designated as threatened, Anticosti aster and Macoun's fringed gentian, and one bird species designated as vulnerable, the bald eagle.

In addition, to ensure the conservation of species likely to be designated as threatened or vulnerable, the regulatory provisions governing the aquatic reserve will prohibit their harvesting without authorization from the Minister. This applies to the mat muhly, the harlequin duck, Barrow's goldeneye and the red-headed woodpecker (Schedule 2).

4. Management

The MDDEP is responsible for the application of the *Natural Heritage Conservation Act*, which governs the aquatic reserve. Some activities will continue to be regulated by other government authorities under other Acts, in collaboration with the MDDEP.

The operational management of the aquatic reserve will be under the responsibility of the MDDEP regional office for analysis and expertise in the Bas-Saint-Laurent and Gaspésie—Îles-de-la-Madeleine region, which will be required to ensure that conservation objectives are met in the aquatic reserve. The MDDEP ecological heritage and parks division will provide the scientific and technical support needed.

The MDDEP regional office for analysis and expertise in the Bas-Saint-Laurent and Gaspésie—Îles-de-la-Madeleine region will establish the procedure for participation by local and regional stakeholders interested in the management of the aquatic reserve.

The MDDEP hopes that the local and regional population will become a key partner in the drafting of an action plan, which will establish priorities for conservation and development actions over the short, medium and long term, and in the management of the reserve. The action plan could, if necessary, be revised periodically at the same time as the conservation plan, as provided for in the *Natural Heritage Conservation Act*.

The Table de concertation du littoral de Bonaventure has agreed to play this important role.

A mechanism will be established to monitor the conservation objectives and, if necessary, adjust the strategies implemented to achieve those objectives. The aquatic reserve will be managed in keeping with the following conservation principles:

- maintain natural ecosystem dynamics;
- restore damaged ecosystems, as required and over the medium term;

- respect the ecosystem support capacity;
- maintain non-industrial harvesting activities, without encouraging their development;
- gather and disseminate knowledge about the natural and cultural heritage;
- participate in the management of adjacent areas to ensure harmonization with the conservation objectives pursued within the aquatic reserve.

In the document released for the BAPE inquiry and hearings, the Protection and Management Framework for the proposed aquatic reserve, the MDDEP proposed the zoning of the area into two sectors with different permitted activities. Zone I, containing the plant habitat, would have been integrally protected, while conservation and moderate use would have applied in Zone II.

For this conservation plan, the MDDEP does not consider it necessary to establish an official zoning scheme, because:

- the area identified as a plant habitat on the map of the aquatic reserve already has almost integral protection; activities in it are governed by the *Act respecting threatened or vulnerable species*; all activities in the zone will be closely controlled by the MDDEP;
- the rest of the reserve is subject to conservation and moderate use; in this area, authorized activities must be consistent with ecosystem support capacity and have no negative impact on biodiversity, especially on biodiversity in plant habitats.

If needed, the MDDEP will review the advisability of zoning the aquatic reserve with stakeholders when drawing up the action plan, to create a framework for the possible development of activities and their pursuit in the protected area.

Conclusion

The Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure will provide protection for an outstanding estuary, one of the most important coastal wetlands on the Gaspé peninsula. It will also help conserve various threatened or vulnerable species of flora and fauna and their habitats.

The conservation of this environment, which will be used for light recreation, the enjoyment of the natural and cultural heritage, and scientific research, should help diversify and consolidate the local tourist industry.

The reserve – because of its natural state, cultural importance and accessibility – offers an ideal location for the development of highly popular recreational and tourism-related activities, including ecotourism, nature observation and hiking.

The management methods applied in the Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure will promote closer ties between various interest groups, by encouraging them to pool their efforts, their abilities and their skills to further a conservation and development project that is in harmony with and respectful of the concept of biodiversity.

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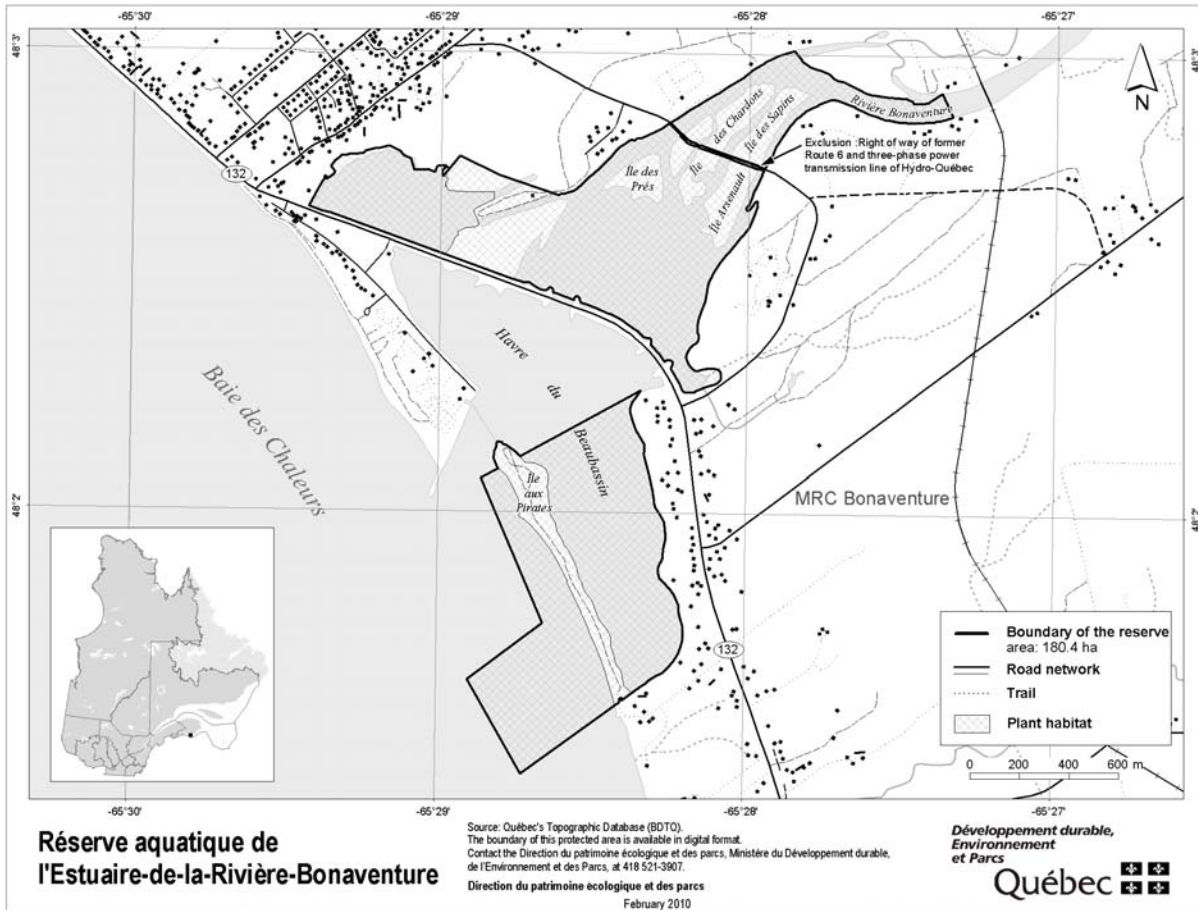
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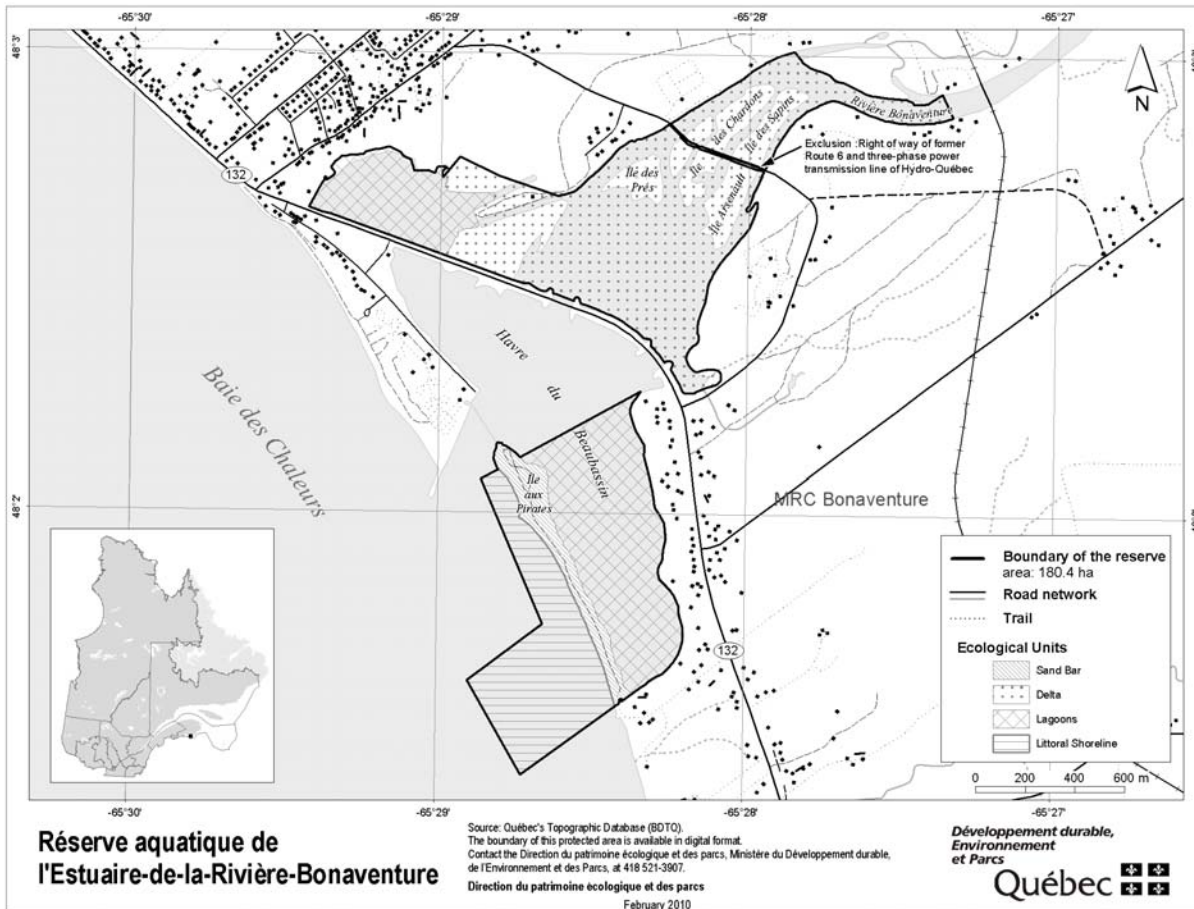
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Schedule 1: Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure:
location, boundaries and ecological units





Réserve aquatique de l'Estuaire-de-la-Rivière-Bonaventure

Source: Québec's Topographic Database (BDTO).
 The boundary of this protected area is available in digital format.
 Contact the Direction du patrimoine écologique et des parcs, Ministère du Développement durable, de l'Environnement et des Parcs, at 418 521-3907.
 Direction du patrimoine écologique et des parcs
 February 2010

Développement durable, Environnement et Parcs
 Québec

Schedule 2

(S 3.1)

ACTIVITIES FRAMEWORK FOR THE RÉSERVE AQUATIQUE DE L'ESTUAIRE-DE-LA-RIVIÈRE-BONAVENTURE — STANDARDS ADDITIONAL TO THOSE IN THE ACT

PROHIBITIONS, PRIOR AUTHORIZATIONS AND OTHER CONDITIONS GOVERNING ACTIVITIES IN THE AQUATIC RESERVE

Natural Heritage Conservation Act

(R.S.Q., c. C-61.01, ss. 46, 47 and 49)

DIVISION I

PROTECTION OF RESOURCES AND THE NATURAL ENVIRONMENT

1. Subject to the prohibition in the second paragraph, no person may establish in the aquatic reserve any specimens or individuals of a native or non-native species of fauna or flora, including by stocking, unless the person has been authorized by the Minister and complies with the conditions the Minister determines.

No person may stock a watercourse or body of water for aquaculture, commercial fishing or any other commercial purpose.

Before issuing an authorization under this section, the Minister is to take into consideration, in addition to the characteristics and the number of species involved, the risk of biodiversity imbalance, the importance of conserving the various ecosystems, the needs of the species in the ecosystems, the needs of rehabilitating degraded environments or habitats within the aquatic reserve, and the interest in reintroducing certain species that have disappeared.

In addition, no person may remove the following species of flora and fauna, unless the person has been authorized by the Minister and carries on the activity in compliance with the conditions the Minister determines:

- (1) mat muhly (*Muhlenbergia richardsonis*);
- (2) harlequin duck (*Historionicus historionicus*);
- (3) Barrow's goldeneye (*Bucephala islandica*);
- (4) red-headed woodpecker (*Melanerpes erythrocephalus*).

2. No person may use fertilizer or fertilizing material in the aquatic reserve. Compost for domestic purposes is permitted if used at least 20 metres from a watercourse or body of water measured from the high-water mark.

The high-water mark means the high-water mark defined in the Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains, adopted by Order in Council 468-2005 dated 18 May 2005.

3. No person may, unless the person has been authorized by the Minister and carries on the activity in compliance with the conditions the Minister determines,

- (1) carry out any type of work or intervention in the aquatic reserve. For the purposes of this

subparagraph, an intervention includes

- (a) erecting any structure, infrastructure or new works, and reconstruction or demolition work;
 - (b) any burial, earthwork, excavation, removal or displacement of surface materials or vegetation cover, for any purpose including recreational and tourism purposes such as trail development;
 - (c) creating or developing new watercourses or bodies of water; and
 - (d) modifying the natural drainage or water regime;
- (2) use a pesticide, although no authorization is required for the use of personal insect repellent;
- (3) carry on educational or research-related activities if the activities are likely to significantly damage or disturb the natural environment, in particular because of the nature or size of the samples taken or the invasive character of the method or process used; or
- (4) hold a tournament or similar event.

The conditions determined by the Minister for the authorization may pertain to the location of the authorized activity, the methods used, the types of material that may be used including on-site materials, and the presence of ancillary works or facilities. The conditions may also include a requirement to ensure periodic follow-up or to report to the Minister, in particular as regards the results obtained from the research to which subparagraph 3 of the first paragraph refers.

If the proposed activity is situated in a wetlands or in or on the bed, banks or floodplain of a watercourse or body of water, no authorization may be issued by the Minister under this section unless the applicant, in addition to showing that the activity will not degrade or affect the integrity of the watercourse or body of water, has shown to the Minister, as the case may be,

- (1) that it is impossible to hold the activity elsewhere;
- (2) the importance or necessary character of the activity for the advancement of scientific knowledge of the ecosystems; or
- (3) the necessity of holding the activity to preserve ecosystems or to rehabilitate or restore disturbed or degraded hydric environments or wetlands.

4. Despite subparagraph 1 of the first paragraph of section 3, no authorization is required to carry out work referred to in subparagraph 1 of this section when the requirements of subparagraph 2 are met.

(1) The work involves

(a) work to maintain, repair or upgrade an existing structure, infrastructure or works such as a shelter or trail, including ancillary facilities such as lookouts or stairs;

(b) the construction or erection of an appurtenance or ancillary facility for an existing shelter or building in the aquatic reserve such as a shed, well, water intake or sanitary facilities; or

(c) the demolition or reconstruction of a shelter or building or of an appurtenance or ancillary facility such as a shed, well, water intake or sanitary facilities.

(2) The work is carried out in compliance with the following requirements:

(a) the work involves a structure, infrastructure or works permitted within the aquatic reserve;

(b) the work is carried out within the area of land or right-of-way subject to the right to use or occupy the land in the aquatic reserve, whether the right results from a lease, servitude or other form of title, permit or authorization; and

(c) the work is carried out in compliance with the conditions of a permit or authorization issued for the work in connection with the structure, infrastructure or works involved, and in accordance with the laws and regulations that apply.

For the purposes of this section, repair and upgrading work includes work to replace or erect works or facilities to comply with the requirements of an environmental regulation.

5. No person may bury, abandon or dispose of waste, snow or other residual materials elsewhere than in waste disposal containers, facilities or sites determined by the Minister or in another place with the authorization of the Minister and in compliance with the conditions the Minister determines.

DIVISION II

RULES OF CONDUCT FOR USERS

6. Every person staying, carrying on an activity or travelling in the aquatic reserve is required to maintain the premises in a satisfactory state and before leaving, return the premises to their natural state to the extent possible.

7. With the exception of campfires which are allowed on Île aux Pirates, fires, including fireworks, are prohibited in the aquatic reserve.

Every person who makes a campfire on the island must

- (1) first clear an area around the fire site sufficient to prevent the fire from spreading;
- (2) ensure that the fire is at all times under the immediate supervision of a person on the premises; and
- (3) ensure that the fire is completely extinguished before leaving the premises.

8. In the aquatic reserve, no person may

- (1) cause any excessive noise;
- (2) behave in a manner that unduly disturbs other persons or interferes with their enjoyment of the aquatic reserve; or
- (3) harass wildlife.

For the purposes of subparagraphs 1 and 2 of the first paragraph, behaviour that significantly disturbs other persons and constitutes unusual or abnormal conditions for the carrying on of an activity or for the permitted use of property, a device or an instrument within the aquatic reserve is considered excessive or undue.

9. No person may enter, carry on an activity or travel in a vehicle in a given sector of the aquatic reserve if the signage erected by the Minister restricts access, traffic or certain activities in order to protect the public from a danger or to avoid placing the fauna, flora or other

components of the natural environment at risk, unless the person has been authorized by the Minister and complies with the conditions the Minister determines.

10. No person may destroy, remove, move or damage any poster, sign, notice or other types of signage posted by the Minister within the aquatic reserve.

DIVISION III

ACTIVITIES REQUIRING AN AUTHORIZATION

11. No person may occupy or use a site in the aquatic reserve, unless the person has been authorized by the Minister and complies with the conditions the Minister determines.

For the purposes of this section, the occupation or use of a site includes staying or settling in the aquatic reserve, including for vacation purposes, installing a camp or shelter in the aquatic reserve or leaving, burying or installing equipment, any device or a vehicle.

12. No person may carry on forest management activities to meet domestic needs or for the purpose of maintaining biodiversity, unless the person has been authorized by the Minister and carries on the activities in compliance with the conditions the Minister determines.

The conditions determined by the Minister for the authorization may pertain, among other things, to species of trees or shrubs, the size of the stems that may be cut, the quantities authorized and the places where the activities may be carried on.

DIVISION IV

AUTHORIZATION EXEMPTIONS

13. Despite the preceding provisions, an authorization is not required for an activity or other form of intervention within the aquatic reserve if urgent action is necessary to prevent harm to the health or safety of persons, or to repair or prevent damage caused by a real or apprehended disaster. The person concerned must, however, immediately inform the Minister of the activity or intervention that has taken place.

14. The members of a Native community who, for food, ritual or social purposes, carry on an intervention or an activity within the aquatic reserve are exempted from obtaining an authorization.

15. Despite the preceding provisions, the following activities and interventions involving the transmission, distribution or production of electricity carried out by Hydro-Québec (Société) or by any other person for Hydro-Québec do not require the prior authorization of the Minister under this conservation plan:

(1) any activity or intervention required within the aquatic reserve to complete a project for which express authorization had previously been given by the Government and the Minister, or only by the Minister, in accordance with the Environment Quality Act (R.S.Q., c. Q-2), if the activity or intervention is carried out in compliance with the authorizations issued;

(2) any activity or intervention necessary for the preparation and presentation of a pre-project report for a project requiring an authorization under the Environment Quality Act;

(3) any activity or intervention relating to a project requiring the prior authorization of the Minister under the Environment Quality Act if the activity or intervention is in response to a request for a clarification or for additional information made by the Minister to the Société, and the activity or intervention is carried out in conformity with the request; and

(4) any activity or intervention by the Société, if the conditions for the carrying out of the activity or intervention have been determined in an agreement between the Minister and the Société and the activity or intervention is carried out in compliance with those conditions.

The Société is to keep the Minister informed of the various activities or interventions referred to in this section it proposes to carry out before the work is begun in the reserve.

For the purposes of this section, the activities and interventions of the Société include but are not restricted to pre-project studies, analysis work or field research, work required to study and ascertain the impact of electric power transmission and distribution line corridors and rights-of-way, geological or geophysical surveys and survey lines, and the opening and maintenance of roads required for the purpose of access, construction or equipment movement incidental to the work.

DIVISION V

GENERAL PROVISIONS

16. Every person who applies to the Minister for an individual authorization or an authorization for a group or a number of persons must provide all information or documents requested by the Minister for the examination of the application.

17. The Minister's authorization, which is general or for a group, may be communicated for the benefit of the persons concerned by any appropriate means including a posted notice or appropriate signage at the reception centre or any other location within the aquatic reserve that is readily accessible to the public. The Minister may also provide a copy to any person concerned.