



2009 Zoning Plan

for the Saguenay–St. Lawrence
Marine Park



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APPROVAL

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A WORD FROM THE CO-DIRECTORS

The Saguenay–Saint-Laurent Marine Park is, by international definition, a marine conservation area. Zoning aims primarily to protect the biodiversity and ensure the environmentally sustainable use of this marine area, representative of the Saguenay Fjord and the St. Lawrence Estuary. Developing a zoning plan is a management challenge that can be met only through close cooperation with other departments, members of the community, and the general public.

The zoning plan was established taking into account the general guidelines set out in the Marine Park's original Management Plan (1995), scientific data on the marine environment, and human activities within the Park. It follows up on discussions at multisectoral workshops held in 2005, where the government departments involved and targeted groups contributed comments and suggestions on the first zoning proposal. In 2007 the government departments and various groups were asked for input again, but individually this time, in order to validate certain guidelines in a new draft. Finally, a second consultation took place in 2008 during the Management Plan review. This process gave the general public in both Quebec and the rest of Canada an opportunity to get involved in developing future management guidelines to ensure the protection and environmentally sustainable use of this marine heritage.

This zoning plan will be incorporated into the second Saguenay–St. Lawrence Marine Park Management Plan. It will be submitted for approval as a regulation and a communication strategy will be implemented. We wish to thank everyone who contributed to developing this zoning plan, which will be a key management tool for achieving the Marine Park's objectives.

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1. INTRODUCTION

The Saguenay–St. Lawrence Marine Park was created pursuant to an agreement signed in 1990 by the governments of Quebec and Canada. Its official proclamation was based on two pieces of so-called “mirror” legislation adopted by the two governments in 1998. The Marine Park’s original Management Plan was formally approved in 1995. Already, it mapped out a zoning plan “*as a tool incorporated into a legislative or regulatory framework for the protection, enhancement, and management of Park resources.*” It recognized the need for developing a more detailed zoning plan with precise maps of each zone and rules to regulate the periods during which various activities could be carried out in the Park.

The zoning plan is based on ongoing discussions since 1995 with partners involved in managing the Marine Park and representatives of various regional organizations. It is designed to regulate activities in the Park in order to protect ecosystems, habitats, and species, while fostering environmentally sustainable use of resources, quality visitor experiences, and the safety of Park users. The zoning plan determines the degree of protection required, taking into consideration conservation priorities, the environment’s support capacity, and its current use.

The zoning plan includes a description of the process used in its preparation, identifies the activities that do not comply with the Saguenay–St. Lawrence Marine Park’s mandate, and establishes the protection, education, and use objectives for each of the four types of zone. It introduces the zones associated with sixteen sectors in the Marine Park’s three major ecosystems. These sectors will be precisely mapped and their boundaries clearly marked to aid in their localization.

The use of temporal and spatial aspects of zoning is a means of enhancing the degree of resource protection. The temporal dimension can be used to restrict various activities based on the level of protection required at a given time. Protecting seabird colonies during breeding season is a good example. As for the vertical dimension, it allows for the establishment of types of use depending on the depth of the water column. This aspect has been used in only one sector. However, it provides flexibility in zoning in case new concerns arise.

The Saguenay–St. Lawrence Marine Park zoning plan is an innovative management tool, since it is the first in Canada to be developed for a marine protected area. It will be made official by the government departments responsible for the Marine Park when the second Management Plan is approved. A communication strategy will then be implemented to inform Park visitors and a regulation will be adopted to this effect.

2. HISTORY

The Saguenay–St. Lawrence Marine Park covers a representative portion of the upper and lower St. Lawrence estuaries and the Saguenay Fjord, totalling 1,245 km². The Park's benthic organisms, plankton, fish, birds, and marine mammals are part of an exceptionally rich, complex, and dynamic ecosystem. For this reason, the area has been highly prized by humans for thousands of years. The coastal communities in the vicinity of the Park played a crucial role in its creation and remain key players in achieving the objectives of this marine protected area.

Canadian and Quebec legislation establishing the Saguenay–St. Lawrence Marine Park were adopted in 1998. These Acts stipulate that the Marine Park's mandate is *“to increase, for the benefit of the present and future generations, the level of protection of the ecosystems of a representative portion of the Saguenay River and the St. Lawrence Estuary for conservation purposes, while encouraging its use for educational, recreational and scientific purposes.”*

The following is a chronological overview of the principal milestones in the Saguenay–St. Lawrence Marine Park's history:

1988

The Coalition for the Saguenay–St. Lawrence Marine Park is formed, comprising representatives of the community (27 groups) actively in favour of a Marine Park. At the International Forum on the Future of the Beluga, the establishment of a Marine Park is at the top of the list of recommendations to help restore the beluga population in the St. Lawrence.

1990

On April 6, 1990, the governments of Quebec and Canada sign an agreement to establish a marine Park at the confluence of the Saguenay Fjord and the St. Lawrence Estuary. The agreement commits them to increasing the degree of protection for a representative portion of the area and to enhancing it for the benefit of present and future generations.

A broad public consultation on the boundaries of the Marine Park is conducted by Parks Canada and Ministère de l'Environnement et de la Faune du Québec.

1993

In April 1993, the provincial and federal governments announce the boundaries of the Marine Park. Following public consultation, the area of the Park is increased from 746 km² to 1,245 km².

In June 1993, a new public consultation is launched, this time on the development proposal for the Marine Park.

1995

Based on the 1990 and 1993 consultations, the Management Plan (Saguenay–St. Lawrence Marine Park, 1995) is tabled in August.

1996

The Management Plan is approved by the federal and provincial ministers on February 14, 1996.

The following components are included in the Management Plan:

- The management framework
- A description of the natural and cultural components of the area
- General and specific objectives organized under five themes: conservation of the marine environment, education, scientific research, land use, and harmonious integration of the Marine Park into the regional community
- The management issues
- A zoning proposal to promote the protection of the Marine Park
- The development concept

1996

Government authorities create the Saguenay–St. Lawrence Marine Park Coordinating Committee to advise the Ministers involved on implementing the Marine Park's Management Plan.

1997

A multidisciplinary team, assisted by local community representatives, starts work on the Park's ecosystem conservation Plan, *Plan de conservation des écosystèmes du parc marin du Saguenay–Saint-Laurent*.

1998

The Saguenay–St. Lawrence Marine Park is officially established on June 10, 1998, by the adoption of so-called mirror legislation, namely a Canadian act and a Quebec act that are similar in many ways, but respectful of each government's respective jurisdictions.

The Management Plan is tabled in the House of Commons in Ottawa and the National Assembly of Quebec.

A regional workshop on marine observation activities is organized with a view to protecting marine mammals.

2001

The Park's ecosystem conservation Plan is approved in June 2001.

The ecosystem conservation plan's main objective is to promote integrated management with a view to protecting the Marine Park's ecosystems and underwater landscapes. The conservation plan fulfills a number of functions:

- Describing the Marine Park's major ecosystems
- Examining the following elements:
 - Status of coastal, island, and marine habitats

- Status of species in the Park
 - Effects of contamination of the natural environment and wildlife
 - Effects of maritime traffic and transport
 - Consequences of tourism on the ecosystems
 - Effects of commercial and sport fishing, aquaculture, and seal and migratory bird hunting on the natural environment
- Identifying ongoing conservation actions in the area and recommending others
 - Establishing conservation priorities in order to determine priority sectors where protection efforts should be concentrated

2002

The *Marine Activities in the Saguenay–St. Lawrence Marine Park Regulations* are adopted and enter into force in February 2002. The regulations aim to protect marine mammals by setting standards for observation activities at sea.

2005

The Marine Park releases a detailed zoning proposal for consultation with its main partners in the community, namely elected representatives of the four administrative regions adjacent to the Marine Park, environmental groups, representatives of the nature interpretation community, and targeted groups involved in the main activities practiced in the Marine Park: recreational and commercial fishing, hunting, pleasure boating, marine transport, kayaking, observation cruises, and research.

An information document entitled *Cahier du participant – Zonage préliminaire du parc marin du Saguenay–Saint-Laurent – Ateliers multisectoriels – Mai-Juin 2005* (Saguenay–St. Lawrence Marine Park, 2005a) is distributed to those taking part in the consultation.

In December 2005, the multisectoral workshop proceedings, *Compte rendu des ateliers multisectoriels sur le zonage préliminaire du parc marin du Saguenay–Saint-Laurent* (Saguenay–St. Lawrence Marine Park, 2005b), are submitted. The report comprises numerous comments made by the forty representatives of organizations registered at the four regional roundtables, as well as various opinions expressed in ten letters received following the workshops.

2006

The Marine Park sets up a planning committee to start revising the 1995 Management Plan. At the same time a working group on the Marine Park zoning is created to review the June 2005 zoning proposal in light of the comments expressed at the multisectoral workshops.

2007–2008

Authorities at the Marine Park hold a public consultation on guidelines for the future Management Plan, including a new zoning proposal. Over 230 people attend the consultation sessions, either in a private capacity, or representing an organization. Fifty-two briefs are submitted.

3. ZONING - A management tool that incorporates, at the spatial and temporal level, biodiversity protection, environmentally sustainable use, and the Marine Park visitor experience

Zoning aims to protect biodiversity, promote the environmentally sustainable use of this marine environment representative of a portion of the Saguenay Fjord and the St. Lawrence Estuary, and foster a quality visitor experience. Implementing a zoning plan poses a management challenge that can be met only through the direct involvement of other government departments, members of the community, and the general public. This tool makes it possible to provide a degree of protection and determine an authorized level of resource use specific to each zone.

Zoning cannot address all conservation and development issues. It is the role of the Management Plan to define the “Vision for the Marine Park,” namely the desired state of the Marine Park after 15 years, to outline the challenges the Park will face with respect to its mandate, and to identify objectives for each of them, along with the management measures, including zoning, that ensure those objectives are achieved.

Zoning applies to both Marine Park managers and visitors. Therefore, it must be simple and easy to understand for all Park users and applicable on the water.

This zoning plan proposal takes into account the following considerations:

- 1. Marine Park mandate:** Pursuant to the acts adopted by Canada and Quebec regarding the Saguenay–St. Lawrence Marine Park, the zoning plan is one of the management tools that aim [...] *to increase, for the benefit of the present and future generations, the level of protection of the ecosystems of a representative portion of the Saguenay River and the St. Lawrence Estuary for conservation purposes, while encouraging its use for educational, recreational, and scientific purposes.*”
- 2. Main objective of the zoning plan:** It consists of defining and mapping the Marine Park’s various levels of protection and use. The zoning plan specifies four types of zone, as set out in the legislation adopted by Canada and Quebec with respect to the Saguenay–St. Lawrence Marine Park.
- 3. Management Plan guidelines:** The zoning plan is based on the “Vision for the Marine Park” and complements other measures in the Management Plan that promote sound management of human activities based on principles of environmentally sustainable use.
- 4. Rights of aboriginal communities:** The presence of aboriginal communities in the vicinity of the Marine Park means that the Canadian and Quebec governments must take aboriginal ancestral and treaty rights, as well as prior agreements into account. The zoning plan must not be interpreted as establishing, recognizing, or denying any ancestral or treaty privileges, freedoms, or constitutional or other rights the

aboriginal nations may have. The Marine Park zoning plan is in keeping with this statement.

5. **Jurisdictions:** The zoning plan takes into consideration the fact that the activities carried out in the Marine Park (commercial navigation, pleasure boating, commercial and recreational fishing, seal and migratory bird hunting, etc) are governed by various Canadian and Quebec government laws, regulations, and policies. It is up to each department involved to apply the proper regulations and adopt management measures in support of the Saguenay–St. Lawrence Marine Park’s objectives. The Canadian and Quebec legislation establishing the Marine Park complements existing laws by increasing the degree of protection afforded the Park’s ecosystems and promoting the Park’s use for educational, recreational, and scientific purposes.
6. **Participatory management:** The zoning plan was developed using a participatory management approach. Marine Park authorities seek advice and support from various Canadian and Quebec government departments, as well as opinions and recommendations from members of the Coordinating Committee and the advisory committees.
7. **Community consultation:** The zoning plan was developed in consultation with representatives from local communities—including aboriginal communities—and with the main users from various activity sectors. The zoning plan was part of the public consultation carried out in conjunction with the 1995 Management Plan review.
8. **Regulations on marine activities:** The zoning plan complies with the *Marine Activities in the Saguenay–St. Lawrence Marine Park Regulations* (2002), which help achieve the Marine Park’s objectives by setting rules for marine activities. The regulations are designed to protect marine mammals in the Park. They also enhance ecosystem conservation by raising the protection level of threatened or endangered species, increase visitor safety, and work to foster a positive image of marine observation activities while allowing for a quality visitor experience. The regulations establish a kind of safety perimeter around marine mammals in the Park in order to reduce the risk of their being disturbed or hit by boats.
9. **Scientific data:** The zoning plan is based on the most recent scientific data. The ecosystem conservation plan produced in 2001 was a key reference because this assessment document identifies conservation priorities for the Marine Park that are still very relevant. The priorities were determined by subdividing the Marine Park into various geographic sectors. The natural components of each sector were evaluated in light of a series of criteria based on desirable characteristics for biodiversity protection: species with a particular status, biophysical structures playing a key role in the ecosystems (marshes, upwelling zones), biological functions (breeding, rearing, and feeding zones), specific characteristics and values (uniqueness, fragility, level of integrity, educational or scientific value, zones with protected status). Certain scientific data collected since 2001 also made it possible to more accurately determine the appropriate conservation level for each sector.

- 10. Preservation of ecosystems and representative habitats:** Under the Marine Park's mandate, the zoning plan must protect the Park ecosystems and representative habitats. The Park comprises three major ecosystems, namely the Saguenay Fjord and the upper and lower portions of the St. Lawrence Estuary. In each of these major ecosystems, the zoning plan proposes specific protection for parts of ecosystems, species habitats, or biological communities that are highly representative of these ecosystems.
- 11. Promotion of the visitor experience:** The Marine Park Management Plan supports the concept of visitor experience and the exploration of the marine environment by promoting marine observation activities, pleasure boating, sea kayaking tours, scuba diving, and observation activities from land-based sites overlooking the Marine Park. The zoning plan must therefore protect the marine environment in sectors near major land-based observation sites. This ensures that the observation sites and the marine mammals and birds being observed remain undisturbed and provides a quality visitor experience.
- 12. Public safety:** The zoning plan must ensure the safety of visitors and Park users, as well as resolving Park use conflicts as much as possible. Maintenance operations on Park facilities and maritime infrastructures (lighthouses, seamarks, buoys, etc.) and emergency operations at sea take precedence over the zoning plan.
- 13. Reduction of potential for Park use conflicts:** The zoning plan aims to avoid or reduce the risk of potential conflicts between conservation objectives and certain activities, and to resolve various conflicts of use in the Marine Park. It must therefore take into consideration that the Marine Park is a living environment on which a number of communities depend.
- 14. Adaptable and flexible management:** The zoning plan must evolve to reflect new knowledge and new conservation or land use challenges and must be updated when the Management Plan is revised. However, for very specific protection, public safety, or enhancement purposes, Canadian and Quebec legislation gives Marine Park authorities the regulatory powers to close certain sectors of the Park or restrict certain activities.

4. PROCESS USED TO DEVELOP THE ZONING PLAN

4.1 STEPS IN THE PROCESS

A first zoning proposal for the Saguenay–St. Lawrence Marine Park was developed and discussed with local targeted groups at workshops in June 2005. The comments received were the basis of a second proposal more closely reflecting local realities.

The approach adopted was to consider all the comments received and then to present a second zoning proposal for discussion with all those involved.

In addition to considering the issues set out in the previous chapter, the zoning plan was developed by first examining the legislation and regulations governing the Marine Park. Then the analysis of data on land use and natural and cultural components was reviewed. The analysis was based on a literature review, new scientific data, and the comments and information gathered during consultations with the government departments involved and with key organizations and Park users in the community. Maps were produced using computerized data bases and geomatics.

Once this analysis was complete, protection, education, and use objectives were determined for each of the four types of zones described in the legislation creating the Marine Park. The results of analyses performed on the basis of the characteristics established for identifying the boundaries of each zone were then incorporated. Methods for implementing the zoning plan were also determined.

In 2006–2007 the zoning proposal was submitted to government departments and local targeted groups to validate its content and applicability.

The proposal was then presented at the Management Plan Review public consultation in winter 2008 and amended in light of the comments received.

4.2 DATA ANALYSIS

4.2.1 LEGAL AND REGULATORY ASPECTS

The legislation adopted by Canada and Quebec establishing the Saguenay–St. Lawrence Marine Park determined its mandate, the powers of government authorities with respect to Park management, its boundaries, and the types of zones applicable in the Park.

- **Marine Park Mandate**

By virtue of the laws establishing the Marine Park, its purpose is to “[...] *increase the level of protection of the ecosystems of a representative portion of the Saguenay Fjord and the St. Lawrence Estuary for conservation purposes, while promoting its use for educational, recreational, and scientific purposes.*”

The Marine Park zoning plan must therefore contribute to achieving this specific mandate.

- **Marine Park Boundaries**

“Such territory being situated on Quebec public land and comprising part of the bed of the Saguenay River and part of the bed of the estuary of the St. Lawrence River.”

The boundaries of the Marine Park are determined by the ordinary high water mark (excluding flooding) and exclude all marine infrastructures and islands. The Park covers an area of 1,245 km². **Figure 1** presents a general map showing its location.

- **Powers of Park Authorities**

Subject to the authority of their respective ministers, the Marine Park’s **co-directors** exercise the powers and functions that the Acts establishing the Marine Park grant those ministers at both levels of government, and which the ministers delegate to them.

To preserve and maintain the public peace and enforce the federal Act respecting the Marine Park, as well as other federal laws that they are authorized to enforce both inside and outside the Park, **Park wardens** have the powers and enjoy the protection afforded by law to peace officers (*Act respecting the Saguenay–St. Lawrence Marine Park*, (1997, s. 37, Administration of Park section– paragraphs 8 to 14). **Enforcement officers** may also be designated as peace officers by the minister for the purposes of enforcing this Act.

For its part the Quebec legislation provides for the enforcement of the Act and its regulations by **persons designated** for this purpose under the *Act respecting the conservation and development of wildlife* (R.S.Q., section C.61.1).

- **Regulatory Powers**

The two Acts establishing the Marine Park provide for the possibility of adopting zoning regulations for the following purposes:

- Determining the characteristics of each type of zone
- Establishing the uses and boundaries of each zone
- Defining the activities authorized in each type of zone and the terms thereof
- Identifying prohibited activities
- Closing zones or prohibiting activities

Authorizing the director to prohibit or restrict permitted activities in Park zones or to prohibit access regardless of regulations adopted by virtue of this section, in order to protect Park ecosystems and their components.

- **Regulations on Marine Activities**

The zoning plan takes into account the *Marine Activities in the Saguenay–St. Lawrence Marine Park Regulations* (2002), which support the Marine Park’s objectives.

These regulations govern marine activities in order to protect marine mammals in the Park and ensure the safety of Park users. They establish a protective perimeter around marine mammals in order to reduce the risk of the animals being disturbed or hit by boats. The protective perimeter around marine mammal species classified as threatened or endangered is bigger than that around other species. Throughout the Park the regulations impose a speed limit of 25 knots for boats and a minimum altitude of 2,000 feet (607 metres) for aircraft flying over the area, as well as prohibiting take-offs and landings except in emergency situations.

Developed in cooperation with the whale watching industry, these regulations aim to raise the level of ecosystem protection by better protecting threatened and endangered species. They also increase visitor safety and help develop and maintain a positive image of marine observation activities, thus enhancing the visitor experience while respecting the Marine Park’s protected status.

- **Types of Zones**

The Acts setting up the Marine Park specify four types of zones in the Park without describing in detail their objectives:

- Comprehensive preservation zone (Zone I)
- Specific protection zone (Zone II)
- General protection zone (Zone III)
- General use zone (Zone IV)

The zoning plan sets out protection, education, and use objectives for each zone.

- **Activities Currently Prohibited Inside the Marine Park**

The Quebec legislation establishing the Marine Park (1997, Division VIII, Miscellaneous, paragraph 21) indicates that “*All forms of prospecting, any utilization, harnessing or harvesting of resources for mining or energy production purposes and the laying of oil or gas pipelines or power lines are prohibited within the confines of a the Park.*”

- **Regulated Activities**

The zoning plan takes into account all other laws and regulations adopted by Quebec and Canada governing activities in the Marine Park, such as maritime transport, pleasure boating, migratory bird hunting, and recreational and commercial fishing. Please refer to Tremblay (2007).

4.2.2 ANALYSIS OF NATURAL COMPONENTS

As set out in the Act, the Marine Park zoning plan aims to increase the level of ecosystem protection in this marine conservation area. This analysis is based on scientific data accumulated since the Marine Park's creation.

- ***Ecological Classification of the Park Territory***

The Marine Park zoning plan increases the level of biodiversity protection for ecosystems, habitats, species, and marine and underwater landscapes in a representative portion of the St. Lawrence Estuary and the Saguenay Fjord. In reference to the Saguenay–St. Lawrence Marine Park conservation plan (Dionne, 2001), the zoning plan recognizes that the Marine Park is subdivided into three major ecosystems: part of the Saguenay Fjord, and the upper and lower portions of the St. Lawrence Estuary. This simplified ecological classification of the Marine Park, which is presented in **Figure 2**, is of critical importance when it comes to providing enhanced protection for its ecosystems, habitats, and species.

- ***Conservation Priorities***

The analysis of the Marine Park's natural components is mainly based on the Saguenay–St. Lawrence Marine Park ecosystem conservation plan (Dionne, 2001). Using scientific data on the marine environment, this plan identifies conservation issues and levels of protection for 47 sectors based on their physical structure and the species inhabiting them. The conservation priorities are presented in **Figure 3**. The four categories of conservation priorities are defined as follows:

Priority 1: *“This class encompasses sectors that must receive the highest level of protection. From a planning standpoint, these sectors have a very low use tolerance and should be classified in the restricted access zone.”*

Priority 2: *“This class encompasses sectors that must receive a high level of protection. For planning purposes, these sectors can tolerate regulated use for traditional harvesting and recreational purposes.”*

Priority 3: *“This category encompasses sectors of less concern than the previous levels due to their greater tolerance to human activities. From a planning standpoint, these sectors should be classified in the zone where access is permitted at all times and where traditional and recreational harvesting is regulated. There should be no commercial harvesting.”*

Priority 4: *“This category encompasses sectors managed according to the concept of sustainable use. Commercial resource harvesting activities are carried out in these sectors. It should be noted that any sectors evaluated as not being of interest according to currently available resource data are also classified in priority 4.”*

Figure 2 : Major Ecosystems of the Saguenay–St. Lawrence Marine Park

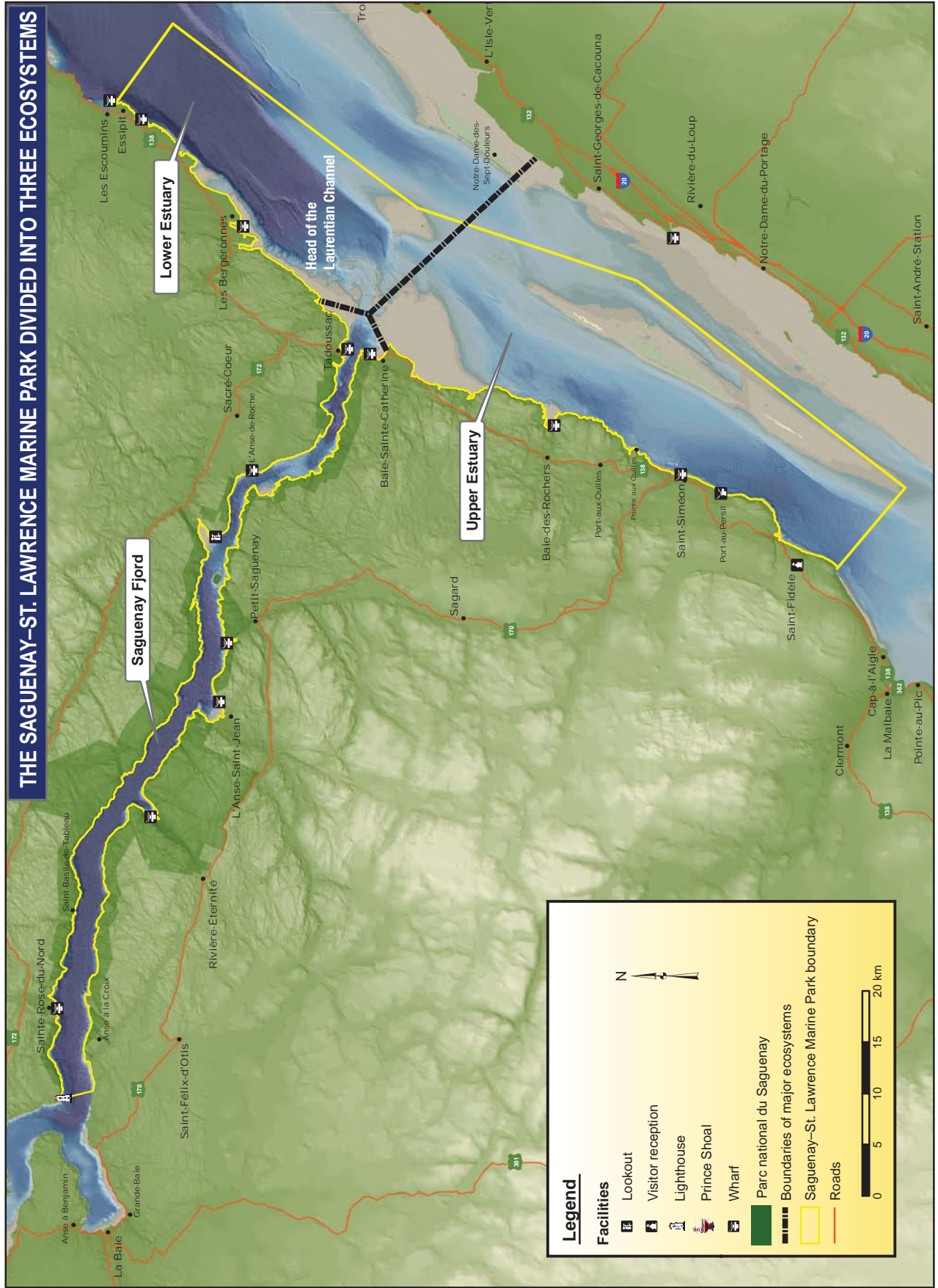
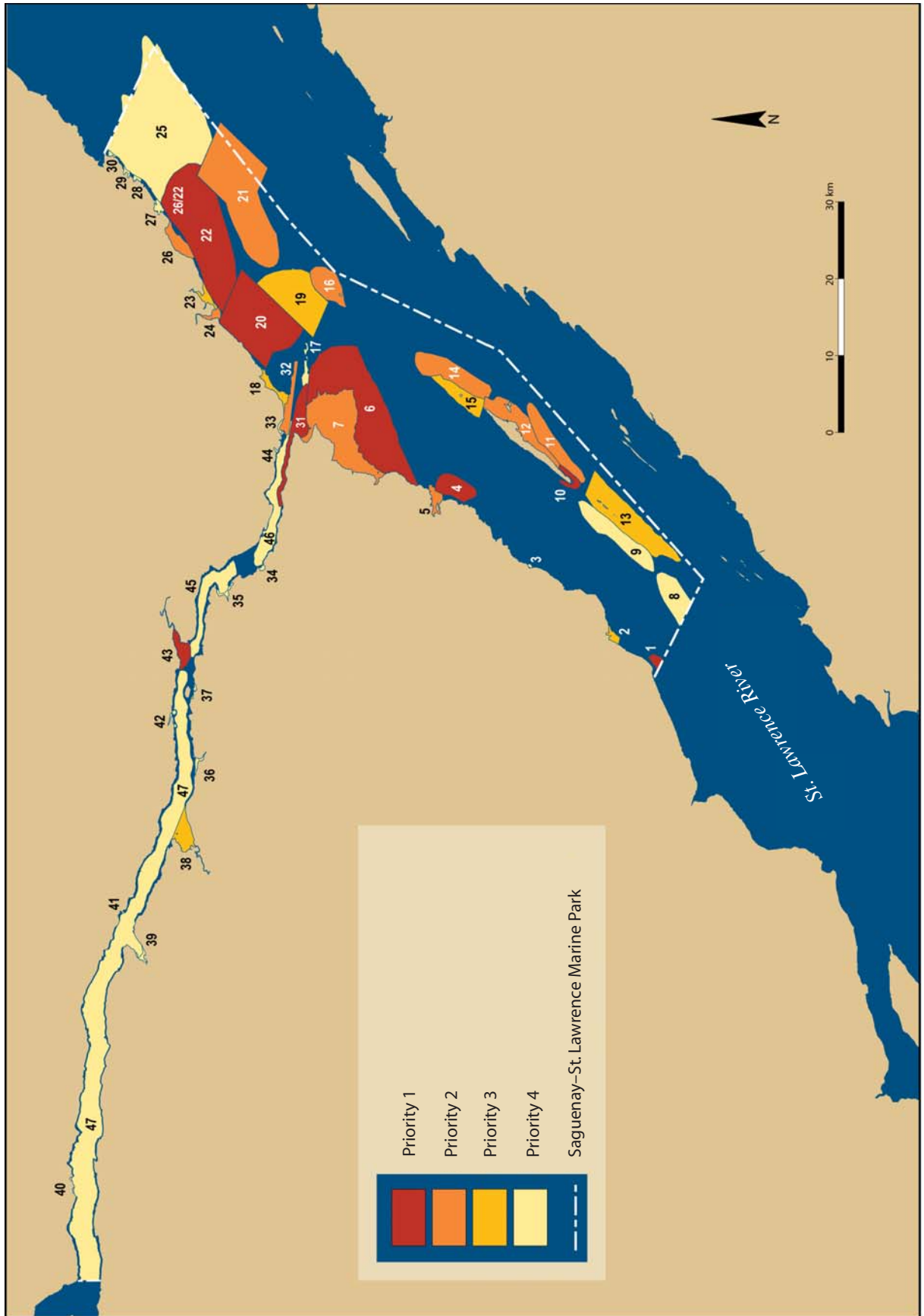


Figure 3 : Conservation Priorities by Sector (Dionne, 2001)



Source: Parcs Canada

- ***Additional Scientific Data on Natural Components***

Since the Saguenay–St. Lawrence Marine Park conservation plan was developed and submitted in 2001, a number of scientific studies have been carried out and serve as additional references to guide Park zoning.

For instance, areas intensively used by beluga pods in the Marine Park were recently more clearly delimited, based on an analysis of 20 years worth of observation data (GREMM, 2007; Ménard *et al.*, 2007).

The *Species at Risk Act* adopted in 2002 specifies that the departments responsible must develop recovery strategies for endangered and threatened species and Management Plans for species of special concern. Where possible, the recovery plans must identify the species' critical habitats.

The recovery plan for the blue whale is in preparation and the St. Lawrence beluga recovery plan will be reviewed in 2009. The management plan for the Barrow's goldeneye will be released in the near future. The legal requirements tied to a species at risk's critical habitat or proposed management measures may necessitate several amendments to the Marine Park's zoning plan.

- ***Geographical Sectors and Subsectors***

To facilitate the development of the zoning plan, the Marine Park was divided into 16 geographical sectors, some made up of a number of subsectors identifiable by Park users. Each sector may contain one or more zones.

The boundaries of the sectors selected for the zoning plan were precisely established by

- grouping together the 47 priority sectors in the conservation plan;
- referring to existing navigational aids (buoys, lighthouses, isobaths, etc.), landmarks (shores, headlands, sand bars, tips of islands, distance from shore, etc.), and distinct shapes (simple geometric shapes, bathymetric contours, longitude and latitude) to help identify them in the field; and
- incorporating recent scientific data on ecosystems and their components.

Table 1 lists the sectors and subsectors within the Marine Park's three major ecosystems. Each is identified by a number and a specific name.

Table 1
Geographical Sectors and Subsectors of the
Saguenay–St. Lawrence Marine Park

Sector Number	Sector Name
Major Ecosystem of the Upper St. Lawrence Estuary	
1	Gros Cap à l'Aigle
2	Port-au-Saumon
3	Cap de la Tête au Chien
3a	Pointe aux Quilles at Cap aux Corbeaux
3b	Cap de la Tête au Chien
4	Baie des Rochers
5	Upper estuary islands
5a	Area around the upper estuary islands
5b	Area around Île aux Fraises
5c	Western tip of Île aux Lièvres
5d	Cove at the western tip of Île aux Lièvres
5e	Area around Îles du Pot à l'Eau-de-Vie
5f	Anchorage between Le Gros Pot and Le Petit Pot
5g	Area around Île Blanche
6	Batture aux Alouettes and perimeter
6a	Batture aux Alouettes
6b	Area around Batture aux Alouettes
6c	Area around Îlet aux Alouettes
7	Northern Channel
Major Ecosystem of the Lower St. Lawrence Estuary	
8	Banks of Île Rouge
9	Battures de la Pointe Rouge at Cap de Bon-Désir
9a	Batture de la Pointe aux Vaches
9b	Baie du Moulin à Baude
9c	Batture de la Pointe à la Carriole
9d	Baie des Petites Bergeronnes and marsh
9e	Baie des Grandes Bergeronnes and marsh
9f	Baie de Grandes Bergeronnes
9g	Batture de Théophile
9h	Rochers Bare
10	Cap de Bon-Désir to Les Escoumins
10a	Strip from Cap de Bon-Désir to Les Escoumins
10b	Area off Cap de Bon-Désir
10c	Anse aux Basques (Quai des Pilotes)
10d	Anse à la Barque
11	Head of the Laurentian Channel
12	Laurentian Channel
Major Ecosystem of the Saguenay Fjord and its Mouth	
13	Mouth of the Saguenay Fjord
13a	Entrance of the Saguenay Fjord
13b	Pointe Noire
13c	Pointe de l'Islet
13d	Baie de Tadoussac
13e	Underwater cliff at Îlet aux Alouettes
14	Baie Sainte-Marguerite
14a	Section of the fjord facing Baie Sainte-Marguerite
14b	Mouth of Baie Sainte-Marguerite
14c	Travel corridor and marsh at Baie Sainte-Marguerite
14d	Anse au Cheval
15	Cap Éternité and Cap Fraternité
15a	Section of the fjord facing Cap Éternité and Cap Fraternité
15b	Cap Fraternité haul-out
15c	Cap Éternité haul-out
16	Saguenay Fjord

4.2.3 ANALYSIS OF CULTURAL COMPONENTS

The Saguenay–St. Lawrence Marine Park is located in an area of importance to the history of human occupation in North America. Indeed, the marine environment at the confluence of the Saguenay and St. Lawrence rivers has created conditions conducive to human use by aboriginal peoples for 8,000 years, by Europeans since the 16th century, and by their descendents ever since.

The Marine Park’s boundaries are determined by the ordinary high water mark, (excluding flooding) and exclude all marine infrastructures and islands. As far as cultural components are concerned, the zoning plan only applies to historical and archaeological resources lying within this perimeter.

According to archaeological surveys conducted by Parks Canada in 1992, 1994, 1995, and 2000–2003 and a historical study by Bruno Bernard (1999) commissioned by Parks Canada, a number of zones may contain cultural vestiges or shoreline or underwater sites with archaeological potential. Over 200 potential sites have been listed under three main categories of human activity: navigation, logging, and fisheries. Navigation is a major theme because it concerns not only shipwrecks and grounding sites, but also marine infrastructures such as wharves and lighthouses.

A document produced by Parks Canada’s Archaeological Services Branch entitled *Évaluation des composantes culturelles en vue de l’élaboration du plan de zonage – PMSSL* (Bernier, 2000), classified sites that harbour or potentially harbour cultural vestiges. This classification, presented in **Table 2**, was recently updated based on Bernier’s (2007) detailed description of cultural components located in or around the Marine Park.

* **Level I cultural resource:**

National historic significance is the highest level assigned to a cultural resource under Parks Canada policy.

* **Level II cultural resource:**

A resource that is not of national historic significance may have historic value and thus be considered a cultural resource according to Parks Canada policy.

Table 2
Cultural Components of the Saguenay–St. Lawrence Marine Park

Cultural Components of the SSLMP	Geographical Sector	Location	Level *
Shipwrecks			
Bergeronne Trader (Quai des Pilotes, Les Escoumins) ca. 1930	Sector 10	Anse aux Basques	II
Dilvaag (ferry wharf, Les Escoumins) 1906	Sector 10	Les Escoumins	II
Rivière Verte (Anse à la Passe-Pierre, Saguenay)	Sector 16	Anse à la Passe-Pierre	II
Grounding of the Carolina (Pointe à la Passe-Pierre, Saguenay)	Sector 16	Pointe à la Passe-Pierre	II
Isolated anchor at Anse à la Cave (Les Escoumins): 19th or 20th C.	Sector 10	Anse à la Cave	II
Vestiges of cannons (Île Rouge): late 18th C.–early 19th C.	Sector 8	Île Rouge	II
Metal debris (Île Rouge): early 20th C.	Sector 8	Île Rouge	II
Shipwreck E (Île Rouge): first half of 19th C.	Sector 8	Île Rouge	II
Shipwreck H (Île Rouge): first half of 19th C.	Sector 8	Île Rouge	II
Isolated anchor at Île Rouge: 19th C. or 20th C.	Sector 8	Île Rouge	II
Baie des Rochers: probable vestiges of an early 20th C. coal ship	Sector 4	Baie-des-Rochers	II
Shipwreck A at Île aux Lièvres: 19th C. (after 1840)	Sector 5	Île aux Lièvres	II
Shipwreck B at Île aux Lièvres: 19th C. (after 1840)	Sector 5	Île aux Lièvres	II
Shipwreck C at Île aux Lièvres: 19th C. (after 1840)	Sector 5	Île aux Lièvres	II
Sawmills/Logging			
Sawmill at Anse aux Cailles: dock ca. 1840	Sector 16	Mouth of Ruisseau à Caille	II
Sawmill at Anse à la Croix: dock ca. 1840, early 20th C. dock	Sector 16	Anse à la Croix	II
Sawmill at the cove in off Cap Trinité: isolated artefacts, 19th C.	Sector 16	Cap Trinité	II
Sawmill at Rivière Petit-Saguenay: two docks, boiler, 19th C.–20th C.	Sector 16	Mouth of Rivière Petit-Saguenay	II
Sawmill at Anse au Cheval: dock, mill foundations, 19th C.–20th C.	Sector 14	Anse au Cheval	II
Sawmill at Baie Sainte-Marguerite: dock, log boom forms, terrestrial remains, 19th C.	Sector 14	Baie Sainte-Marguerite	II
Sawmill at Anse aux Petites Îles: foundations, 20th C.	Sector 16	Anse aux Petites Îles	II
Sawmill at Baie Saint-Étienne: docks, supports, dikes, late 19th C.	Sector 16	Anse Saint-Étienne	II
Sawmill at Baie-des-Rochers: seawall, framework of wharf, 19th C.–20th C.	Sector 4	Baie des Rochers	II
Sawmill at Port-au-Persil: boiler	Sector 7	Port au Persil	II
Sawmill at Saint-Siméon: dock, 19th C.–20th C.	Sector 7	Saint-Siméon	II
Sawmill at Port-au-Saumon: docks, 20th C.	Sector 2	Port-au-Saumon	II
Sawmill at Port-aux-Quilles: docks, dikes, rails, foundations, 19th C.	Sector 7	Baie de Port-aux-Quilles	II
Wharves			
Government wharf at Anse-Saint-Jean, early 20th C..	Sector 16	Anse Saint-Jean	II
Private wharf at Anse à Simon, Late 19th C.-early 20th C.	Sector 16	Anse à Simon	II
Government wharf at Saint-Basile-de-Tableau, 20th C.	Sector 16	Saint-Basile-de-Tableau	II
Government wharf at Anse à Xavier (Sainte-Rose-du-Nord), 20th C.	Sector 16	Anse à Xavier	II
Government wharf at Port-au-Persil, 20th C.	Sector 7	Port au Persil	II
Private wharf on Île aux Lièvres, middle of the 20th C.	Sector 5	Île aux Lièvres	II

4.2.4 PARK USE ANALYSIS

The Marine Park as a living environment for residents and an area to discover and enjoy for visitors, as well as the resulting economic impacts, were analysed based on data gathered by Marine Park managers, the government departments involved, and various studies. The analysis also took into account the comments and observations made by representatives of the organizations and groups consulted.

- ***The Marine Park: A Living Environment for Residents of the Coordination Zone***

The Marine Park is a *living environment* for several communities in the vicinity. Residents of the coordination zone engage in various recreational and commercial activities as part of their lifestyle.

Pleasure boating, marine tours, land-based observation, traditional harvesting activities, migratory bird hunting, and recreational and commercial seal hunting and fishing are among the main activities carried out by residents. **Figure 4** shows the location of access points and infrastructures providing coordination zone residents access to the Marine Park.

A survey conducted by SOM Surveys, Opinion Polls and Marketing (2006a) on the use of the Marine Park's marine and terrestrial itineraries and trails revealed that residents made 319,000 visits between May and October 2005, which represents 30% of total attendance. Of this figure, 44,660 visits were directly related to the Park's marine discovery route. Marine observation activities and sea kayaking are two of the residents' most popular activities.

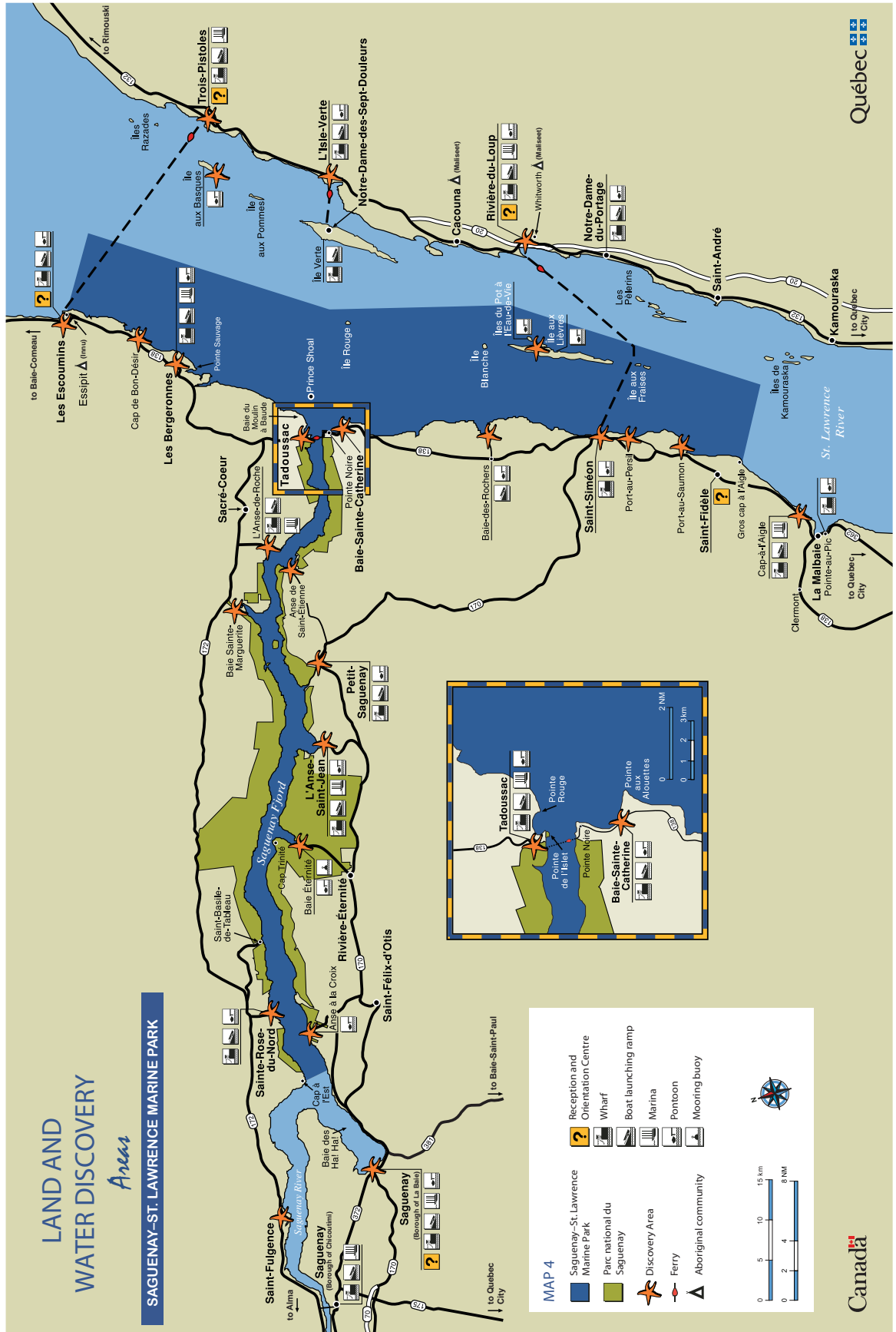
Pleasure boating in the Marine Park includes sailing (47%) and the use of motor cruisers, mainly in the Saguenay Fjord. The SOM study (2007) on recreational boaters estimated that 20% were seasonal users.

The analysis of activities in the Saguenay–St. Lawrence Marine Park provided the basis for a portrait of human activity, *Portrait des activités humaines actuelles du parc marin du Saguenay–Saint-Laurent* (Tremblay, 2007). It provides information on different types of activities practiced in each major ecosystem and geographical sector in the Park. It also indicates the legal framework governing each of them and provides additional information such as the period of use and an estimate of the annual attendance.

The Marine Park is also used for commercial navigation. Freighters, container ships, oil tankers, and cruise ships made approximately 6,500 trips through the Park in 2006 (Corporation des pilotes du Bas-Saint-Laurent, Pierre Grégoire, personal communication). These ships navigate in the upper and lower estuaries and some travel in the Saguenay Fjord.

It should also be noted that ferries navigate inside the Marine Park between Saint-Siméon and Rivière-du-Loup, Baie-Sainte-Catherine and Tadoussac, and Les Escoumins and Trois-Pistoles.

Figure 4 : Wharfs and Marine Access Points in the Saguenay–St. Lawrence Marine Park



Current maritime traffic, which is increasing, is of concern due to its impact on Park ecosystems. The situation at the mouth of the Saguenay is particularly disquieting since marine traffic is intense and concentrated, and beluga whales, a threatened species, are very active in this area. To better control traffic and use of this sector, an integrated management strategy is being developed.

- ***The Marine Park: An Area to Discover and Enjoy***

As set out in its mandate, the Marine Park encourages the use of its territory for educational, recreational, and scientific purposes. Numerous Park visitors and users take advantage of its land and marine discovery itineraries as well as the coordination zone.

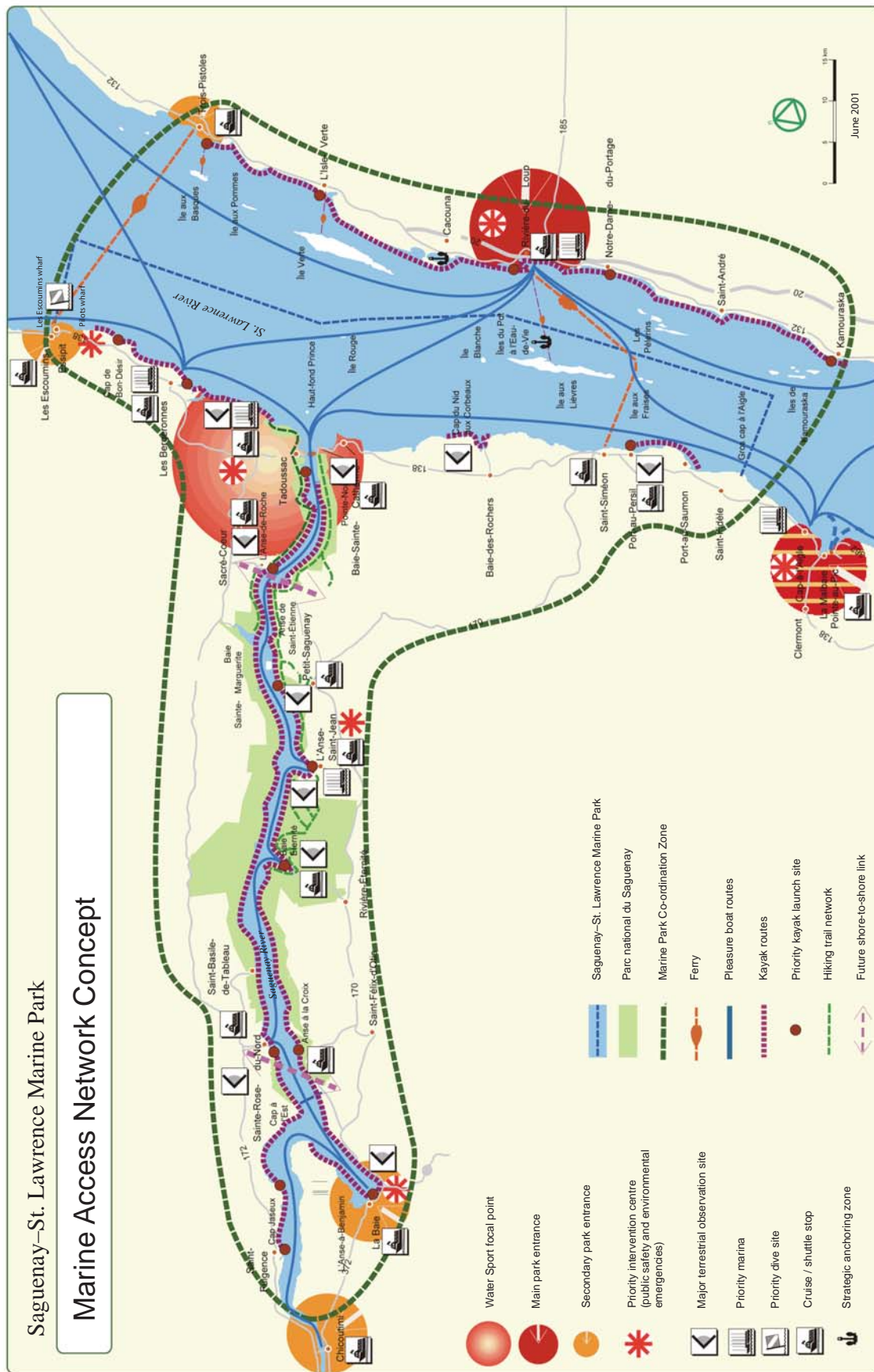
The study entitled *Concept de réseau d'accès nautiques* (URBEC, 2002) serves as a reference to better understand current use of the Marine Park, even though the data was collected in 2001. The study describes land and marine access points, as well as the main activities carried out in the Marine Park. The study also presents the navigation routes in the Marine Park. (**Figure 5**).

A 2005 survey of attendance in the Marine Park's coordination zone estimates the number of person-visits (*) at one million, 597,784 of which were attributed to tourists, 319,000 to residents, 13,200 to pleasure boaters, and 118,000 to cruise ship passengers (ocean-going ships). These figures illustrate the level of public interest in the Marine Park. (SOM, 2006a).

(*) Note: Person-visits, commonly designated as visits to the Marine Park, are defined as follows: "*Entrance of a person into a protected heritage area for the purpose of enjoying marine or terrestrial sites presenting the Saguenay–St. Lawrence Marine Park and where activities bear a direct relationship to presenting the Marine Park. Visits must be made exclusively to one site or for one activity per day.*" (SOM, Surveys, Opinion Polls and Marketing, 2006a). [Translation]

Table 3 presents Park attendance broken down by discovery route and type of site. The marine discovery route comprises activities in the Marine Park, whereas the land discovery route involves sites on land associated with the Marine Park.

Figure 5: Marine Access Network Concept



Note: The Pointe-au-Pic and Cap-à-l'Aigle marina facilities are located outside the SSLMP coordination zone

Table 3
Total Number of Visits to the Saguenay–St. Lawrence Marine Park
Coordination Zone
Between May 1 and October 31, 2005 by Discovery Route and Visitor Type
(SOM, 2006a)

	Tourists	Residents	Recreational Boaters	Cruise Ship Passengers	TOTAL
Marine Discovery Route	274,036	44,660	13,200	132,194	464,070
Terrestrial Discovery Route	505,653	255,200	--	--	760,853
Major Activity Areas	375,302	92,500	--	--	467,802
Thematic Areas	81,110	47,900	--	--	129,010
Discovery Areas	84,913	114,800	--	--	199,713
Reception and Orientation Centre	3,321	--	--	--	31,321
TOTAL NUMBER OF VISITS	597,784	319,000	13,200	132,194	1,062,178

Note: For definitions of terms used, the reader should refer to the development concept presented in the 1995 Saguenay–St. Lawrence Marine Park Management Plan.

Another survey of visitors conducted in 2005 revealed that 62% of visitors to the Marine Park’s coordination zone were from Quebec, 6% from rest of Canada, 3% from the United States, and 29% from other countries, mainly France (SOM, 2006b). According to the survey, the beauty of the landscape and the opportunity to observe marine mammals are the main factors attracting tourists to the region.

- ***Type of Activities and Their Potential Impact on the Marine Park***

All human activities have an impact on marine ecosystems. Some, however, disturb ecosystems more than others. To aid in developing the Marine Park’s zoning plan, an analysis of human activities in the area identified **six types of activity** according to their potential impact. The definition of these activity types plays an important role in determining the protection, education, and use objectives for each zone. **Table 4** presents the types of activities.

Table 4: Types of Activities

Activities
<p>1. <u>Activities incompatible with the Marine Park mandate:</u> Activities that are not in keeping or run counter to the Marine Park’s mandate. The following activities are currently prohibited under the <i>Act with Respect to the Saguenay–St. Lawrence Marine Park</i>: all forms of prospecting and any utilization, harnessing, or harvesting of resources for mining or energy production purposes and the laying of oil or gas pipelines or power lines. Other activities that are not compatible with the Marine Park’s mandate will be banned. (see Table 5).</p>
<p>2. <u>Scientific research:</u> Activities that aim to enhance our scientific knowledge of natural and cultural components or socioeconomic characteristics in order to improve the Marine Park’s management.</p> <p>To carry out scientific research, researchers must obtain a research permit from the Marine Park and the departments concerned. The conditions for obtaining the permit aim to limit the impacts of these activities on the Park’s ecosystems and cultural resources.</p>
<p>3. <u>Educational, recreational, and commercial activities not involving harvesting of natural resources:</u> Activities carried out in the Marine Park that do not involve harvesting. This category includes swimming, hiking in intertidal zones, sea kayaking, pleasure boating, marine observation tours, international cruises, and commercial navigation.</p> <p>Activities of this type practiced by individuals generally require no permit, but must be carried out according to rules established by government. Companies that engage in these activities on a commercial basis, such as marine tour and sea kayaking companies need a marine tour business permit from the Marine Park.</p>
<p>4. <u>Educational and recreational activities involving the harvesting of natural resources:</u> Activities that harvest specimens for educational (educational and nature interpretation activities) or recreational purposes, such as migratory bird hunting, seal hunting, and sea trout or soft-shell clam fishing. These activities generally require a permit from the departments concerned.</p> <p>Harvesting activities must comply with principles of environmentally sustainable use. The authorities that issue the permits must apply the management principles and terms for sustainable fisheries in the Saguenay–St. Lawrence Marine Park (Appendix II).</p>
<p>5. <u>Commercial activities involving the harvesting of natural resources:</u> These activities comprise commercial seal hunting and commercial fishing (clams, whelks, halibut, sea urchins, etc.). Businesses must hold a permit issued by Fisheries and Oceans Canada (FOC) or Ministère de l’Agriculture, des Pêcheries et de l’Alimentation du Québec (MAPAQ). Harvesting activities must comply with the principles of environmentally sustainable use. The authorities that issue the permits must apply the management principles and terms for sustainable fisheries in the Saguenay–St. Lawrence Marine Park (Appendix II).</p> <p>Given that these activities are economic in nature, and that fishing methods and practices permitting the capture of a large number of individuals are used, they can have a big impact</p>

Activities
on ecosystems in the Marine Park. Therefore these activities must be managed very strictly to ensure habitat conservation and the protection of target species.
6. Essential public services: These activities include the installation and maintenance of marine infrastructures and equipment essential to navigation (marinas, wharves, anchorages, buoys, lighthouses, etc.), as well as building maintenance on islands accessible by boat in the Marine Park.

- ***Economic Impacts***

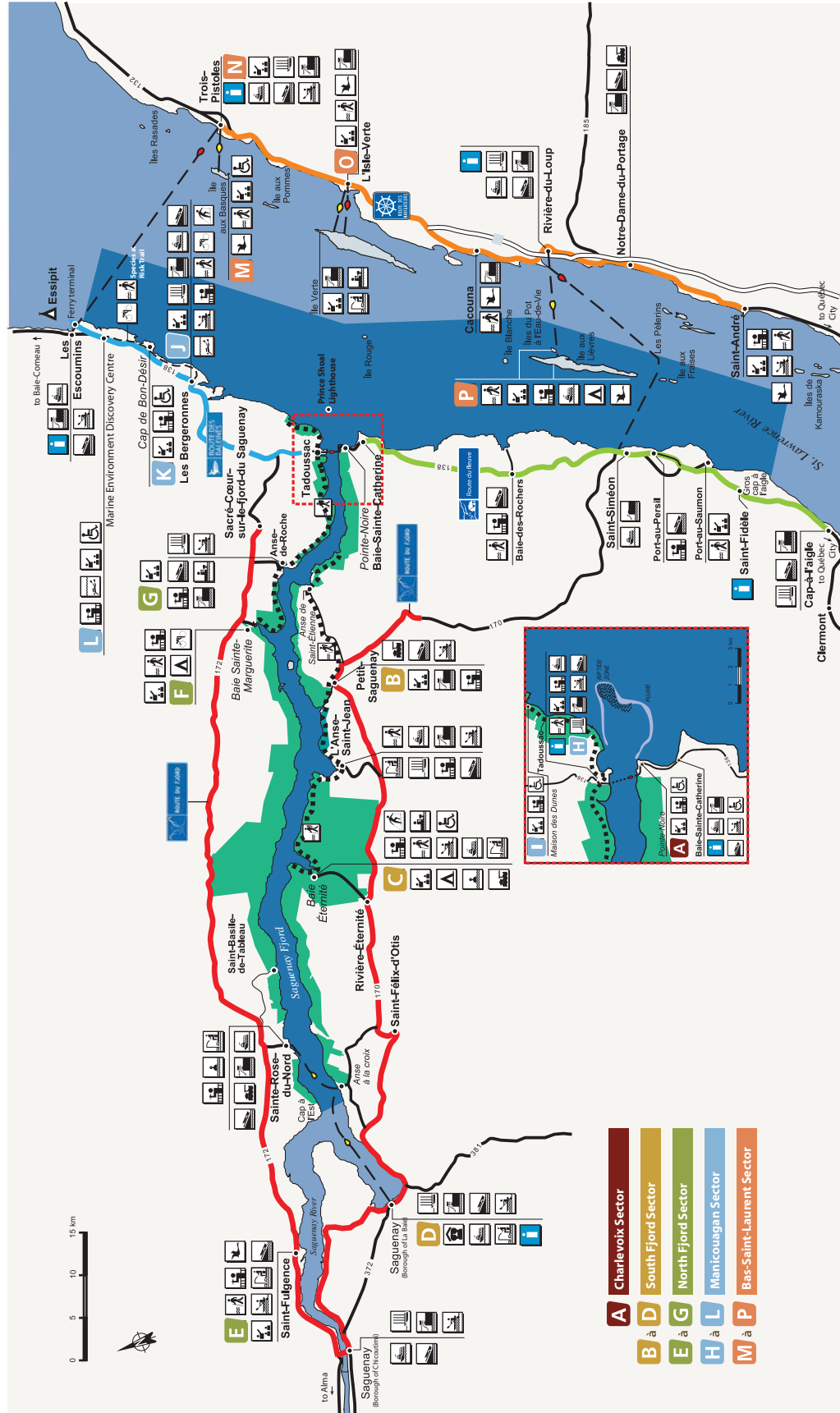
Numerous human activities are carried out in the Marine Park, some by residents of the coordination zone, some by commercial companies, and others by visitors. **Figure 6** presents the services available to the public in the Saguenay–St. Lawrence Marine Park.

Gosselin and Germain (2007), in their study on the economic impacts of the tourist industry during the 2005 season, estimated “*the total value of tourist expenditures (597,784 person-visits) at a little over \$204 million: However, this estimate excludes money spent by residents and visiting recreational boaters and cruise ship passengers. The impact model used also estimated the total economic impact (direct and indirect) of tourist expenditures on Quebec’s GDP at \$ 92.7 million. It is also estimated that money spent by visitors creates or helps maintain over 2,300 jobs (full time equivalent).*” They note that “*since many tourism jobs are seasonal, the number of persons whose work is tied to visitor expenditures in the Marine Park is probably higher. By a conservative estimate, the total economic impact of visitor expenditures helps create or maintain jobs for over 4,600 people.*” [Translation]

Gosselin and Germain (2007) estimate “[...] *the amount spent by visitors taking marine mammal observation tours in the Marine Park during the 2005 season (274,036 person-visits), at approximately \$93 million, or a direct and indirect economic impact on Quebec’s GDP of approximately \$42.5 million.*” They estimate that expenditures by this type of visitor generate “*a little over 1,050 jobs (full time equivalent, which in the tourist industry could represent jobs for over 2,000 people.*” [Translation]

The Marine Park zoning plan must also take into account the fact that most resident activities (hunting, fishing, pleasure boating, sea kayaking, etc.) and commercial activities (navigation, fishing, and marine tours) are already governed by existing laws and regulations. These activities also have a significant economic impact.

Figure 6 : Services Available to Visitors and Residents of Saguenay–St. Lawrence Marine Park



4.3 ACTIVITIES INCOMPATIBLE WITH THE MARINE PARK MANDATE

In planning the Marine Park’s zoning, it is important to identify human activities that are incompatible with the Marine Park mandate. As mentioned in section 4.2.1, certain activities have already been prohibited or restricted within the Park. However, other activities that are currently carried out in the Park, or that could be in the future, are incompatible with the Marine Park mandate and therefore should be prohibited by regulation (see **Table 5**).

Table 5: Activities to be Banned

Activities	
	Building of artificial reefs
	Personal watercraft ¹ and hovercraft
	Towing sports: Waterskiing, parasailing, and related sports
	Commercial services related to migratory bird hunting (guides, outfitters etc.)
	Dredging operations other than periodic maintenance and any other activity that could lead to the re-suspension of contaminated sediments
	Installation of new wharves
	Discharge and immersion of solid waste in the ocean
	Rip rap stabilization work unrelated to essential public infrastructures
	Activities leading to the destruction or alteration of marshes and green intertidal zones
	Motorized vehicle traffic within intertidal zones
	Aquaculture

¹ “A personal watercraft means a water-jet driven vessel with an enclosed hull and no cockpit and a maximum length of 4 m, that is designed to be used by one or more persons while straddling, sitting, standing or kneeling.” (Boating Restriction Regulations of the Canada Shipping Act, 2001).

4.4 CHARACTERISTICS AND SPATIAL AND TEMPORAL APPLICATIONS OF PARK ZONES

The first step in developing the zoning plan involved defining each of the four types of zones specified in the two Acts establishing the Marine Park. Each type of zone affords a different degree of protection. A Zone I designation ensures comprehensive preservation with a minimum of human activity. Zones II, III, and IV allow activities that are compatible with their level of protection while excluding those that are prohibited by law or incompatible with the Marine Park mandate.

The protection, education, and use objectives are described below in order to provide a better understanding of the scope of each type of zone. We will also discuss the spatial and temporal application of each zone.

Although the criteria defining the four types of zone are mainly ecological in nature, they also afford basic protection to the Park's cultural components. Shipwreck sites are almost all in zone 1 (comprehensive protection) or zone II (specific protection). Submerged vestiges of logging sites and wharves are mostly in zone II (specific protection) or zone III (general protection). The Management Plan sets out the management guidelines.

4.4.1 COMPREHENSIVE PRESERVATION (ZONE I)

Protection objective

To ensure the **strict protection** of marine ecosystems, habitats, or rare, sensitive, or vulnerable species, as well as cultural components that are deemed significant.

Education objective

To educate Park users and the public as to the importance of protecting marine ecosystems, habitats, and species through outreach and off-site interpretation

Park use objective

To promote a quality recreational visitor experience in the vicinity of the zone through off-site interpretive activities. Access to the zone is forbidden.

To allow, under certain conditions, scientific research that is compatible with the ecosystems, habitats, communities, and species to be protected.

To provide for the strict protection of a portion of the Marine Park located off land-based observation sites so as to offer a quality visitor experience by ensuring the tranquillity of the sites and preventing the disturbance of birds and marine mammals.

4.4.2 SPECIFIC PROTECTION (ZONE II)

Protection objective

To ensure the **specific protection** of major marine ecosystems representative of the Saguenay Fjord and the St. Lawrence Estuary, and of highly representative, rare, or

vulnerable habitats or species so as to maintain biodiversity for the present and future generations.

This zone can also serve as a buffer zone on the periphery of Zone I areas to increase their level of protection while allowing greater use.

Education objective

To provide opportunities to enjoy and discover the Marine Park's three major ecosystems and highly representative, rare, or vulnerable habitats and species by emphasizing their importance for the ecosystem through interpretive activities and outreach.

Park use objective

To provide opportunities to enjoy and discover a relatively undisturbed marine environment.

To allow, under certain conditions, scientific research that is compatible with the ecosystems, habitats, communities, and species to be protected.

To allow pleasure boating, marine tours, cruises (cruise ships), and commercial navigation in accordance with established regulations.

To ban all harvesting activities, apart from the exceptions recognized in the zoning plan (see **section 4.4.7**).

4.4.3 GENERAL PROTECTION (ZONE III)

Protection objective

To ensure the **general protection** of ecosystems and their structure and functions, as well as of habitats and species that tolerate harvesting.

Education objective

To provide the public with opportunities to learn about biodiversity, environmentally sustainable use, and means of protecting ecosystems, habitats, communities, and species.

Park use objective

To promote a range of educational and recreational activities that may or may not involve the harvesting of natural resources.

To allow scientific research, subject to certain conditions.

To allow pleasure boating, marine tours, cruises (cruise ships), and commercial navigation according to regulations.

To allow harvesting activities such as sport hunting and fishing, according to regulations.

4.4.4 GENERAL USE (ZONE IV)

Protection objective

To ensure the maintenance of the structures and functions of the Park's ecosystems and protect Park ecosystems, habitats, and species of lesser concern that can tolerate managed harvesting carried out in a sustainable manner.

Education objective

To encourage learning and the adoption of sound management practices fostering the environmentally sustainable use of the Marine Park's ecosystems.

To educate Park users and the public as to the importance of ensuring that Marine Park ecosystems are used in an environmentally sustainable way in the recreational and commercial use of natural resources.

Park use objective

To promote access, discovery, and environmentally sustainable use of the Marine Park.

To allow scientific research under certain conditions, particularly research that helps improve management methods and practices for commercial fishing.

To allow pleasure boating, marine tours, cruises (cruise ships), and commercial navigation in accordance with established regulations.

To allow harvesting activities, such as sport hunting and fishing, in accordance with established regulations.

To allow commercial harvesting, namely hunting and fishing, in accordance with the Saguenay–St. Lawrence Marine Park model fishery management principles and terms.

4.4.5 VERTICAL APPLICATION

The zoning plan was developed in such a way that it could be uniformly applied to three of the Park's four spatial components: surface waters, water column, and sea bed. Preserving the composition, structure, and functions of ecosystems and habitats requires the uniform protection of these three components. One exception to this rule applies to sector 10 in order to allow seal hunting in winter to be carried out safely.

As for the aerial component, the *Marine Activities in the Saguenay–St. Lawrence Marine Park Regulations* forbid aircraft to take off or land in the Park and prescribes a minimum overflight altitude of 2,000 feet (607 metres).

4.4.6 TEMPORAL APPLICATION

Zoning may be applied on a temporal basis in order to increase the level of protection in a sector during a specific period of the year. This provision is designed to meet specific protection needs of certain ecosystems, habitats, and endangered species during set periods of time or for important functions in their life cycle. Temporal zoning can also help resolve Park use conflicts.

Temporal zoning in this plan is mainly applied around islands and islets to provide enhanced protection for migratory birds during the nesting and rearing season.

4.4.7 EXCEPTIONS AND EXEMPTIONS

Zoning aims to resolve conflicts between the needs of Marine Park users and conservation requirements, or between different types of use. Some conflicts might not be resolved, however. For example, the number of boats at the mouth of the Saguenay Fjord and the speed at which they are driven can pose a safety hazard for both the public and marine mammals. The *Marine Activities in the Saguenay–St. Lawrence Marine Park Regulations* are a privileged tool for resolving this problem.

Consultations with local targeted groups have helped identify certain problems in the application of the zoning plan, and appropriate solutions have been adopted.

The following exceptions to the Marine Park zoning plan were determined:

1. **Emergency operations:** Marine emergency operations for public safety or pollution control are authorized throughout the Park. Emergency plans must provide for the means and methods that will have the least impact on the marine environment.
2. **Specific management or maintenance needs:** Essential management activities, such as maintenance of marine or land-based infrastructures that are accessible only from the water are authorized under certain conditions in certain comprehensive preservation zones provided that the time, methods, itineraries, and means used are chosen to have the least impact on the marine environment.
3. **Specific needs with respect to accessing a private property:** Access to private property requiring the use of a motorized vehicle in an otherwise inaccessible intertidal zone is authorized under certain conditions, providing that the time, methods, itineraries, and means used are chosen to have the least impact on the marine environment.
4. **Safe travel by Park users:** Transit passage of human-powered watercraft (kayaks, canoes, etc.) along the shoreline is authorized under certain conditions to ensure user safety in some zone I areas.
5. **Park use conflicts with respect to public safety:** Hunting in or near areas used by visitors can pose a threat to public safety during certain periods. It is essential to

reduce the risks associated with this type of use conflict. Hunting is therefore prohibited in certain zone III and IV areas.

6. **Park use conflicts with respect to the visitor experience:** Disturbances caused by hunting off or near land-based marine observation sites must be avoided so as not to detract from the visitor experience. Hunting is therefore prohibited in certain zone III and IV areas.

The following activities are listed as exempted with respect to the Marine Park zoning plan:

Commercial harvesting of renewable natural resources in contradiction with the type of zone and its protection objective: Certain commercial fishing or seal hunting activities are currently conducted in zone II (specific protection) and zone III (general protection) areas. Authorities of the Saguenay–St. Lawrence Marine Park and the departments concerned (FOC and MAPAQ) , in conjunction with the users involved, will consider measures to phase out these activities in the short, medium, or long term to ensure that the zoning objectives are achieved and the Marine Park mandate respected. In the meantime, these exempted activities will be authorized under certain conditions and must comply with the **“Saguenay–St. Lawrence Marine Park Model Fishery Management Principles and Terms”** presented in Appendix II and in the Management Plan in order to limit their impact on the Park’s ecosystems.

5. GENERAL DESCRIPTION OF MARINE PARK ZONING

Marine Park authorities developed the zoning plan in close cooperation with the government departments concerned and local targeted groups. The following is a general overview of Marine Park zoning (**Figure 7**).

5.1 ZONE I – COMPREHENSIVE PROTECTION

The Marine Park zoning plan provides comprehensive protection (Zone I) to **3% (34 km²)** of the Park area. The zone I designated areas are generally very small, but are very important for protecting exceptional ecosystems and habitats. The area around most islands and points, including the western end of Île aux Lièvres, the Île Rouge Banks, Cap de la Tête au Chien, Pointe Noire, Pointe de l'Islet, the haul-outs at Cap Fraternité and Cap Éternité, the section off Cap de Bon-Désir, and the mouth of Baie Sainte-Marguerite are important heritage areas in the Marine Park.

5.2 ZONE II – SPECIFIC PROTECTION

Nearly half of the Marine Park (**42% or 524 km²**), is designated as a **specific protection zone (Zone II)** in which harvesting is prohibited, apart from exceptional cases. Zone II areas generally cover large parts of the Park's three major ecosystems.

In the upper estuary ecosystem, the Gros Cap à l'Aigle and Pointe aux Quilles to Cap aux Corbeaux sectors are designated as zone II areas, as are the areas around Batture Aux Alouettes and the upper estuary islands. In the Saguenay Fjord ecosystem, zone II areas comprise the mouth of the Saguenay, a section of the fjord off Baie Sainte-Marguerite and another portion off the two haul-outs at Cap Fraternité and Cap Éternité. Finally, in the lower estuary ecosystem, the sector at the head of the Laurentian Channel is designated as a zone II area.

5.3 ZONE III – GENERAL PROTECTION

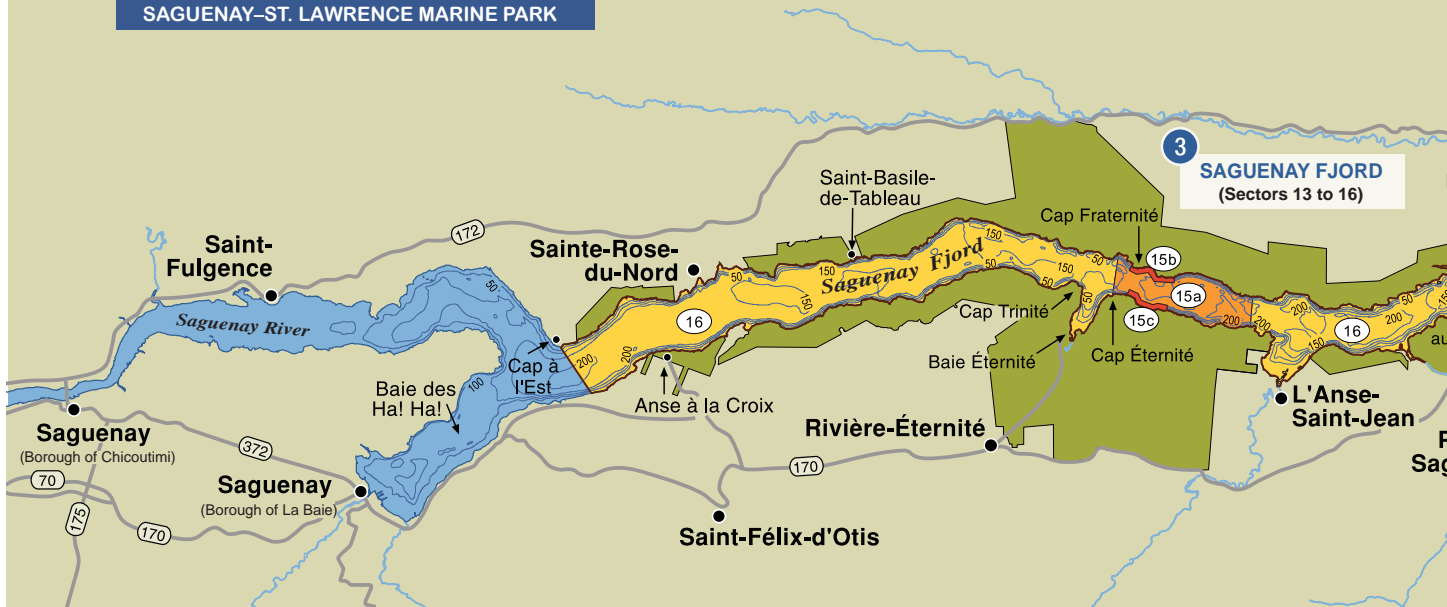
General protection zones (Zone III) apply to 19% (243 km²) of the Marine Park's territory. Harvesting activities such as hunting and fishing are permitted for recreational purposes.

Most of the coastal areas in the major ecosystems of the upper and lower portions of the estuary and the Saguenay Fjord are included in the general protection zones (III).

Figure 7 : General

ZONING PLAN

SAGUENAY-ST. LAWRENCE MARINE PARK



MAP 5

- Parc national du Saguenay
- Saguenay-St. Lawrence Marine Park boundary
- Boundaries of the three major Marine Park ecosystems
- Aboriginal community
- No hunting (sub-sectors 9b, 9f, 13d and 14c)
- Bathymetric contour

Zoning and area for each type of zone

- Zone I (Comprehensive preservation) : 34 km²
- Zone II (Specific protection) : 524 km²
- Zone III (General protection) : 243 km²
- Zone IV (General use) : 445 km²
- Sector number

Seasonal zoning

- Sub-sectors 5f and 6c : Zone I from 01/01 to 30/06 and Zone II from 01/07 to 30/09
- Sub-sector 9h : Zone I from 01/01 to 30/06 and Zone III from 01/07 to 30/09
- Sub-sector 10a : Zone III year-round except 5/11 to 30/04 Zone IV (S)



1 Major Ecosystem of the UPPER ST. LAWRENCE ESTUARY of the St. Lawrence River

- | | | |
|-----|---|-------|
| 1 | Gros Cap à l'Aigle | II |
| 2 | Port-au-Saumon | III |
| 3a | From Pointe aux Quilles to Cap aux Corbeaux | II |
| 3b | Cap de la Tête au Chien | I |
| 4 | Baie-des-Rochers | III |
| 5 | Upper estuary islands | |
| 5a | Area around the upper estuary islands | II |
| 5b | Area around Île aux Fraises | I |
| 5c* | Western edge of Île aux Lièvres | I |
| 5d* | Cove of western point of Île aux Lièvres | II |
| 5e* | Area around Îles du Pot à l'Eau-de-Vie | I, II |
| 5f* | Anchorage between Gros Pot and Petit Pot | I, II |
| 5g | Area around Île Blanche | I |
| 6 | Batture aux Alouettes and its periphery | III |
| 6a | Batture aux Alouettes | II |
| 6b | Area around Batture aux Alouettes | II |
| 6c | Area around Îlet aux Alouettes | I, II |
| 7 | Northern Channel | IV |

2 Major Ecosystem of the LOWER ST. LAWRENCE ESTUARY of the St. Lawrence River

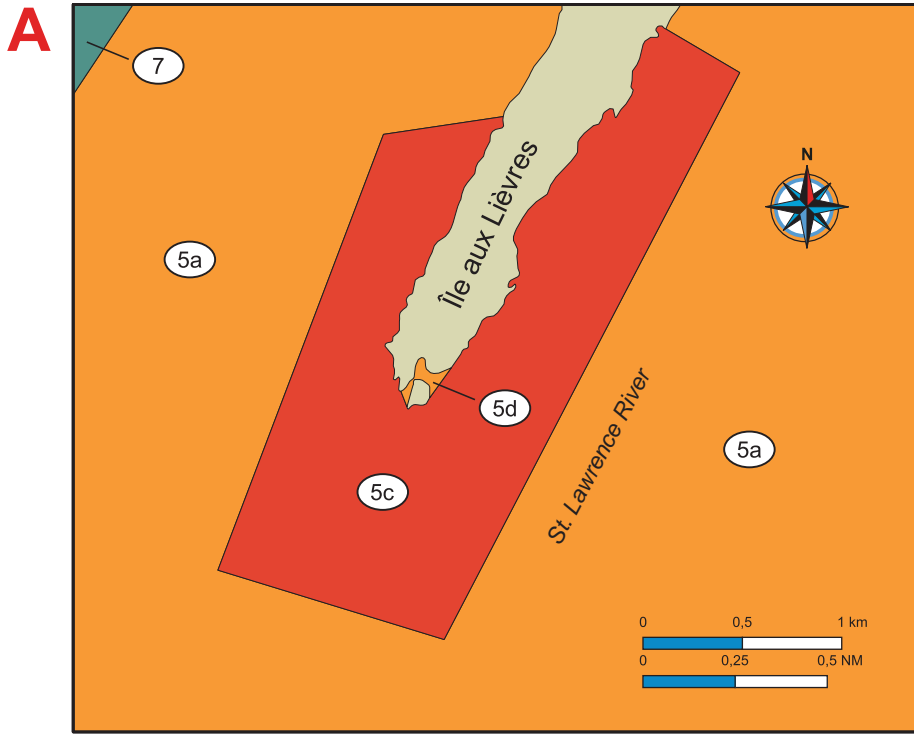
- | | | |
|-----|--|--|
| 8 | Île Rouge banks | |
| 9 | Battures from Pointe Rouge to Cap de Bon-Désir | |
| 9a | Batture de la Pointe aux Vaches | |
| 9b | Baie du Moulin à Baude | |
| 9c | Batture de la Pointe à la Carriole | |
| 9d | Baie des Petites Bergeronnes and marsh | |
| 9e | Grandes Bergeronnes marsh | |
| 9f | Baie des Grandes Bergeronnes | |
| 9g | Batture à Théophile | |
| 9h | Rochers Bare | |
| 10 | Cap de Bon-Désir to Les Escoumins | |
| 10a | Strip from Cap de Bon-Désir to Les Escoumins | |
| 10b | Area off Cap de Bon-Désir | |
| 10c | Anse aux Basques (Quai des Pilotes) | |
| 10d | Anse à la Barque | |
| 11 | Head of the Laurentian Channel | |
| 12 | Laurentian Channel | |

3 Major Ecosystem of the SAGUENAY FJORD

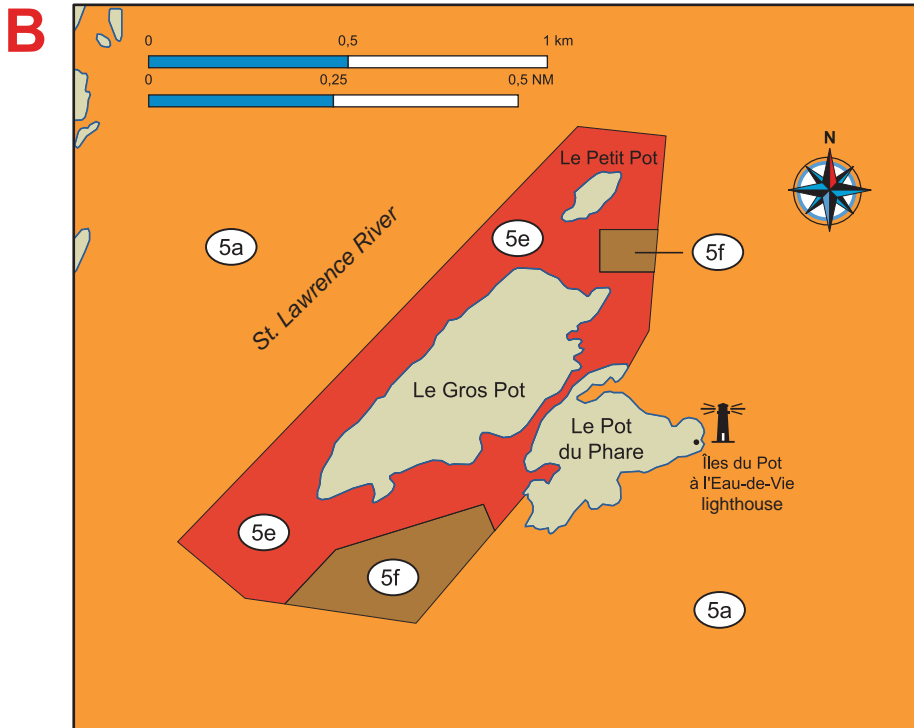
- | | | |
|---------|------|---|
| I | 13 | Mouth of the Saguenay |
| | 13a | Entrance of the Saguenay |
| III | 13b | Pointe Noire |
| III | 13c | Pointe de l'Islet |
| III | 13d | Baie de Tadoussac |
| III | 13e | Underwater cliff at Îlet aux Alouettes |
| III | 14 | Baie Sainte-Marguerite |
| IV | 14a* | Section of fjord facing Baie Sainte-Marguerite |
| III | 14b* | Mouth of Baie Sainte-Marguerite |
| I, III | 14c* | Passing corridor and marsh of Baie Sainte-Marguerite |
| | 14d | Anse au Cheval |
| III, IV | 15 | Cap Éternité and Cap Fraternité |
| I | 15a | Section of fjord facing Cap Éternité and Cap Fraternité |
| IV | 15b | Cap Fraternité Haul-out |
| II | 15c | Cap Éternité Haul-out |
| IV | 16 | Saguenay Fjord |

* Map 6: See corresponding detail (A, B or C)

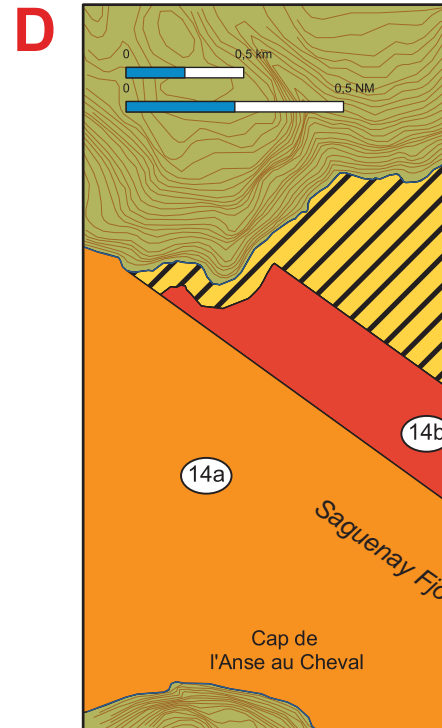
Upper Estuary Islands (Sector 5) : **A** and **B**



Confluence area



Baie Sainte-Marguerite



5.4 ZONES IV– GENERAL USE

General use zones (Zone IV) occupy 36% (445 km²) of the Marine Park area and are concentrated in the major ecosystems of the upper and lower estuary. Commercial fishing and hunting are authorized if carried out in an environmentally sustainable manner.

5.5 TEMPORAL ZONING

Temporal zoning is mainly used to protect seabirds during the breeding, nesting, and rearing season. **Table 6** presents information on the application of temporal zoning in the Saguenay–S. Lawrence Marine Park.

Table 6: Temporal Zoning in the Saguenay–St.-Lawrence Marine Park

Sector or Subsector	Period	Type of Zone	Justification
Anchorage southeast of Petit Pot and Gros Pot Subsector: 5f	April 1 to June 30	Zone I	Comprehensive protection required during seabird nesting period
	July 1 to March 31	Zone II	Provides safe anchorage for recreational boaters
Area around Îlet aux Alouettes Subsector: 6c	April 1 to June 30	Zone I	Comprehensive protection required during seabird nesting period
	July 1 to March 31	Zone II	
Rochers Bare Subsector: 9h	April 1 to June 30	Zone I	Comprehensive protection required during seabird nesting period
	July 1 to March 31	Zone III	
Strip from Cap de Bon-Désir to Les Escoumins Subsector: 10a	May 1 to November	Zone III	
	November 15 to April 30	Zone IV Surface waters only	Permits commercial seal hunting and increases the safety thereof

5.6 EXCEPTIONS

Consultations with targeted groups led to amendments to the draft zoning plan taking current use of the Marine Park into account. The resulting exceptions and exemptions are presented in **Table 7**.

Table 7: Zoning Exceptions and Exemptions for the Saguenay–St. Lawrence Marine Park

Sector or Subsector	Exceptions	Conditions (Regulatory processes to be determined)
All sectors	Emergency operations	Emergency operations for public safety or pollution control are authorized throughout the Park. Emergency plans must provide for the means and methods that will have the least impact on the marine environment.
Cap de la Tête au Chien Subsector 3b	Safe travel by Park users	Transit passage through a zone I area, subject to regulations regarding the protection of marine mammals.
Baie des Rochers Sector 4	Specific needs with respect to accessing a private property	Transit passage for all-terrain vehicles to access private properties.
Île aux Fraises Subsector 5b	Specific management or maintenance needs: Research and maintenance work on behalf of the Îles de l'estuaire National Wildlife Area	A permit from Environment Canada's Canadian Wildlife Service. Access in transit to the anchorages on the south side and south eastern side off the western tip of the island.
Île aux Lièvres Subsector 5c	Specific management or maintenance needs: Supply and maintenance of camp site at the western tip of the island opposite the research camp.	Transit passage to the anchorages at the western tip of the island and on the south western side of the island opposite the research camp.
Area around Îles du Pot à l'Eau-de-Vie Subsector 5e	Specific management or maintenance needs and access to a private property	Transit passage through a zone I area, subject to marine mammal protection regulations.
Île Blanche Subsector 5g	Specific management or maintenance needs: Research and maintenance work on behalf of the Îles de l'Estuaire National Wildlife Area	A permit from Environment Canada's Canadian Wildlife Service. Transit passage to the anchorage on the south-south east side of the island
Batture aux Alouettes and the area around it Sector 6	Exempted commercial harvesting of renewable natural resources*: Exploratory commercial fishing for sea urchins is exempted in subsectors 6a - Batture aux Alouettes and 6b – Area around Batture aux Alouettes. Commercial fishing for soft-shelled clams is exempted in subsector 6a - Batture aux Alouettes.	A solution for phasing out these exempted commercial fishing activities will have to be put in place with the help of fishers and Fisheries and Oceans Canada.
Area around Îlet aux Alouettes Sector 6c	Specific needs with respect to accessing a private property: Navigational aids and research.	Transit passage through a zone I area, subject to marine mammal protection regulations. A down harvesting permit from Environment Canada's Canadian Wildlife Service.
Île Rouge Banks Sector 8	Specific management or maintenance needs: Navigational aids and research	Transit passage through a zone I area, subject to marine mammal protection regulations.
Baie du Moulin à Baude Subsector 9b	Park use conflict with respect to the visitor experience and public safety: Overlooking this sector there is a trail and an observation site providing a panoramic view of the Marine Park and a specific area for observing birds of prey.	Hunting is prohibited year round.
Batture de la Pointe à la Carriole Subsector 9c	Specific needs with respect to accessing a private property	Transit passage for all-terrain vehicles to access private properties

Sector or Subsector	Exceptions	Conditions (Regulatory processes to be determined)
Baie des Grandes Bergeronnes Subsector 9f	Park use conflicts with regard to the visitor experience and public safety: Baie des Grandes Bergeronnes is a point of access to the Marine Park used by residents and visitors.	Hunting is prohibited year round within a radius of 200 m around the wharf.
Section off Cap de Bon-Désir Subsector 10b	Safe travel by Park users and educational activity: Cap de Bon-Désir is an important land-based observation site for Marine Park visitors and the zone I area off this site is intended to ensure that it remains undisturbed. However, for safety reasons, sea kayakers must hug the shore in this area. An educational activity is presented at the site consisting of sampling marine organisms for interpretive purposes. The organisms are released back into the ecosystem at the end of the activity.	Transit passage for human-powered watercraft along the coast across a zone I area, subject to marine mammal protection regulations. A two-year exemption is granted for the “30 feet into Neptune’s World” activity. An environmental impact assessment carried out during this period will help determine this activity’s future.
Head of the Laurentian Channel Sector 11	Exempted commercial harvesting of renewable natural resources: Commercial fishing for scallops, whelks, and halibut, as well as seal hunting are exempted activities in sector 11.	A solution for eliminating these exempted commercial fishing activities will be implemented with the help of fishers and Fisheries and Oceans Canada.
Pointe Noire Subsector 13b	Safe travel for Park users: Pointe Noire is an important land-based observation site for Marine Park visitors and the zone I area off this site is intended to ensure that it remains undisturbed. However, for safety reasons, sea kayakers must hug the shore in this area.	Transit passage for human-powered watercraft along the coast in a 400 m wide zone I strip, subject to marine mammal protection regulations.
Pointe de l’Islet Subsector 13c	Safe travel for Park users: Pointe de l’Islet is an important land-based observation site for Marine Park visitors and the zone I area off this site is intended to ensure that it remains undisturbed. However, for safety reasons, sea kayakers must hug the shore in this area.	Transit passage for human-powered watercraft along the coast in a 100 m wide zone I strip, subject to marine mammal protection regulations.
Baie de Tadoussac Subsector 13d	Park use conflicts with regard to the visitor experience and public safety: Baie de Tadoussac is an important point of access for the Marine Park, with its marina, marine tour departures, etc. It is used by residents and Park visitors. The tranquillity of the area and public safety must be ensured.	Hunting is prohibited year round.
Mouth of Baie Sainte-Marguerite Subsector 14b	Safe travel for Park users: The entrance of Baie Sainte-Marguerite is an important habitat for St. Lawrence beluga whales, a species at risk. For this reason, it is designated as a zone I area. However, kayakers must be able to paddle safely down the Saguenay.	Transit passage for human-powered watercraft along the coast, downstream from the mouth of the bay, subject to marine mammal protection regulations.
Passageway and marshes of Baie Sainte-Marguerite Subsector 14c	Park use conflicts with regard to visitor experience and public safety: Baie Sainte-Marguerite is used by residents and Park visitors. The tranquillity of the area and public safety must be ensured.	Hunting is prohibited year round.
Cap Fraternité Subsector 15b	Safe travel for Park users: A 300 m zone I strip protects a harbour seal haul-out. However, safe passage for kayakers paddling the Saguenay must be ensured.	Transit passage for human-powered watercraft along the coast in a 300 m wide zone I strip, subject to marine mammal protection regulations.

Sector or Subsector	Exceptions	Conditions (Regulatory processes to be determined)
Cap Éternité Subsector 15c	Safe travel for Park users: A 300 m zone I strip protects a harbour seal haul-out. However, safe passage for kayakers paddling down the Saguenay must be ensured.	Transit passage for human-powered watercraft along the coast in a 300 m wide zone I strip, subject to marine mammal protection regulations.

(* **Note:** All commercial fishing presently taking place in zone II and III areas is exempted under current Marine Park zoning.

6. DETAILED DESCRIPTION OF THE MARINE PARK ZONING BY GEOGRAPHICAL SECTOR

This chapter begins with a description of the main features of each sector of the Marine Park. It then describes their respective protection, education, and use objectives based on the general objectives for each type of zone. Specific objectives for each zone will be set out in the Marine Park interpretation plan. The types of zone applicable to each geographical sector and subsector are also identified.

6.1 MAJOR ECOSYSTEM OF THE UPPER ST. LAWRENCE ESTUARY

6.1.1 Sector 1: Gros Cap à l'Aigle – Zone II

Main Features

Location

The Gros Cap à l'Aigle sector is located in the Upper St. Lawrence Estuary at the upstream end of the Marine Park a few kilometres downstream from the marina at Cap à l'Aigle. It is a rectangular strip perpendicular to the shore, off Gros Cap à l'Aigle.

Biophysical environment

The sector is bordered to the north by Montagne du Remous (240 m), a headland that juts out slightly into the estuary. It has a steep underwater cliff that plunges into a deep basin (115 m). The abrupt change in depth due to this underwater cliff creates a frontal zone or internal wave near the surface. The seabed in the upper estuary is composed of bedrock as well as gravel and sand swept by the currents. Conditions are not conducive to the accumulation of fine sediment (Mousseau *et al.*, 1998). Tidal currents create whirlpools at the surface for one to three hours before and after low and high tide. (Fisheries and Oceans Canada, 1997, cited in Dionne, 2001).

Key biological components

The threatened St. Lawrence beluga population uses this sector intensively (60% of the time) in the summer (Michaud, 1993), mostly in small pods averaging 12 individuals and comprising adults and juveniles. Most of this intensive use zone is located outside park boundaries, upstream from Gros Cap à l'Aigle.

- Area of intensive use by St. Lawrence beluga (Michaud, 1993)
- Capelin spawning area (Parent and Brunel, 1976, cited in Dionne, 2001; CEFSL, 1978, cited in Dionne, 2001)
- Concentration of adult rainbow smelt (Bergeron, 1977, cited in Dionne, 2001; CEFSL, 1978, cited in Dionne, 2001)
- Migration corridor for the American eel and Atlantic herring (Gagnon *et al.*, 1993, cited in Dionne, 2001)

Current use

Although difficult to reach by land, this sector is located near the marina at Cap à l'Aigle, and is used by residents and visitors, but traffic is light. Commercial vessels, cruise ships, and pleasure boats cross through it, and the sector is visited by marine tours.

Zoning

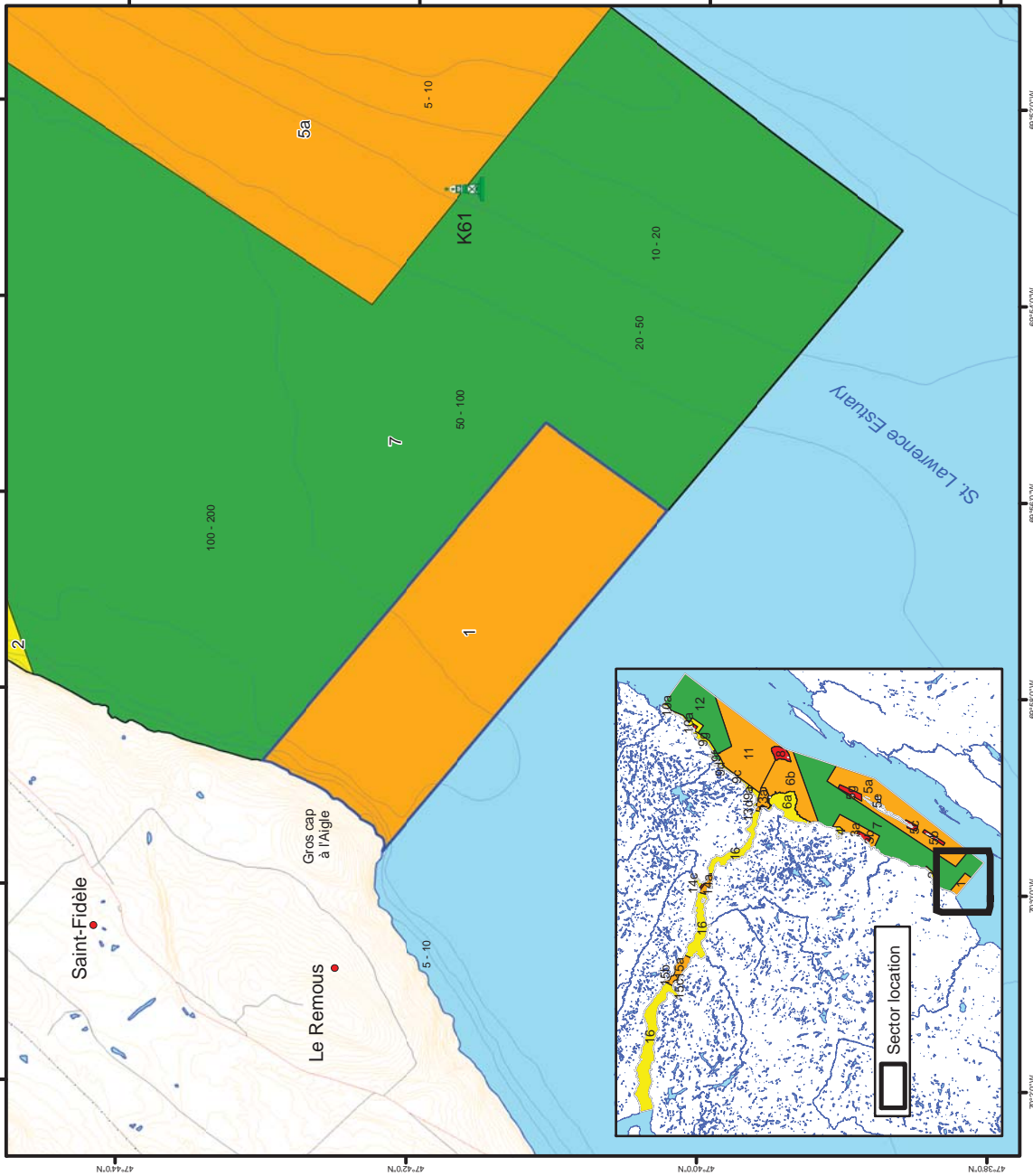
Protection objective: To protect this representative portion of the major ecosystem of the Upper St. Lawrence Estuary as well as the area of intensive summer use by belugas, a highly representative and vulnerable species.

Education objective: To promote educational activities that do not involve harvesting of natural resources.

Park use objective: To encourage educational and recreational activities carried out on an individual or commercial basis, that do not involve harvesting natural resources.

Zoning: This sector is designated as a specific protection zone (Zone II).

SSLMP Zoning Sector 1 Gros cap à l'Aigle (10.5 km²)



Legend

- Municipality
 - Port lateral buoy
 - Power line
 - Main road
 - Secondary road
 - Contour line (m)
 - Saguenay–St. Lawrence Marine Park
 - Bathymetric contour (m)
- ### Zoning
- Zone I (Comprehensive preservation)
 - Zone II (Specific protection)
 - Zone III (General protection)
 - Zone IV (General use)
 - Aquatic environment (outside park)
 - Land environment (outside park)
 - Sector shown
 - Sector number



Geoidetic datum :
North American Datum 1983
Projection :
UTM Zone 18N
Bathymetric data : CHS



Created : June 25, 2008
Parks Canada, Quebec Service Centre

6.1.2 Sector 2: Port-au-Saumon – Zone III

Main Features

Location

The Port-au-Saumon sector encompasses the bay of the same name and an approximately 500-metre-wide strip running parallel to the shore to Cap au Saumon.

Biophysical environment

Rivière Port-au-Saumon flows into the Baie de Port-au-Saumon, which is surrounded by 300 to 400-metre-high cliffs. The bay is 800 m wide and extends 600 m inland. It is largely uncovered at low tide, revealing a sandy bottom, and boasts two islands: Île Sabère and Île Camarine. The sublittoral zone extends to a depth of some 20 metres and features a rocky substrate. (Bourget *et al.*, 1994).

Key biological components

The site is well known for the diversity of its macrobenthic communities. Some 137 species of invertebrates and 26 species of algae have been recorded. Sea urchins and kelp dominate in terms of biomass, while gasteropod, anthozoa, and polychete populations are the most dense (Bourget *et al.*, 1994). Barrow's goldeneye, a species of special concern, and common eider can be found there in the fall and winter (Robert *et al.*, 1999), (R. Corbin, cited in Dionne, 2001).

- Favourable habitat for dabbling ducks (Savard, 1990, cited in Dionne, 2001)
- Feeding and rearing sites for the common eider (Dionne, 2001)
- Habitat used by the Barrow's goldeneye (Robert *et al.*, 1999)
- Capelin spawning grounds (Parent and Brunel, 1976, cited in Dionne, 2001; CEFSL, 1978, cited in Dionne, 2001)
- Concentrations of adult rainbow smelt (Bergeron, 1977, cited in Dionne, 2001; CEFSL, 1978, cited in Dionne, 2001)
- Migration corridor for the American eel and Atlantic herring (Gagnon *et al.*, 1993, cited in Dionne, 2001)

Current use

This sector is accessible to residents and has been used for a number of years by Centre écologique de Port-au-Saumon, which offers nature interpretation activities to children and adults. This sector is also renowned for the beauty of its underwater landscapes.

Zoning

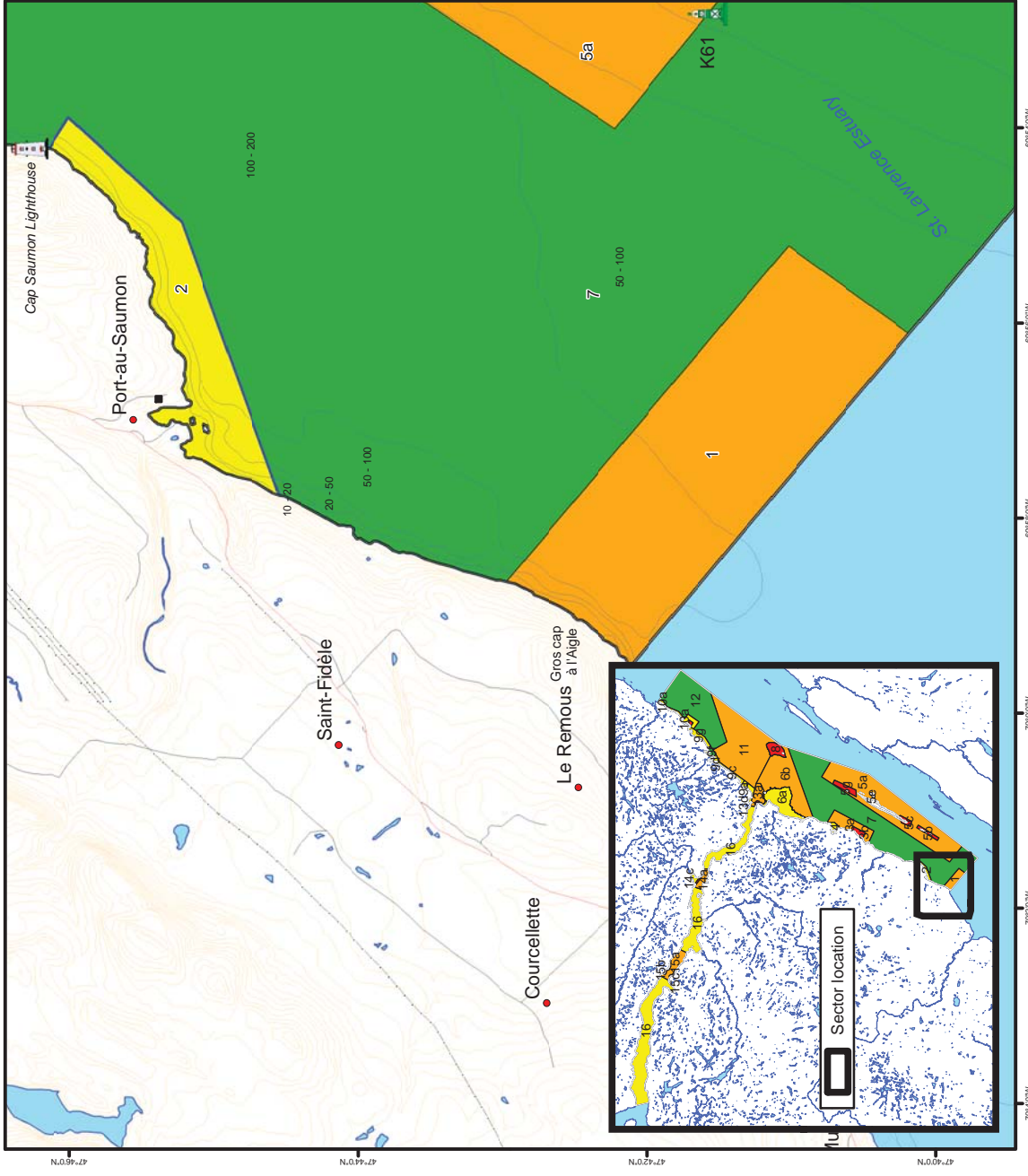
Protection objective: To protect this representative portion of the major ecosystem of the Upper St. Lawrence Estuary as well as the bay, the sublittoral zone, and the Barrow's goldeneye, a species at risk of special concern.

Education objective: To encourage educational activities for exploring and understanding marine ecosystems involving sampling of specimens, subject to certain conditions.

Park use objective: To promote educational and recreational activities that may involve harvesting of renewable resources, such as hunting of migratory birds.

Zoning: This sector is designated as a general protection zone (Zone III).

SSLMP Zoning Sector 2 : Port-au-Saumon (3.2 km²)



Legend

- Building
 - 🗼 Lighthouse
 - 🚤 Port lateral buoy
 - ⚡ Power line
 - 🛣 Main road
 - 🛤 Secondary road
 - 📏 Bathymetric contour (m)
 - 📏 Contour line (m)
 - 📏 Saguenay-St. Lawrence Marine Park
- Zoning**
- 🔴 Zone I (Comprehensive preservation)
 - 🟠 Zone II (Specific protection)
 - 🟡 Zone III (General protection)
 - 🟢 Zone IV (General use)
 - 🟡 Aquatic environment (outside park)
 - ⚪ Land environment (outside park)
 - 📏 Sector shown
 - 1 Sector number



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6.1.3 Sector 3: Cap de la Tête au Chien – Zones I and II

Subsector: 3a-Pointe aux Quilles to Cap aux Corbeaux	Zone II
Subsector: 3b-Cap de la Tête au Chien	Zone I

Main Features

Location

The sector is located along the coast, downstream from Saint-Siméon and extends to just beyond Baie des Rochers. It is a rectangular, approximately three-kilometre-wide strip, running parallel to the shore.

Biophysical environment

The coastline in this sector is rocky and very steep. Its highest point, nearly 400 m in elevation, is at Cap de la Tête au Chien. Downstream the coastline rarely drops below 300 m and ends in a sandy beach stretching out into a spit at the mouth of Baie des Rochers. The seabed is primarily made up of bedrock and sand (Mousseau *et al.*, 1998) and is characterized by steep cliffs dropping into a basin between 100 and 120 m deep. This is the deepest basin in this portion of the upper estuary between Baie-Sainte-Catherine and Saint-Siméon (Mousseau *et al.*, 1998). Tidal currents generate surface whirlpools several hours before and after high tide (Fisheries and Oceans Canada, 1997, cited in Dionne, 2001).

Key biological components

The threatened St. Lawrence beluga population uses this sector intensively in summer (60% of the time), mostly in pods averaging 10 individuals and comprising adults and juveniles (Michaud, 1993).

- Presence of wintering populations of the Barrow's goldeneye, a species of special concern under the *Species at Risk Act* (2002, ch.29), common goldeneye, and long-tailed duck (Dionne, 2001)
- Presence of green sea urchin (Survey, 1995, cited in Dionne, 2001)
- Capelin spawning grounds (Parent et Brunel, 1976, cited in Dionne, 2001; CEFSL, 1978, cited in Dionne, 2001)
- Migration corridor for the American eel and Atlantic herring (Gagnon *et al.*, 1993, cited in Dionne, 2001)

Current use

This sector is mainly accessible by water. Use by residents and visitors is quite light. The sector is crossed by commercial vessels, cruise ships, and pleasure boats and is visited by marine tours.

Zoning

Protection objective: To fully protect the area of intensive summer use by belugas (subsector 3b) and protect the sector's physical and biological features.

Education objective: To promote opportunities to explore and enjoy the major ecosystem of the Upper St. Lawrence Estuary and foster understanding of the importance of fully protecting the area used intensively by belugas during the summer (subsector 3b) as well as certain representative, rare, or vulnerable habitats and species.

Park use objective: To encourage the observation of St. Lawrence belugas from sites on land, reduce the risk of disturbing beluga whales in the subsector they use intensively, and encourage educational and recreational activities conducted on an individual or commercial basis without harvesting.

Zoning: To better balance this sector's protection and use objectives, it has been subdivided into two subsectors.

SUBSECTOR 3a - Pointe aux Quilles to Cap aux Corbeaux - Zone II. This subsector covers a representative portion of the Upper St. Lawrence Estuary ecosystem.

This subsector is designated as a specific protection zone (Zone II).

SUBSECTOR 3b - Cap de la Tête au Chien Lighthouse - Zone I. This subsector comprises one of the areas used intensively by St. Lawrence belugas during the summer.

The sector is designated as a comprehensive preservation zone (Zone 1).

Exception: Access for specific management and maintenance needs and transit passage of human-powered watercraft (kayaks and canoes) along the shore in this zone I area is authorized, subject to marine mammal protection regulations (see **Table 7**).

SSLMP Zoning Sector 3 : Cap de la Tête au Chien (31.3 km²)

Sub-sectors :
 3a : Pointe-aux-Quilles to
 Cap aux Corbeaux (27.4 km²)
 3b : Cap de la Tête au Chien (3.9 km²)

Legend

- Wharf and boat launch
- Municipality
- 🏠 Lighthouse
- Power line
- Main road
- Secondary road
- Bathymetric contour (m)
- Contour line (m)
- Saguenay-St. Lawrence Marine Park

Zoning

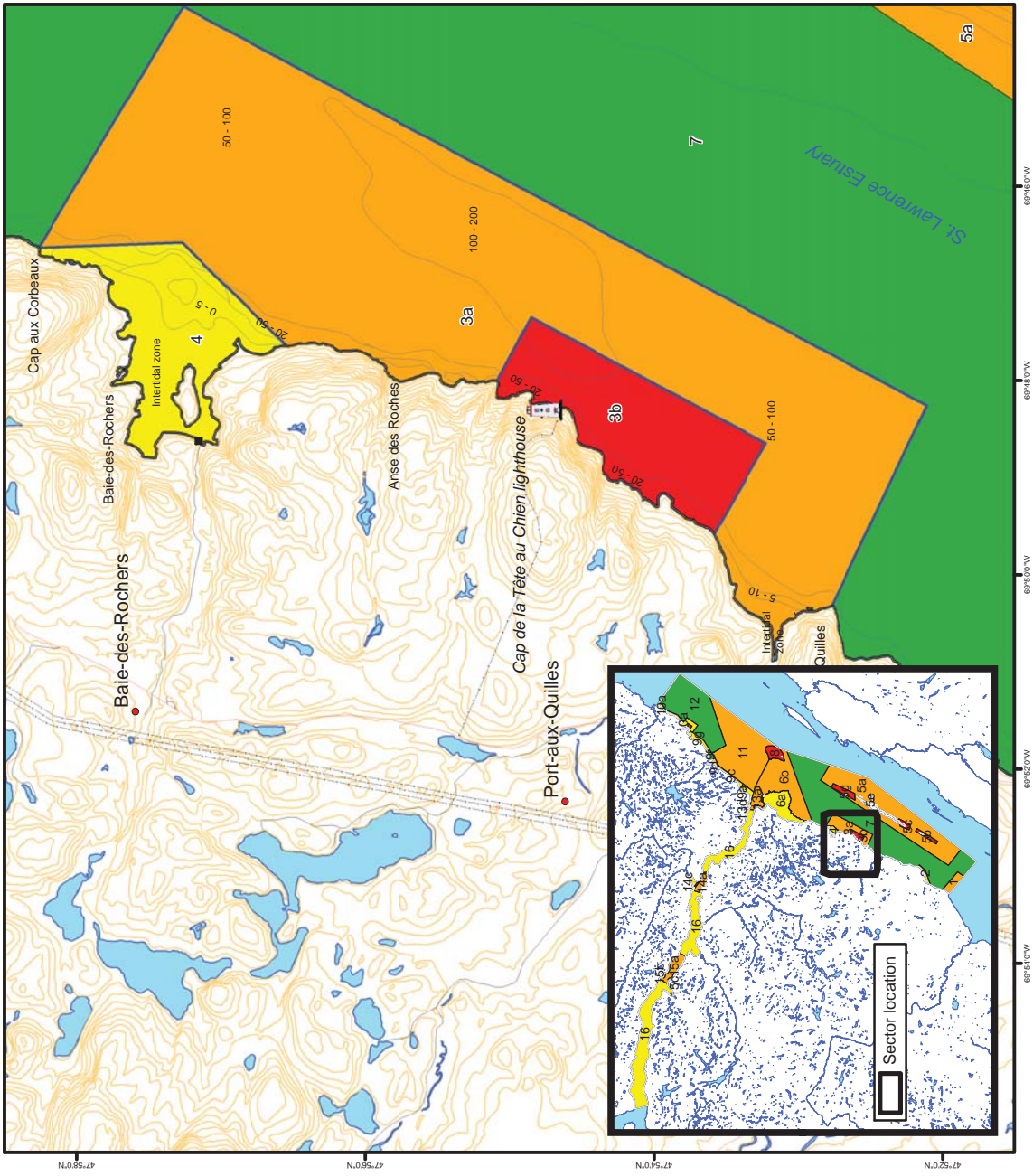
- Zone I (Comprehensive preservation)
- Zone II (Specific protection)
- Zone III (General protection)
- Zone IV (General use)
- Aquatic environment (outside park)
- Land environment (outside park)
- Sector shown

1 Sector number



Coördinates datum :
 North American Datum 1983
 Projection system :
 Universal Transverse
 Mercator
 Bathymetric datum : CHS

Created : June 25, 2008
 Parks Canada, Quebec Service Centre



6.1.4 Sector 4: Baie des Rochers - Zone III

Main Features

Location

Baie des Rochers, covering an area of nearly three km², is located at the mouth of Rivière de la Baie des Rochers and is accessible by land and water.

Biophysical environment

Baie des Rochers is the largest bay in the upper estuary portion of the Marine Park. It is surrounded by peaks over 300 m high and Île de la Baie des Rochers lies at its centre. The floor of the bay is uncovered at low tide and is characterized by alternating fine sediment and small boulders. Further offshore, a series of small reefs known as Caye du Large occupies the centre of the mouth of Baie des Rochers.

The long, narrow shape of the bay creates a relatively closed environment where fine sediment can accumulate. The concentration of nutrients and the buildup of organic matter that results promote algal growth and an abundance of invertebrates, such as scud (Nadia Ménard, personal communication, 2002). The bay is bordered at its mouth by a bed of fucus seaweed.

Key biological components

This environment is rich in forage species and amphipods, such as scud, and is an important wildlife habitat. It is used by common eider and a number of other duck species. Baie des Rochers is an important habitat for Barrow's goldeneye, a species of special concern. In fact the bay is one of the main wintering sites for Barrow's goldeneye along the St. Lawrence (Robert and Savard, 2006).

Current use

Baie des Rochers is accessible by land. It is regularly used by residents, particularly those who have cabins nearby. The cabins can be reached by boat or all-terrain vehicle at low tide. The sector also attracts Marine Park visitors. Hiking around the bay, recreational fishing, kayaking, and migratory bird hunting are the main activities.

Zoning

Protection objective: To protect this rich wildlife habitat and the species found there, and to preserve this special landscape so that it can be interpreted to residents and Marine Park visitors.

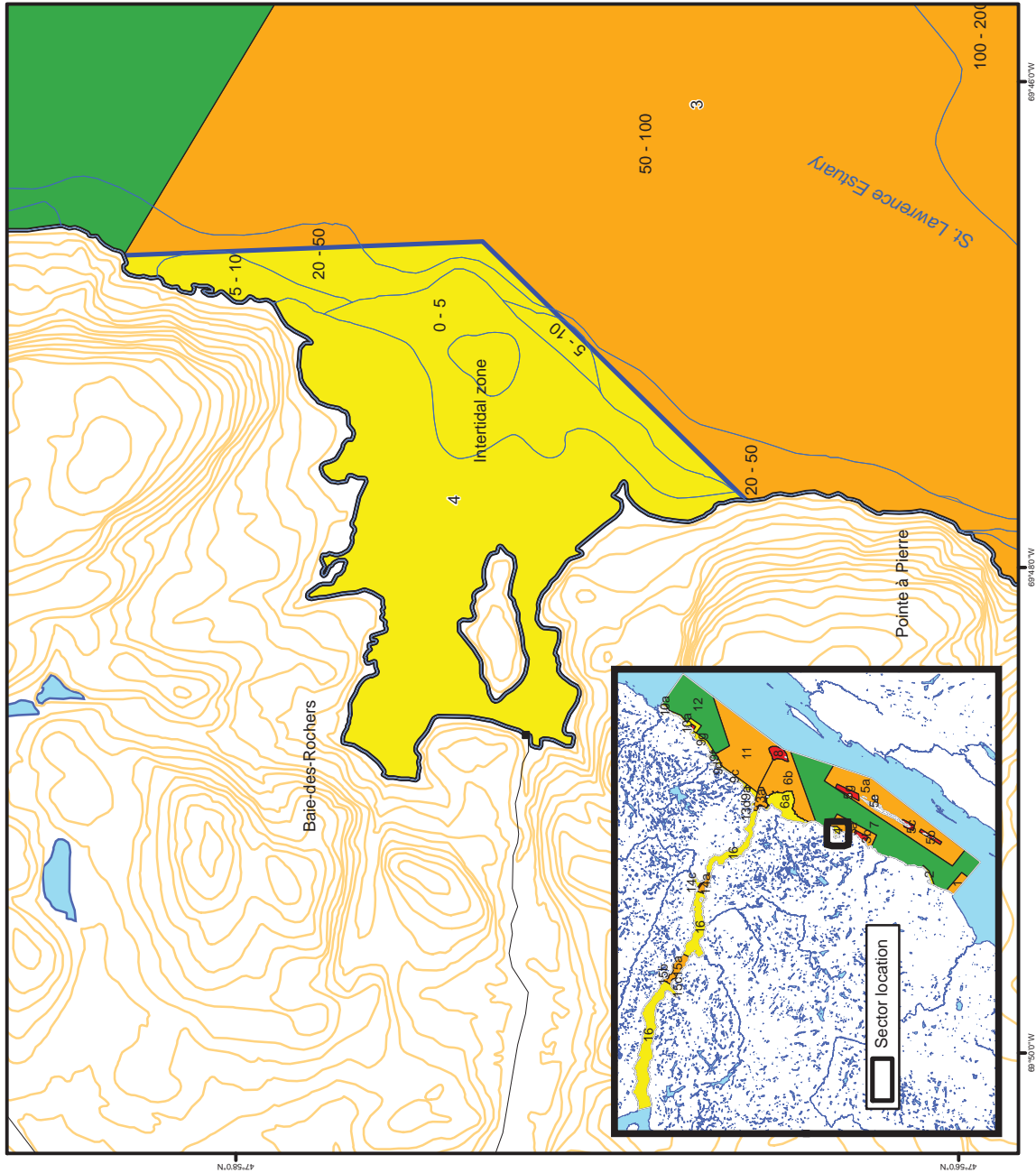
To protect the Barrow's goldeneye, a species of special concern, as well as the common eider on its rearing grounds, and to preserve the rich seaweed beds at the mouth of the bay from all forms of harvesting.

Education objective: To provide opportunities for residents and visitors to explore the natural features of this special ecosystem through interpretation activities and to explain the importance of this site as habitat of a species at risk (Barrow's goldeneye) and the need to protect it.

Park use objective: To encourage educational and recreational activities that may involve harvesting of natural resources, such as the hunting of migratory birds.

Zoning: The sector is designated as a general protection zone (Zone III).

SSLMP Zoning Sector 4 : Baie-des-Rochers (3.4 km²)



Legend

- Wharf and boat launch
 - Municipality
 - Secondary road
 - Bathymetric contour (m)
 - Contour line (m)
 - Saguenay–St. Lawrence Marine Park
- ### Zoning
- Zone I (Comprehensive preservation)
 - Zone II (Specific protection)
 - Zone III (General protection)
 - Zone IV (General use)
 - Land environment (outside park)
 - Sector shown
- ### 1
- Sector number



Geodetic datum: North American Datum 1983
Projection system: UTM
Units: Meter
Bathymetric data: CHS



Created : June 25, 2008
Parks Canada, Quebec Service Centre

6.1.5 Sector 5: Upper Estuary Islands - Zones I and II

Subsector: 5a-Area around the estuary islands	Zone II
Subsector: 5b-Area around Île aux Fraises	Zone I
Subsector: 5c-Western tip of Île aux Lièvres	Zone I
Subsector: 5d-Cove at the western tip of Île aux Lièvres	Zone II
Subsector: 5e-Area around Îles du Pot à l'Eau-de-Vie	Zone I
Subsector: 5f-Anchorage between Gros Pot and Petit Pot	Zones I and II
Subsector: 5g-Area around Île Blanche	Zone I

Main Features of Sector 5

Location

Lying in the middle of the upper estuary, this sector stretches over 22 km from Buoy K61 in the southeast to Buoy K59 in the northeast. It encompasses the area around Île aux Lièvres, Île aux Fraises and its reefs, Îles du Pot à l'Eau-de-Vie, and Île Blanche.

Biophysical environment

These islands, which run in a southeast to northeast direction, are composed of alternating layers of schist, massive sandstone, and conglomerate. Long strands covering over 316 ha surround the islands and run in the same direction. The strands are composed of a rocky substrate covered with rich beds of brown algae (fucus, kelp, etc.). Vast shoals lie on the southeast edge of the archipelago, namely the banks of Île aux Lièvres, off Île aux Fraises, and the banks of Pot à l'Eau-de-Vie, off Île aux Lièvres.

The Île aux Lièvres pass, between Île aux Lièvres and Île aux Fraises, features a sill of less than five meters in depth. Strong turbulence at the surface of the water can be observed. Numerous beluga whales, grey seals, and seabirds (eiders, scoters, etc.) gather here in the spring (Bédard *et al.*, 1997).

Key biological components

The archipelago, its strands, and adjacent waters are biologically very productive and boast a rich biodiversity. They include areas used intensively by pods of adult beluga with their young (Michaud, 1993), large herds of grey seals and harbour seals (Lavigneur *et al.*, 1993), major seabird nesting sites, and a spawning ground for Atlantic herring (Munro *et al.*, 1998).

- The threatened St. Lawrence beluga population frequents the Île aux Lièvres pass (Bédard *et al.*, 1997) in small pods averaging three to five individuals, probably to feed. The northern part of Île aux Fraises, the Pot à l'Eau-de-Vie channel, and the southeastern portion of the strands off Île Blanche are areas intensively used by pods of adults with young (Michaud, 1993). The sector that appears to be the most intensively used (80% of the time) lies north of Île aux Fraises, with pods averaging 17.8 individuals (Michaud, 1993).
- Grey seals use Île Blanche, Île aux Fraises, and the strand between Île Blanche and Île aux Lièvres as haul-out sites (Lavigneur *et al.*, 1993). They also use the Île aux Lièvres pass as a feeding ground (Bailey *et al.*, 1977 in Lavigneur *et al.*, 1993).
- Harbour seals use the haul-outs on Île Blanche and Île aux Fraises. Newborns seem to gather near Île Blanche (Lavigneur *et al.*, 1993).

- Common eiders use the archipelago and its strands as breeding, rearing, and feeding grounds (Gauthier and Bédard, 1976; Bédard *et al.*, 1986; Bédard *et al.*, 1997).
- Common eiders are present in the Île aux Lièvres pass mainly in spring, while black ducks are mostly found there in the fall (Falardeau *et al.*, 2000).
- Scoters stop over in the Île aux Lièvres pass during their spring and fall migrations (Falardeau *et al.*, 2000).
- Black guillemots and razorbills use the banks of Pot à l'Eau-de-Vie as a breeding, nursery, rearing, and feeding area. The Île aux Lièvres pass also attracts these species in spring, probably for feeding purposes.
- Northern gannets from the Gulf of St. Lawrence regularly come through the area near the Île aux Lièvres pass in the spring and fall (Bédard *et al.*, 1997), probably to feed on herring, capelin, or smelt.
- Barrow's goldeneye, a species of special concern, is present on Île aux Lièvres in the winter (Robert and Savard, 2006).
- Brant use the strand between Île Blanche and Île aux Lièvres as a stopover during their migration (Savard *et al.*, 1997).
- The Île aux Lièvres pass is considered to be a major spawning ground for Atlantic herring (Munro *et al.*, 1998).
- Concentrations of rainbow smelt and capelin larva are found in the Pot à l'Eau-de-vie channel and the Île aux Lièvres pass (Dionne, 2001; Bédard *et al.*, 1997; Lavigueur *et al.*, 1993).
- Adult and juvenile Atlantic sturgeon regularly frequent the estuarine portion of the Marine Park. The Atlantic sturgeon is on the list of species likely to be designated threatened or vulnerable in Quebec under the *Act respecting threatened or vulnerable species* (MRNF, 2001).
- Atlantic halibut are present in the upstream portion of this sector.

Cultural Resources

The area around the estuary islands has good archaeological potential, with 20 known shipwreck sites (Bernier, 2000).

Existing Conservation Areas in Addition to the Marine Park

Île Blanche and its strands, Île aux Fraises with its reefs and strands, as well as Pot du Phare (except for the area around the lighthouse) are part of the Îles de l'Estuaire National Wildlife Area. Hunting is prohibited at all times, both on land and on the strands.

Île aux Lièvres and Petit Pot are private sites belonging to Société Duvetnor. The islands are managed for conservation purposes. Gros Pot is designated as a migratory bird sanctuary under the

Migratory Birds Convention Act, 1994, except for the southern part of the island where buildings are located.

Current use

The islands are mainly used in the summer for pleasure boating and ecotourism. Since the area is far from shore and the water can be rough, its use in the fall and winter is limited. The southern shore of Îles du Pot à l'Eau-de-Vie is used as shelter by pleasure boaters.

Société Duvetnor welcomes summer visitors interested in discovering this exceptional environment. It organizes marine tours and discovery activities and provides accommodation on Île aux Lièvres and Îles du Pot à l'Eau-de-Vie. There is no recreational hunting and no special facilities for sea kayaking.

Ferry service links the north and south shores of the St. Lawrence between Saint-Siméon and Rivière-du-Loup. The ferry passes through a shallow channel close to the southwestern tip of Île aux Lièvres.

Zoning

Protection objective: To provide a high level of protection to this large, highly productive, and biologically rich sector, representative of the Upper St. Lawrence Estuary

The area around the islands must be designated as a comprehensive preservation zone in order to protect areas used intensively by St. Lawrence belugas during the summer, as well as seabird breeding, rearing, and feeding grounds and seal haul-outs.

Education objective: To provide opportunities to enjoy and understand the important role of this island environment on which a number of species depend, and within which certain islands are designated as national wildlife reserves or used for ecotourism.

Park use objective: To interpret the sector through ecotourism activities that involve no harvesting of resources and to ensure the safety of pleasure boaters (shelter, anchorage).

Zoning: To better balance this sector's protection and use objectives, it has been subdivided into five subsectors.

SUBSECTOR 5a – Area around the upper estuary islands - Zone II: This subsector encompasses most of the area around the upper estuary islands. Its purpose is to keep the marine environment's composition, structure, and functions intact in order to protect the biodiversity of this exceptional environment.

This subsector is designated as a specific protection zone (Zone II).

SUBSECTOR 5b – Area around Île aux Fraises - Zone I: This subsector covers all the island's reefs that are included in the national wildlife area as well as an approximately 100-meter-wide strip extending beyond the reefs. Specifically, the purpose of this subsector is to protect the seal haul-outs and seabird breeding, rearing, and feeding areas. It is rectangular in shape.

This subsector is designated as a comprehensive preservation zone (Zone I).

Exception: Access for specific management and maintenance needs (see **Table 7**).

SUBSECTOR 5c – Western tip of Île aux Lièvres - Zone I: This subsector comprises the western tip of Île aux Lièvres. It protects a site very rich in biodiversity and an area used intensively by St. Lawrence belugas.

The subsector is designated as a comprehensive preservation zone (Zone I).

Exception: Access for specific management and maintenance needs (see **Table 7**).

SUBSECTOR 5d – Cove at the western tip of Île aux Lièvres - Zone II: This subsector comprises the small cove at the western tip of the island, which is uncovered at low tide. Campers and hikers cross it.

The subsector is designated as a specific protection zone (Zone II).

SUBSECTOR 5e – Area around Îles du Pot à l'Eau-de-Vie – Zone I: This polygon-shaped subsector protects seabird breeding, rearing, and feeding grounds. It covers a 100 to 350-meter-wide strip, mainly around the islands of Gros Pot and Petit Pot.

The subsector is designated as a comprehensive preservation zone (Zone I).

SUBSECTOR 5f – Anchorage between Gros Pot and Petit Pot – Zones I and II: This subsector is in the form of two polygons, one northeast of Gros Pot and the other to the south.

It is subject to temporal zoning, being designated as a comprehensive preservation zone (Zone I) during the nesting season from April 1 to June 30 and a specific protection zone (Zone II) from July 1 to March 31.

Exception: The two anchorages provide secure shelter for pleasure boaters (**Table 7**).

SUBSECTOR 5g – Area around Île Blanche – Zone I: This subsector encompasses all the island's reefs that are part of the national wildlife area and an approximately 100-metre-wide strip extending beyond the reef. The subsector specifically aims to protect the seal haul-outs and seabird breeding, rearing, and feeding grounds. It is rectangular in shape.

The subsector is designated as a comprehensive preservation zone (Zone I).

Exception: Access for specific management and maintenance needs (see **Table 7**).

SSLMP Zoning Sector 5: Upper Estuary Islands

Sub-sectors :

- 5b : Area around île aux Fraises (4.3 km²)
- 5c : Western tip of île aux Lièvres (3.1 km²)
- 5d : Cove at the western tip of île aux Lièvres (0.02 km²)
- 5e : Area around îles du Pot à l'Eau-de-Vie (0.4 km²)
- 5f : Anchorage between Gros Pot and Petit Pot (0.11 km²)
- 5g : Area around île Blanche (7 km²)

Legend



Lighthouse



Mid-channel buoy

- Bathymetric contour (m)
- Seguény–St. Lawrence Marine Park

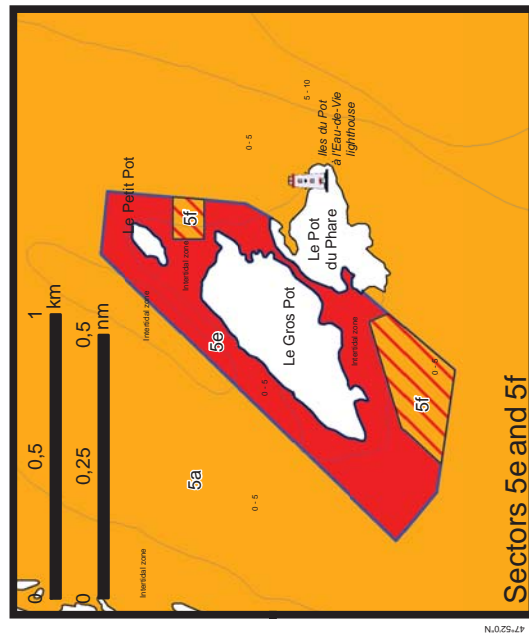
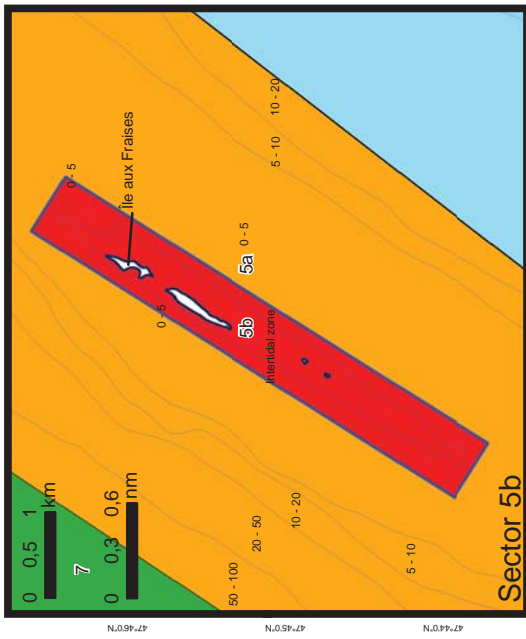
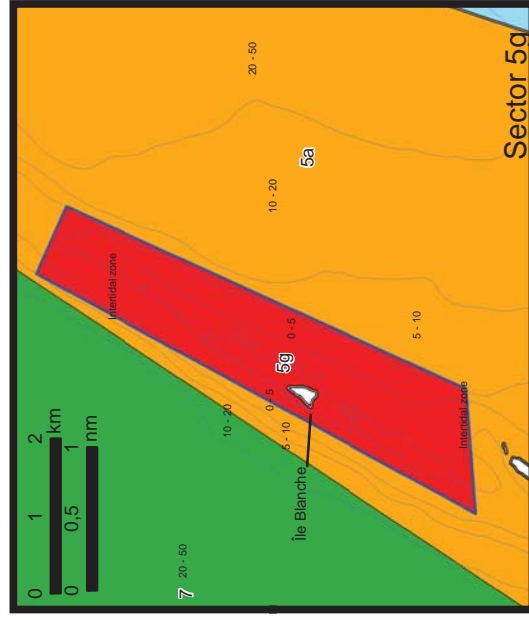
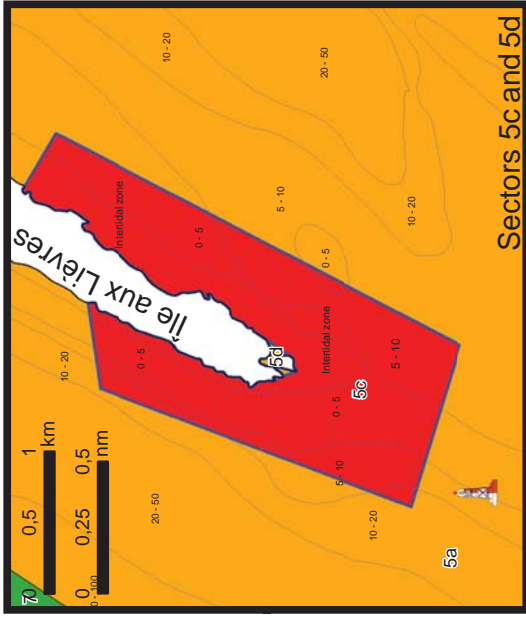
Zoning

- Zone I (Comprehensive preservation)
- Zone II (Specific protection)
- Zone III (General protection)
- Zone IV (General use)
- Zone I from 01/07 to 31/03 and zone I from 01/04 to 30/06
- Aquatic environment (outside park)
- Land environment (outside park)
- Sector shown
- 1 Sector number

Geodetic datum :
North American Datum 1983
Projection system :
Universal Transverse Mercator
Bathymetric data : CHS



Created : June 25, 2008
Parks Canada, Quebec Service Centre



6.1.6 Sector 6: Batture aux Alouettes and Surrounding Area Zones I, II, and III

Subsector: 6a-Batture aux Alouettes	Zone III
Subsector: 6b-Area around Batture aux Alouettes	Zone II
Subsector: 6c-Area around Îlet aux Alouettes	Zones I and II

SUBSECTOR 6a – Batture aux Alouettes – Zone III

Main Features

Location

Batture aux Alouettes, off the mouth of Rivière aux Canards, is the Marine Park's largest mudflat, covering an area of 35 km². With a total length of over 11 km, the area uncovered at low tide can be up to five km wide (Dionne, 2001). The subsector extends right to the low water mark.

Biophysical Environment

The strand is made of very hard clay covered by a thin layer of sand and gravel. Elsewhere, it is composed of stretches of sand, gravel, pebbles, and somewhat muddy sand (Environment Canada, 1990, cited in Dionne, 2001).

Key Biological Components

Batture aux Alouettes is a key area for wildlife, which come there to feed, rest, and nest.

- Common eiders nest on Îlet aux Alouettes and Île du Chafaud aux Basques (Joint Working Group on the Management of the Common Eider, 2004). They also use this subsector to rear their young and to feed.
- A two-hectare bed of common eel-grass, the biggest in the upper estuary, is located in Anse du Chafaud aux Basques (Lemieux and Lalumière, 1995). This type of habitat is rare in the upper estuary because conditions are normally not conducive to the fine sediment buildup necessary for eelgrass to establish (Mousseau *et al.*, 1998). It is an important feeding ground for a number of duck species.
- Îlet aux Alouettes, which is located on the strand but not part of the Marine Park, is home to colonies of double-crested cormorants, common eiders, great black-back gulls, and herring gulls (Bédard and Nadeau, 1994, cited in Dionne, 2001).
- Barrow's goldeneye, a species of special concern, uses the Rivière aux Canards sector in winter (Savard *et al.*, 1997).
- Flocks of thousands of common goldeneyes gather at dusk at the mouth of Rivière aux Canards in winter (Savard, 1990; Savard *et al.*, 1997).
- Flocks of black ducks composed of 15,000 to 20,000 individuals (Bédard *et al.*, 1987 and 1988), appear in the area in fall and winter (Savard, 1990; Savard *et al.*, 1997).
- Brant use Batture aux Alouettes as a feeding ground during their spring migration (Mousseau *et al.*, 1998) (Lehoux *et al.*, 1985).
- The strand is used as migratory stopover by shorebirds: The semipalmated sandpiper is the most abundant shorebird species on the strand (49%) (Buidin *et al.*, in preparation).
- Soft-shelled clam beds (Biorex, 1999).
- Rest areas for harbour seals and grey seals (Lavigueur *et al.*, 1993).
- General capelin spawning area in Anse du Chafaud aux Basques (Biorex, 1999, cited in Dionne, 2001).

Current Use

Batture aux Alouettes is relatively little used on an annual basis. Small boats and sea kayaks pass at high tide. It is also a favourite spot for migratory bird hunters. Soft-shelled clams on the strand are fished commercially.

Cultural Resources

Anse du Chafaud aux Basques has a site once occupied by Basques.

Zoning

Protection objective: To preserve the composition, structure, and functions of this highly productive ecosystem rich in biodiversity.

Education objective: To foster opportunities to enjoy and discover the strand and its role in the major ecosystem of the upper estuary. This subsector near the shore features a very unusual landscape.

Park use objective: To encourage activities for discovering and enjoying this fascinating marine environment and to maintain recreational hunting of migratory birds.

Zoning: The subsector is designated as a general protection zone (Zone III).

Exemption: Commercial soft-shelled clam fishing is an exempted activity with respect to this subsector's conservation objective (see **Table 7**).

SUBSECTOR 6b – Area around Batture aux Alouettes – Zone II

Main Features

Location

The subsector encompassing the area around Batture aux Alouettes is large. It is bound to the south by a straight line separating it from the Northern Channel, to the west, off Anse du Chafaud aux Basques, by the contour line of Batture aux Alouettes, and to the north by the dividing line between the upper and lower estuary ecosystems.

Biophysical Environment

The seabed in this subsector is composed of gravel and bedrock (D'Anglejan and Brisebois, 1978, cited in Dionne, 2001). The hydrodynamic circulation around Batture aux Alouettes is very strong, creating two large zones of choppy water. The specific oceanographic characteristics combined with an upwelling of deep water make for a very biologically rich sector featuring underwater trenches, slopes, and cliffs. These waters are colonized by forests of kelp. (Dionne, 2001).

Key biological components

The area around Batture aux Alouettes is a subsector very rich in forage species. It includes an area used intensively by belugas and a number of other marine mammals, including minke whales, harbour and grey seals, and various seabirds.

- The threatened St. Lawrence beluga population uses the area around the strand intensively in the summer, (60% of the time). The average pod size is 25 individuals and comprises adults with juveniles (Michaud, 1993).
- Adult and juvenile minke whales use the area around the strand as a feeding ground. They are regularly observed along Batture aux Alouettes (Ménard, 1998).
- Fin whales (adults and juveniles) gather in spring and fall (Pippard and Malcom, 1978, cited in Dionne, 2001) near the banks of Île Rouge to feed (GREMM, 1993, cited in Dionne, 2001).
- Large herds of grey seals and harbour seals flock to this sector in summer to feed and rest. (Lavigneur *et al.*, 1993b).
- Large beds of sea urchins around Batture aux Alouettes (MPO, 2008a).
- Capelin spawning grounds (spring, summer) (Parent and Brunel, 1976, cited in Dionne, 2001).
- Presence of forage species, particularly capelin, herring, and sand lance (Dionne, 2001).
- Schools of adult and juvenile sea trout (summer, fall) (Dionne, 2001).
- Feeding grounds of a number of aquatic birds, including the Barrow's goldeneye (species of special concern), black duck, common eider, long-tailed duck, surf scoter, common goldeneye, and herring gull (Dionne, 2001).

Current Use

Commercial vessels, cruise ships, marine tour boats, and pleasure boats cross the area around Batture aux Alouettes.

Exploratory commercial fishing for sea urchins has been carried out for the past several years (MPO, 2008a).

Zoning

Protection objective: To preserve this marine ecosystem harbouring key communities and species that are highly representative of the Marine Park's biodiversity and sometimes rare.

Education objective: To encourage interpretation activities presenting this marine ecosystem's rich biodiversity and the importance of protecting it.

Park use objective: To encourage various educational, recreational, and commercial activities that do not involve harvesting of natural resources.

Zoning: This subsector is designated as a specific protection zone (Zone II).

Exemption: Exploratory commercial fishing of sea urchins is an exempted activity in this subsector (see **Table 7**).

SUBSECTOR 6c – Area around Îlet aux Alouettes – Zones I and II:

This subsector consists of an approximately 100-metre-wide strip surrounding Îlet aux Alouettes. More specifically, it aims to protect the seabird breeding, rearing, and feeding grounds. Îlet aux Alouettes was designated as a wildlife sanctuary under the *Act respecting the conservation and development of wildlife* in 2001.











This subsector is subject to temporal zoning, being designated as a comprehensive preservation zone (Zone I) during the nesting period from April 1 to June 30 and a specific protection zone (Zone II) from July 1 to March 31.

Exception: Access for specific management and maintenance needs (see **Table 7**).










SSLMP Zoning Sector 6 : Area around Battures aux Alouettes

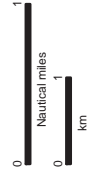
Sub-sector 6a :
Batture aux Alouettes (36 km²)

Legend

-  Prince Shoal
-  Starboard lateral buoy
-  Port lateral buoy
-  Power line
-  Main road
-  Secondary road
-  Bathymetric contour (m)
-  Contour line (m)
-  Marine Park ecosystem boundary
-  Saguenay-St. Lawrence Marine Park

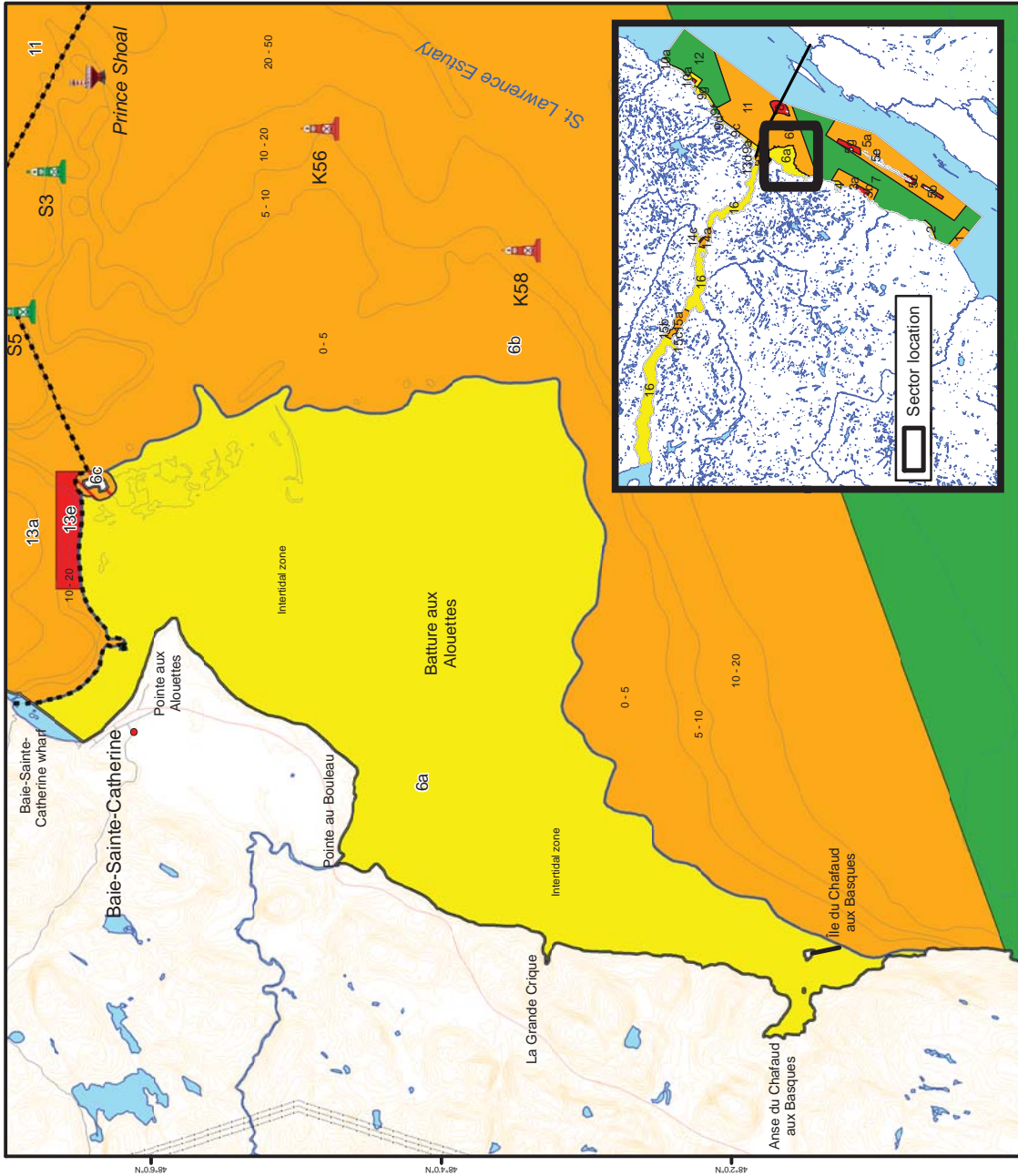
Zoning

-  Zone I (Comprehensive preservation)
-  Zone II (Specific protection)
-  Zone III (General protection)
-  Zone IV (General use)
-  Zone II from 01/07 to 31/03 and zone I from 01/04 to 30/06
-  Aquatic environment (outside park)
-  Land environment (outside park)
-  Sector shown
-  Sector number















Geocentric datum :
North American Datum 1983
Projection :
UTM, Zone 18N
Bathymetric data : CHS

Created : June 26, 2008
Parks Canada, Quebec Service Centre













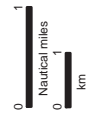
SSLMP Zoning
Sector 6 : Area around
Battures aux Alouettes
 Sub-sector 6b : Area around
 Batture aux Alouettes (93 km²)

Legend

-  Lighthouse
-  Prince Shoal
-  Mid-channel buoy
-  Starboard lateral buoy
-  Port lateral buoy
-  Power line
-  Main road
-  Secondary road
-  Bathymetric contour (m)
-  Contour line (m)
-  Marine Park ecosystem boundary
-  Saguenay-St. Lawrence Marine Park

Zoning

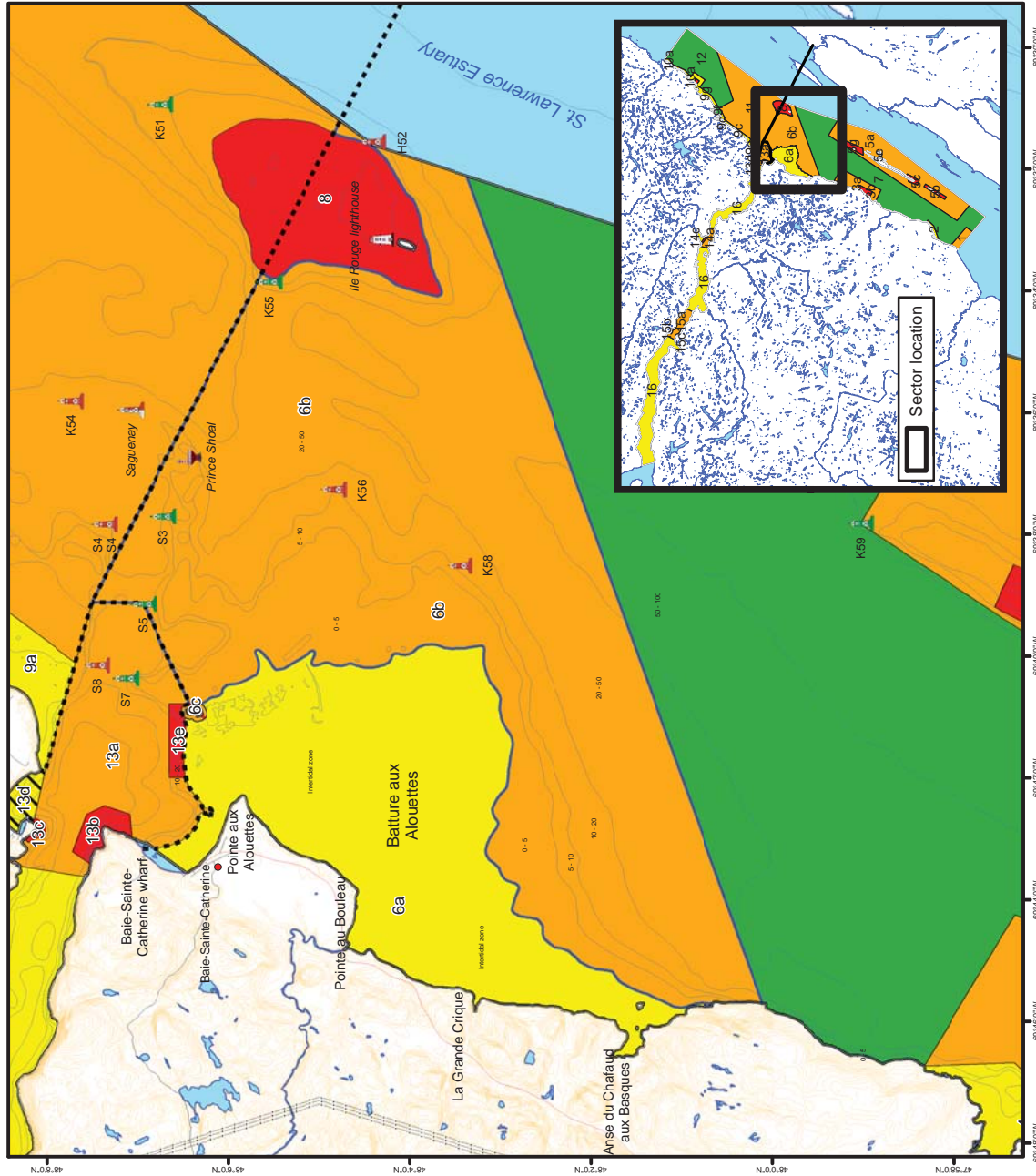
-  Zone I (Comprehensive preservation)
-  Zone II (Specific protection)
-  Zone III (General protection)
-  Zone IV (General use)
-  Zone II from 01/07 to 31/03 and Zone I from 01/04 to 30/06
-  No hunting
-  Aquatic environment (outside park)
-  Land environment (outside park)
-  Sector shown
-  Sector number 1



Geoidetic datum :
 North American Datum 1983
 Projection system :
 UTM
 Vertical datum :
 Bathymetric data : CHS

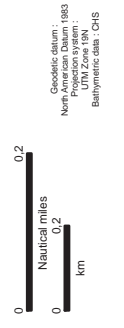
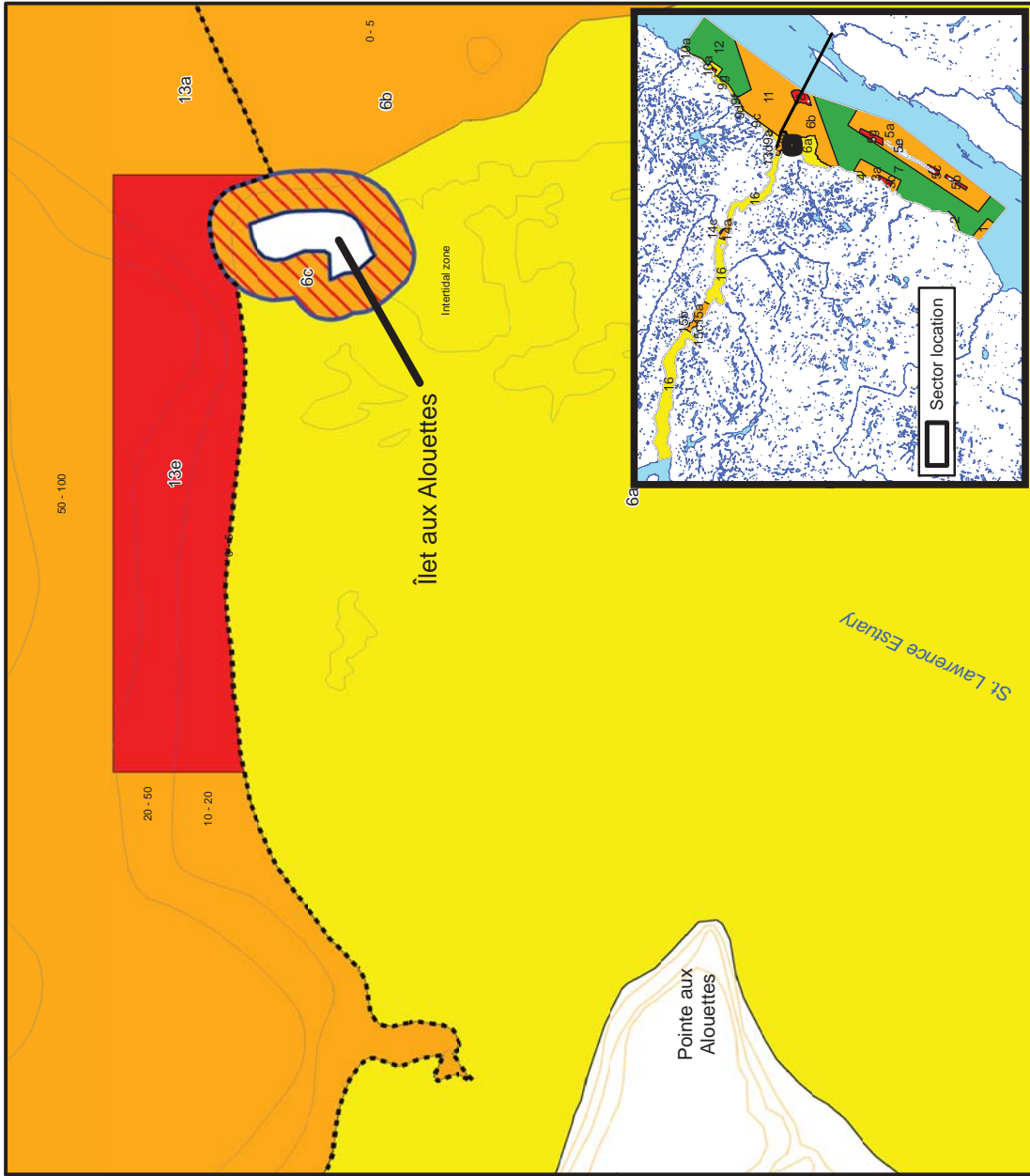


Created : June 26, 2008
 Parks Canada, Quebec Service Centre



SSLMP Zoning Sector 6 : Area around Battures aux Alouettes

Sub-sector 6c : Area around
Îlet aux Alouettes (0.1 km²)



Geographic datum: 1983
North Projection system: UTM Zone 18N
Bathymetric data: CHS

Created : June 26, 2008
Parks Canada, Quebec Service Centre

6.1.7 Sector 7: Northern Channel - Zone IV

Main Features

Location

The Northern Channel is the largest sector representing the major ecosystem of the Marine Park's upper estuary. It stretches from the Marine Park's southwest boundary to an area northeast of Île Blanche, and lies west of the upper estuary islands.

Biophysical environment

The Northern Channel is partially isolated from the lower estuary by a sill located upstream from Île Rouge. Its depth varies from 20 to 150 m. The surface water flow is mainly directed downstream, while part of the salt water coming from the Gulf passes over the sill off the Saguenay Fjord and runs deep into the Northern Channel in an upstream direction (Bourget, 1997). The physicochemical conditions change rapidly from upstream to downstream, with a 20% to 25% rise in salinity, stratified water masses, and decreased temperature and turbidity of the water. Phytoplankton is scarce compared to sectors upstream and downstream of the Northern Channel.

Key biological components

Aquatic fauna in the Northern Channel is dominated by marine species that tolerate variations in salinity levels. The movement of the tides and the physicochemical conditions are the main factors influencing the distribution of zooplankton. Minke and beluga whales can be observed in this sector. Numerous species of fish are also found, notably the American eel, capelin, Atlantic herring, Atlantic tomcod, Atlantic salmon, and rainbow smelt (Gagnon, 1998).

Current Uses

The Northern Channel is used by commercial vessels, cruise ships, marine tour boats, and pleasure boats. Tourist activities are largely based on the exceptional coastal landscapes and the observation of seabirds and marine mammals.

Zoning

Protection objective: To maintain the composition, structure, and functions of marine ecosystems, as well as the habitats of biological communities and species, while protecting underwater landscapes.

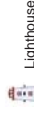
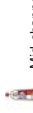


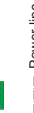
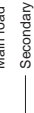

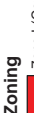
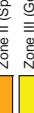

Education objective: To encourage practices that help foster the environmentally sustainable use of the marine environment.

Park use objective: To foster the environmentally sustainable use of the marine environment using best management and use practices for all authorized activities.






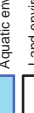
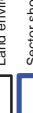

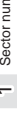
Zoning: The subsector is designated as a general use zone (Zone IV).

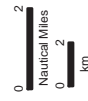
SSLMP Zoning Sector 7 : Northern Channel (309 km²)

Legend

-  Lighthouse
-  Mid-channel buoy
-  Starboard lateral buoy
-  Port lateral buoy
-  Power line
-  Main road
-  Secondary road
-  Bathymetric contour (m)
-  Contour line (m)
-  Saguenay-St. Lawrence Marine Park

Zoning

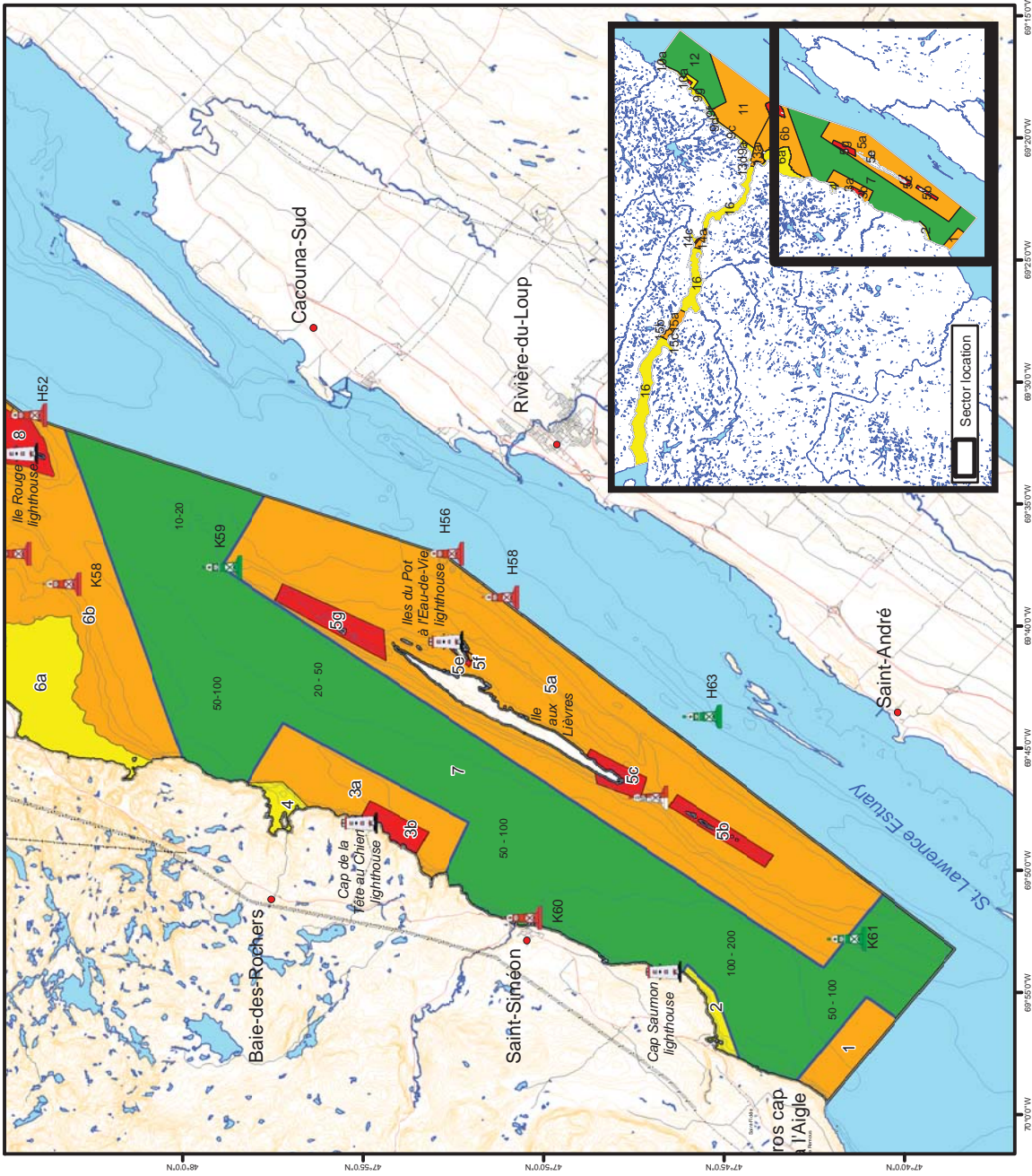
-  Zone I (Comprehensive preservation)
-  Zone II (Specific protection)
-  Zone III (General protection)
-  Zone IV (General use)
-  Zone II from 01/07 to 31/03 and zone I from 01/04 to 30/06
-  Aquatic environment (outside park)
-  Land environment (outside park)
-  Sector shown
-  1 Sector number



Geodetic datum :
North American Datum 1983
UTM Zone 18N
Bathymetric data: CHS



Created : June 26, 2008
Parks Canada, Quebec Service Centre



6.2 MAJOR ECOSYSTEM OF THE LOWER ESTUARY

6.2.1 Sector 8: Banks of Île Rouge - Zone I

Main Features

Location

The banks of Île Rouge are located at the boundary between the St. Lawrence Estuary's two major ecosystems (the upper and lower estuaries) and near the eastern limits of the Marine Park. They cover the area situated between the 0 and 5 m isobaths around Île Rouge.

Biophysical environment

The banks of Île Rouge extend northeast of the island in the form of a huge bank of sand and gravel that stretches over more than 2 km. The places where the gravel seabed is scattered with boulders harbour a large diversity of invertebrates and kelp (M.-A. Bernier, cited in Dionne, 2001).

The interaction between surface tides in the estuary and the rise at the mouth of the Saguenay generates an internal wave that is felt all the way to Île Rouge. The wave causes an upwelling of intermediate layers of cold water. When the low salinity waters of the Saguenay meet those of the estuary, they form a front off Île Rouge and a zone of choppy water.

Key biological components

The banks of Île Rouge are biologically very rich. A large number of invertebrates, marine mammals, and aquatic birds are found there.

- Grey seals use the sector as a haul-out site and feeding ground (Mousseau and Armellin, 1996).
- Harbour seals use it as a haul-out and calving site (Lavigne, 1978, cited in Dionne, 2001).
- Harp seals (adults and young) are found in large concentrations on the ice in winter (DGHP, 1985, cited in Dionne, 2001).
- Common eiders nest on the island and use its shores for rearing their young (Dionne, 2001).
- The area around the island is a major feeding ground for northern gannets, black-legged kittiwakes, razorbills, and various species of gulls (Biorex, 1999). Herring gulls and ringed-bill gulls also nest on the island (Dionne, 2001).

Île Rouge is a staging area for a large number of shorebirds, which feed on the strand on stopovers during migration. It is one of the main migratory stopovers in North America for the black-bellied plover (Maisonneuve *et al.*, 1990).

Cultural resources

The banks of Île Rouge are extremely dangerous for navigation because of their location in the middle of the estuary, the shallow water, and the strong currents around the island. There are a number of shipwrecks in the area (Bernier, 2000), including several that are particularly interesting from an historical and archaeological standpoint.

Île Rouge and its banks are little used because they are difficult to reach and have limited potential for use.

Zoning

Protection objective: To ensure the comprehensive preservation of this exceptional Marine Park ecosystem.

Educational objective: To educate Park users and the general public as to the importance of protecting this exceptional marine ecosystem through off-site interpretation and outreach.

Park use objective: To authorize scientific research, subject to certain conditions.

Zoning: This sector is designated as a comprehensive preservation zone (Zone I).

Exception: Access to Île Rouge by water is authorized on an exceptional basis for maintenance of navigation infrastructures (see **Table 7**).








SSLMP Zoning Sector 8 : Banks of Île Rouge (10.6 km²)

Legend

-  Prince shoal
-  Lighthouse
-  Starboard lateral buoy
-  Port lateral buoy

-  Bathymetric contour (m)
-  Marine Park ecosystem boundary
-  Saguenay–St. Lawrence Marine Park

Zoning

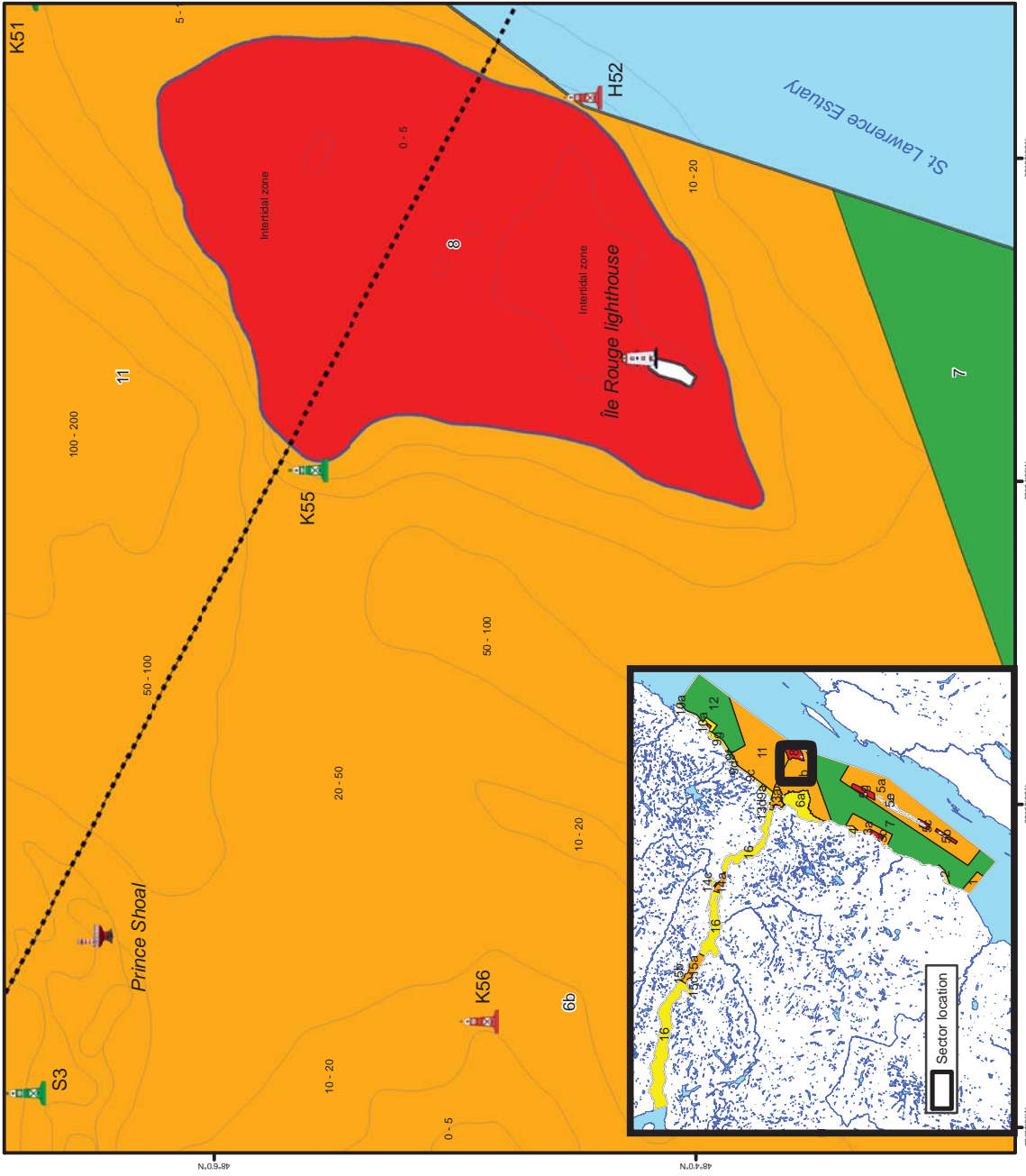
-  Zone I (Comprehensive preservation)
-  Zone II (Specific protection)
-  Zone III (General protection)
-  Zone IV (General use)
-  Aquatic environment (outside park)
-  Land environment (outside park)
-  Sector shown

1 Sector number



Geodetic datum :
North American Datum 1983
UTM Zone 18N
Bathymetric data : CHS

Created : June 25, 2008
Parks Canada, Quebec Service Centre



6.2.2 Sector 9: Battures de la Pointe Rouge to Cap de Bon-Désir Zones I, III, and IV

Subsector: 9a-Batture de la Pointe aux Vaches	Zone III
Subsector: 9b-Baie du Moulin à Baude	Zone III
Subsector: 9c-Batture de la Pointe à la Carriole	Zone III
Subsector: 9d- Marais/Baie des Petites Bergeronnes	Zone III
Subsector: 9e-Marais des Grandes Bergeronnes	Zone III
Subsector: 9f-Baie des Grandes Bergeronnes	Zone IV
Subsector: 9g-Batture à Théophile	Zone III
Subsector: 9h-Rochers Bare	Zones I and III

Main Features

Location

This sector, which is subdivided into eight subsectors, consists of a strip almost 23 km long comprising the sublittoral zone between Pointe Rouge and Cap de Bon-Désir.

Biophysical environment

This sector comprises a large strand with scattered beaches and reefs. At its southwestern, it includes the portion of the marine terraces located northeast of Tadoussac, and encompasses the mouth of Rivière du Moulin à Baude, Petites Bergeronnes and Grandes Bergeronnes bays, the coastal segment of Batture à Théophile, and the Rochers Bare reefs in Baie de Bon-Désir. This coastal ecosystem includes

- a long beach at the foot of the lower marine terrace northeast of Tadoussac,
- a huge mudflat scattered with reefs from Pointe aux Vaches to Grande Anse, and
- a barrier beach with rocky, sandy, and clay portions.

Key biological components

The following are the main wildlife areas in this sector:

- Batture de la Pointe aux Vaches is a migratory staging area for a number of birds of prey. For example, eight species of international, continental, or national importance have been observed there, namely the merlin, peregrine falcon, rough-legged hawk, red-tailed hawk, osprey, sharp-shinned hawk, northern goshawk, and American kestrel (Limoges, 2002).
- Petites Bergeronnes and Grandes Bergeronnes bays are home to the main saltmarshes in the estuarine portion of the Marine Park, with clusters of alternate-flowered spartina (Gilbert, 2004) and fucus beds (Dionne, 2001).
- Petites Bergeronnes and Grandes Bergeronnes bays and Baie de Bon-Désir harbour beds of common eelgrass (Gilbert, 2004; Lemieux and Lalumière, 1995).
- In winter, species like the Barrow's goldeneye (a species of special concern), black duck, and long-tailed duck can be observed throughout the sector, where they come to feed (Biorex, 1999, cited in Dionne, 2001). Black ducks prefer Grandes Bergeronnes and Baie de Bon-Désir during very cold periods (Savard *et al.*, 1997).

- Scoters, Canada geese, and brant use this sector as a stopover on migrations, particularly Baie des Petites Bergeronnes and Baie des Grandes Bergeronnes (Lehoux *et al.*, 1985). Brant are most common in the area between Pointe à John and Baie de Bon-Désir (Savard *et al.*, 1997).
- Migratory birds nesting in the region include the common merganser, hooded merganser, and common eider. The latter also uses this sector for breeding and rearing.
- On the islets in Baie de Bon-Désir and on Rochers Bare, colonies of common eiders, double-crested cormorants, great black-backed gulls, and herring gulls can be observed (Savard *et al.*, 1997).
- The Nelson's sharp-tailed sparrow (on the Quebec list of species likely to be designated as threatened or vulnerable) is found in the upper portion of the marsh at the mouth of the Grandes and Petites Bergeronnes rivers. This is also prime habitat for the yellow rail, which has been observed there (Fichier ÉPOQ, cited in Dionne, 2001).
- Sea trout have been recorded (Dionne, 2001).
- Capelin spawning grounds (Parent et Brunel, 1976, cited in Dionne, 2001), an important forage species.
- Migration corridor for the American eel and Atlantic herring (Dionne, 2001).
- Soft-shelled clam beds have been harvested in Petites Bergeronnes and Grandes Bergeronnes bays. Uncontaminated clams were dug in Baie des Petites Bergeronnes, but apparent overharvesting in recent years led to a temporary ban for conservation reasons until March 31, (MPO, November 5, 2008, press release). Clams are still commercially harvested at Grandes Bergeronnes and sent for depuration.

Cultural resources

A number of prehistoric and historic sites with archaeological potential are located along the shore (Bernier, 2000).

Current use

This coastal sector is accessible both by land and water. It is mainly used by residents for hunting migratory birds and digging clams.

Visitors use subsectors 9a and 9b for hiking and bird watching, and kayakers frequent the downstream portion of this large coastal sector.

Zoning

Protection objective: To ensure the general protection of this coastal environment and the specific protection of certain ecosystems such as the Petites Bergeronnes and Grandes Bergeronnes marshes.

Educational objective: This sector is directly accessible by land at a number of points and provides various opportunities to explore, understand, and enjoy coastal ecosystems and the plant and animal species found there.

Park use objective: To encourage hiking in the accessible portions of the shoreline, as well as birdwatching, recreational hunting and fishing, and sea kayaking. The Grandes Bergeronnes sector must remain a point of access to the Marine Park.

Zoning: This sector has been subdivided into eight subsectors in order to better integrate the protection and use objectives.

SUBSECTOR 9a - Batture de la Pointe aux Vaches - Zone III: This subsector encompasses Batture de la Pointe aux Vaches and a small area off the strand between Pointe Rouge and the peninsula below the sand dunes.

This subsector is designated as a general protection zone (Zone III).

SUBSECTOR 9b - Baie du Moulin à Baude - Zone III: This subsector comprises the strand below the sand dunes and a small area off the strand between the peninsula and the eastern shore of Rivière du Moulin à Baude.

This subsector is designated as a general protection zone (Zone III).

Exception: Hunting will be prohibited in order to resolve a use conflict with regard to the visitor experience and public safety (see **Table 7**).

SUBSECTOR 9c - Batture de la Pointe à la Carriole - Zone III: This subsector covers the strand and a small area off the strand between the eastern shore of Rivière du Moulin à Baude and the eastern tip of Anse aux Pilotes at the mouth of Rivière Petites Bergeronnes.

This subsector is designated as a general protection zone (Zone III).

Exception: Authorize the passage of all-terrain vehicles to reach private property that is inaccessible by land.

SUBSECTOR 9d – Marais/Baie des Petites Bergeronnes - Zone III: This subsector comprises the mouth of Rivière des Petites Bergeronnes between the eastern tip of Anse aux Pilotes and a point located approximately 1 km east of Pointe Sauvage. Upstream on the river, this subsector ends at the legal boundary of the Marine Park. Recreational hunting of migratory birds is authorized in this subsector, as well as clam digging if the clam beds recover from earlier overharvesting.

The subsector is designated as a general protection zone (Zone III).

SUBSECTOR 9e - Marais des Grandes Bergeronnes - Zone III: This subsector encompasses the marsh of Rivière des Grandes Bergeronnes upstream from a line joining the two

banks. This line is located 200 m upstream from the wharf. Upstream on the river, this subsector ends at the legal boundary of the Marine Park.

This subsector is designated as a general protection zone (Zone III).

SUBSECTOR 9f - Baie des Grandes Bergeronnes - Zone IV: This subsector comprises the mouth of Rivière des Grandes Bergeronnes between a point located approximately 1 km east of Pointe Sauvage and a point approximately 1 km east of the wharf. Upstream on the river, the subsector ends at subsector 9e. Commercial hunting of migratory birds and clam digging are authorized in this subsector.

This subsector is designated as a general use zone (Zone IV).

Exception: Hunting will be prohibited within a radius of 200 m around the wharf in order to resolve a use conflict with regard to the visitor experience and public safety (see **Table 7**).

SUBSECTOR 9g - Batture à Théophile - Zone III: This subsector covers Batture à Théophile and a small area off the strand between a point located approximately 1 km east of the Les Bergeronnes wharf and Cap de Bon-Désir.

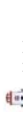

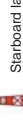
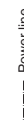
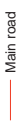
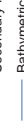

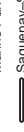












This subsector is designated as a general protection zone (Zone III).

SUBSECTOR 9h - Rochers Bare - Zones I and III: This subsector is shaped like a polygon and aims to protect seabird breeding, rearing, and feeding grounds. It encompasses an approximately 100-metre-wide band around the rocky islets.

This subsector is subject to temporal zoning. It is designated as a comprehensive preservation zone during the nesting period from April 1 to June 30 and a general protection zone (Zone III) from July 1 to March 31.

SSLMP Zoning Sector 9 : Pointe Rouge to Cap de Bon-Désir (19.4 km²)

Legend

-  Lighthouse
 -  Starboard lateral buoy
 -  Power line
 -  Main road
 -  Secondary road
 -  Bathymetric contour (m)
 -  Contour line (m)
 -  Marine Park ecosystem boundary
 -  Saguenay-St. Lawrence Marine Park
- ## Zoning
-  Zone I (Comprehensive preservation)
 -  Zone II (Specific protection)
 -  Zone III (General protection)
 -  Zone IV (General use)
 -  Zone III from 01/07 to 31/03 and zone I from 01/04 to 30/06
 -  Zone III year-round except 15/11 to 30/04 zone IV (surface)
 -  No hunting
 -  Aquatic environment (outside park)
 -  Land environment (outside park)
 -  Sector shown
 -  1 Sector number

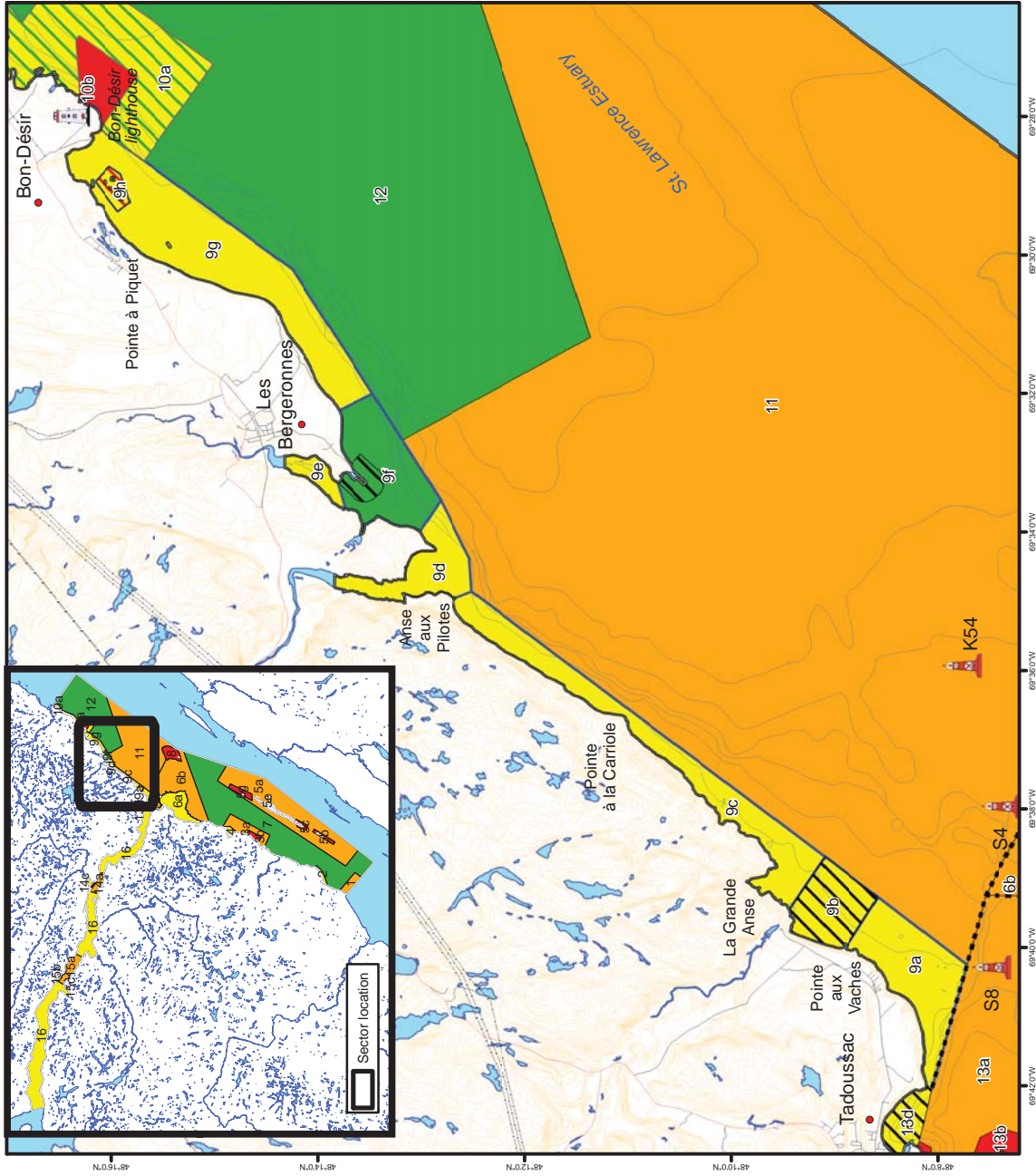
0 1
Nautical miles

0 1
km



Geoidic datum :
North American Datum 1983
Projection :
UTM Zone 18N
Bathymetric data : CHS

Created : June 25, 2008
Parks Canada, Quebec Service Centre



6.2.3 Sector 10: Cap de Bon-Désir to Les Escoumins Zones I, II, III, and IV

Subsector: 10a-Strip from Cap de Bon-Désir to Les Escoumins	Zone III
Subsector: 10b-Area off Cap de Bon-Désir	Zone I
Subsector: 10c-Anse aux Basques (Quai des Pilotes)	Zone IV
Subsector: 10d-Anse à la Barque	Zone II

Main Features

Location

This sector, which is subdivided into four subsectors, comprises a more than 10-kilometre-long strip encompassing the sublittoral zone between Cap de Bon-Désir and Les Escoumins.

Biophysical environment

The substrate in this sector consists of a rocky massif. The shoreline is rugged and plunges into the water in a steep slope scattered with boulders. Off Cap de Bon-Désir, a rocky cliff projects out into the lower estuary and drops nearly 300 m into the water.

Several open bays of varying lengths, such as Anse à la Cave, Anse aux Basques, and Anse à la Barque, break the regularity of the shoreline, allowing fine sediment to accumulate.

Key biological components

This sector is exceptional for its abundance and diversity of epibenthic organisms characteristic of subarctic waters. It is one of the best places in the Marine Park to observe marine mammals from the shore. The following are the main species that frequent the sector:

- Beluga, fin, minke and occasional humpback and blue whales frequent the sector. The topography of the seabed, notably the underwater cliff off Cap de Bon-Désir, attracts marine mammals, who take advantage of this feature to capture forage species. The whales can be seen a few hundred metres from shore.
- Numerous harp seals gather on the ice in winter. (Lavigneur *et al.*, 1993). They can come quite close to the shore.
- A number of bird species winter off shore: black duck, long-tailed duck, and three species of goldeneye (bufflehead, common goldeneye, and Barrow's goldeneye) (Biorex, 1999, cited in Dionne, 2001).
- A spawning ground for capelin, a forage species, has been located west of Cap de Bon-Désir (Dionne, 2001).
- Anse à la Cave contains a bed of common eelgrass on its downstream side. Another two-hectare bed is located at Pointe à Piquet, just west of Cap de Bon-Désir (Lemieux and Lalumière, 1995, cited in Dionne, 2001).
- The highest known concentration of krill in the entire northwest Atlantic is located off Cap de Bon-Désir (Simard and Lavoie, 1999). This is a food source for whales, particularly the blue whale, an endangered species.

- A rich epibenthic fauna characteristic of subarctic waters colonizes the rocky cliffs. These organisms are distributed according to depth and substrate:
 - The fucus zone extends from the surface to a depth of three metres, harbouring a number of seaweed genera like *Fucus*, *Ulvaria*, *Ascophyllum*, and *Enteromorpha*. Very dense mussel and wrinkle populations are scattered throughout this zone.
 - Colonizing coralline red algae grow from three to six metres in depth,
 - Green sea urchins establish at depths of five metres and more, together with their predator the Northern starfish.
 - Filtering organisms (sponges, tunicates) and various species of anemones appear at 8 metres. This zone extends down more than twenty metres.

Cultural resources

Near Quai des Pilotes the wreck of the *Bergeronne Trader*, a schooner that sank in 1936, lies at a depth of 30 to 40 metres. The shipwreck is located within the Marine Park boundaries. (Bernier, 2000).

Current uses

This sector is one of the most popular with summertime visitors who visit the Park by land. This is due to the numerous tourist attractions on the coast, such as the Cap-de-Bon-Désir Interpretation and Observation Centre, the Marine Environment Discovery Centre, and several very popular campgrounds. These offer various educational and recreational activities including whale watching from the shore and sea kayaking. Divers and kayakers use this sector in the summer. In winter the coastal area is used by seal hunters. Anse aux Basques is home to a year-round operational base for St. Lawrence pilots and a commercial fishing wharf.

Zoning

Protection objective: To promote increased protection for these rich coastal ecosystems. The degree of protection may vary depending on the ecosystem and the characteristics of the subsectors.

Educational objective: To encourage visitors to discover this sector by way of various access points and land-based sites. A range of themes are presented in this sector—archaeology, the St. Lawrence, marine mammals, underwater landscapes, and benthic organisms—using a variety of means, including exhibits, land-based and marine observation, scuba diving, and virtual tools.

Park use objective: To promote various discovery activities in a safe environment. Reduce conflicts between users to a minimum and ensure safe conditions for recreational divers and kayakers. Ensure the integrated management of all activities at and around the port facilities in Anse aux Basques.

Zoning: The sector has been divided into four subsectors to better integrate its protection and use objectives.

SUBSECTOR 10a – Strip from Cap de Bon-Désir to Les Escoumins - Zones III and IV: This subsector forms a strip 0.5 nautical miles wide ringing the Zone I area off the Cap de Bon-Désir lighthouse. The strip extends along the coast to Les Escoumins, more or less in line with the 100 metre isobath, but does not include Anse aux Basques or Anse à la Barque. Between Anse à la Cave and Les Escoumins, the strip has an average width of 500 metres.

This subsector is subject to both temporal and vertical zoning. It is designated as a general protection zone (Zone III) year round for the seabed and the water column. From May 1 to November 14, the surface waters are a general protection zone (Zone III). From November 15 to April 30, the surface waters are designated as a general use zone (Zone IV) where commercial seal hunting is permitted. Hunters are authorized to discharge their firearms in an offshore direction, increasing the safety of this activity.

SUBSECTOR 10b – Area off Cap de Bon-Désir - Zone I: This irregularly-shaped subsector extends from the shore for a distance of 0.5 nautical miles (about 1 km). To the east, its width is 0.7 nautical miles (about 1.3 km) while its width decreases to 0.4 nautical miles (about 0.7 km) along the coast. The subsector encompasses part of a marine mammal feeding ground and enhances the experience of visitors at this observation site.

This subsector is designated as a comprehensive preservation zone (Zone I).

Exception: Transit passage of human-powered watercraft (kayaks and canoes) is authorized along the coast in this Zone I area to protect user safety, subject to marine mammal protection regulations (see **Table 7**).

SUBSECTOR 10c - Anse aux Basques (Quai des Pilotes) - Zone IV: This subsector covers all of Anse aux Basques up to Sector 12: the Laurentian Channel. It is an area where commercial activities are carried out. St. Lawrence pilots, commercial fishers, and marine tours operate out of Anse aux Basques.

This subsector is designated as a general use zone (Zone IV).

SUBSECTOR 10d - Anse à la Barque - Zone II: This subsector encompasses all of Anse à la Barque and the section off the Marine Environment Discovery Centre. It extends offshore for about 500 metres. It is a very popular diving area.

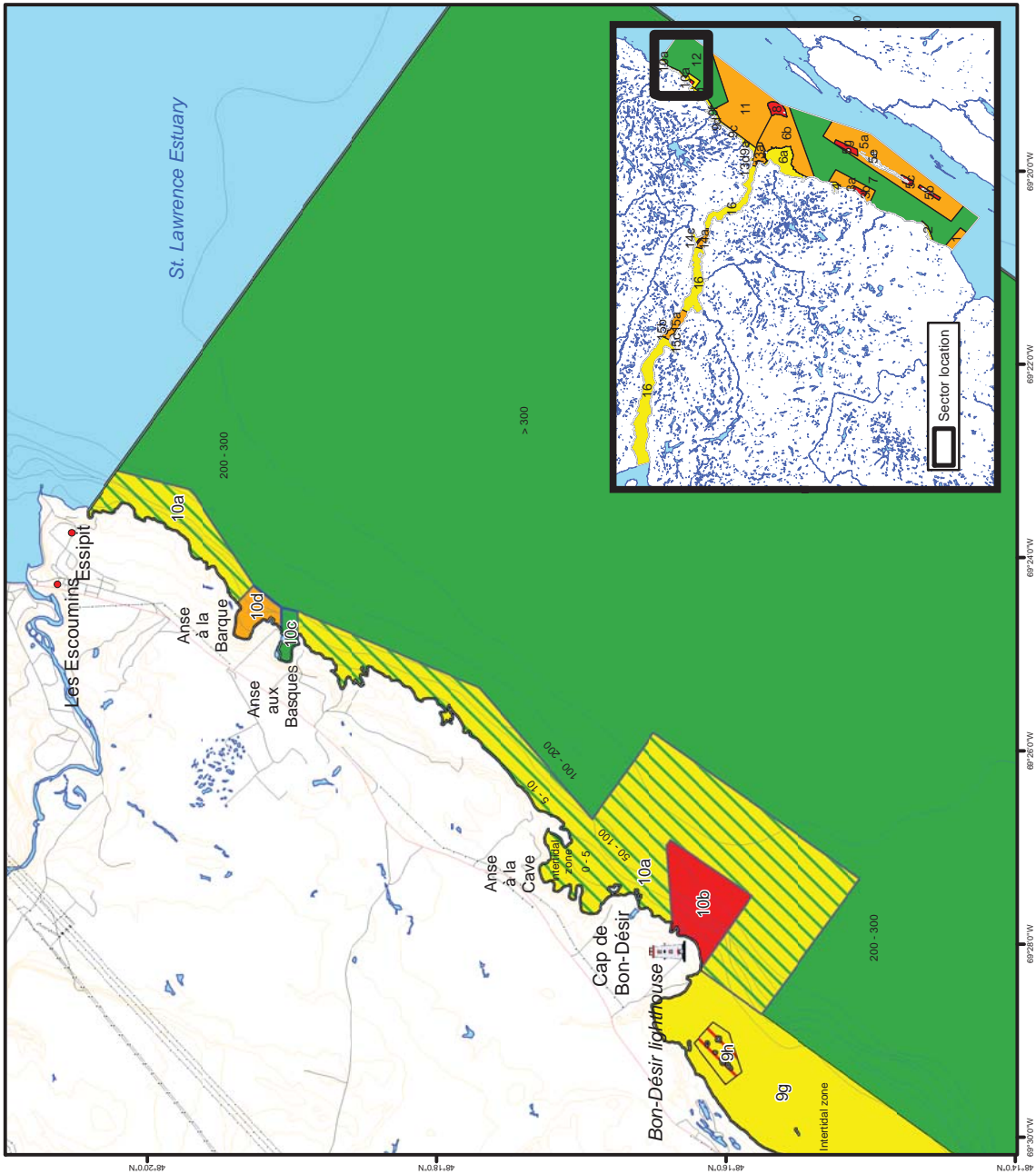
This zone is designated as a specific protection zone (Zone II).

SSLMP Zoning Sector 10 : Cap de Bon-Désir to Les Escoumins (9.9 km²)

- Legend**
- Lighthouse
 - Power line
 - Main road
 - Secondary road
 - Bathymetric contour (m)
 - Contour line (m)
 - Saguenay-St. Lawrence Marine Park
- Zoning**
- Zone I (Comprehensive preservation)
 - Zone II (Specific protection)
 - Zone III (General protection)
 - Zone IV (General use)
 - Zone III from 01/07 to 31/03 and zone I from 01/04 to 30/06
 - Zone II year-round except 15/11 to 30/04 zone IV (surface)
 - Aquatic environment (outside park)
 - Land environment (outside park)
 - Sector shown
 - 1 Sector number



Created : June 23, 2008
Parks Canada, Quebec Service Centre



6.2.4 Sector 11: Head of the Laurentian Channel - Zone II

Main Features

Location

The sector known as the head of the Laurentian Channel is the upstream tip of the channel, whose depth decreases from 340 metres to 24 metres in an upstream direction. Most of this section lies off the municipalities of Bergeronnes and Tadoussac, and covers an area of 166 km².

Biophysical environment

The head of the Laurentian Channel is one of the most remarkable sectors in the St. Lawrence Estuary from an oceanographic standpoint. The upwelling of cold water from the intermediary layer at channel head carries large quantity of nutrients to the surface.

Key biological components

The diversity of wildlife is greater here than anywhere else in the Laurentian Channel (Dionne, 2001). The sudden change in depth strengthens the upstream current, causing forage species to gather and thus attracts predators, including a number of species of birds and marine mammals.

- A 22 km² scallop bed is located downstream from the banks of Île Rouge on a plateau lying between 20 and 60 metres deep (Arseneau *et al.*, 2003). There are no other beds upstream in the estuary, although the species has been recorded several times (Brunel *et al.*, 1998, cited in Arseneau *et al.*, 2002). Scallops are considered to be a keystone species, meaning that their presence creates a complex environment that permits other species to establish.
- Huge schools of krill carried upstream toward the Laurentian Channel, together with large schools of small, pelagic fish, are an important food source for many cetaceans, seals, and birds.
- The entire sector is intensively used by three types of beluga pods: adults, adults with young, and mixed pods (Michaud, 1993).
- In the summer, this sector is a feeding ground for fin whales (the Atlantic population being of special concern), minke whales, (adults and young), and blue whales (endangered population), humpback whale, and sperm whales.
- The pelagic environment is a feeding ground for a number of seabirds: black-legged kittiwakes, northern gannets, razorbills, and various species of gulls (Biorex, 1999).
- Numerous other bird species frequent the head of the Laurentian Channel, including black duck, long-tailed duck, and Barrow's goldeneye (Dionne, 2001).
- The head of the Laurentian Channel is particularly rich in forage fish and is an area where schools of juvenile capelin concentrate (Ménard, 1998).

Current uses

This sector is crossed by commercial vessels and international cruise ships. It is mainly used during the summer by whale watching cruise vessels and is also used for pleasure boating, particularly sailing. Various types of commercial fishing are carried out: scallops, Atlantic halibut, and whelks, etc. Seals are also hunted.

Zoning

Protection objective: To protect the physical environment of the head of the Laurentian Channel, the rich schools of krill and forage fish, and the marine mammals and seabirds that use this unique feeding ground.

Educational objective: To educate visitors and the public as to the role and importance of this exceptional sector as a representative portion of the lower estuary ecosystem and a key feeding ground for marine mammals in the St. Lawrence.

Park use objective: To maintain activities that allow the public to discover marine mammals in an educational and recreational setting. Given the sector's protection objective, all harvesting of natural resources must be phased out.

Zoning: This subsector is designated as a specific protection zone (Zone II).

Exemption: Commercial fishing of scallops, whelks, and halibut, as well as seal hunting are exempted activities with regard to this subsector's conservation objective (see **Table 7**).

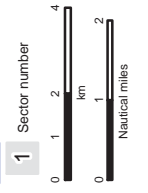
SSLMP Zoning Sector 11 : Head of the Laurentian Channel (166 km²)

Legend

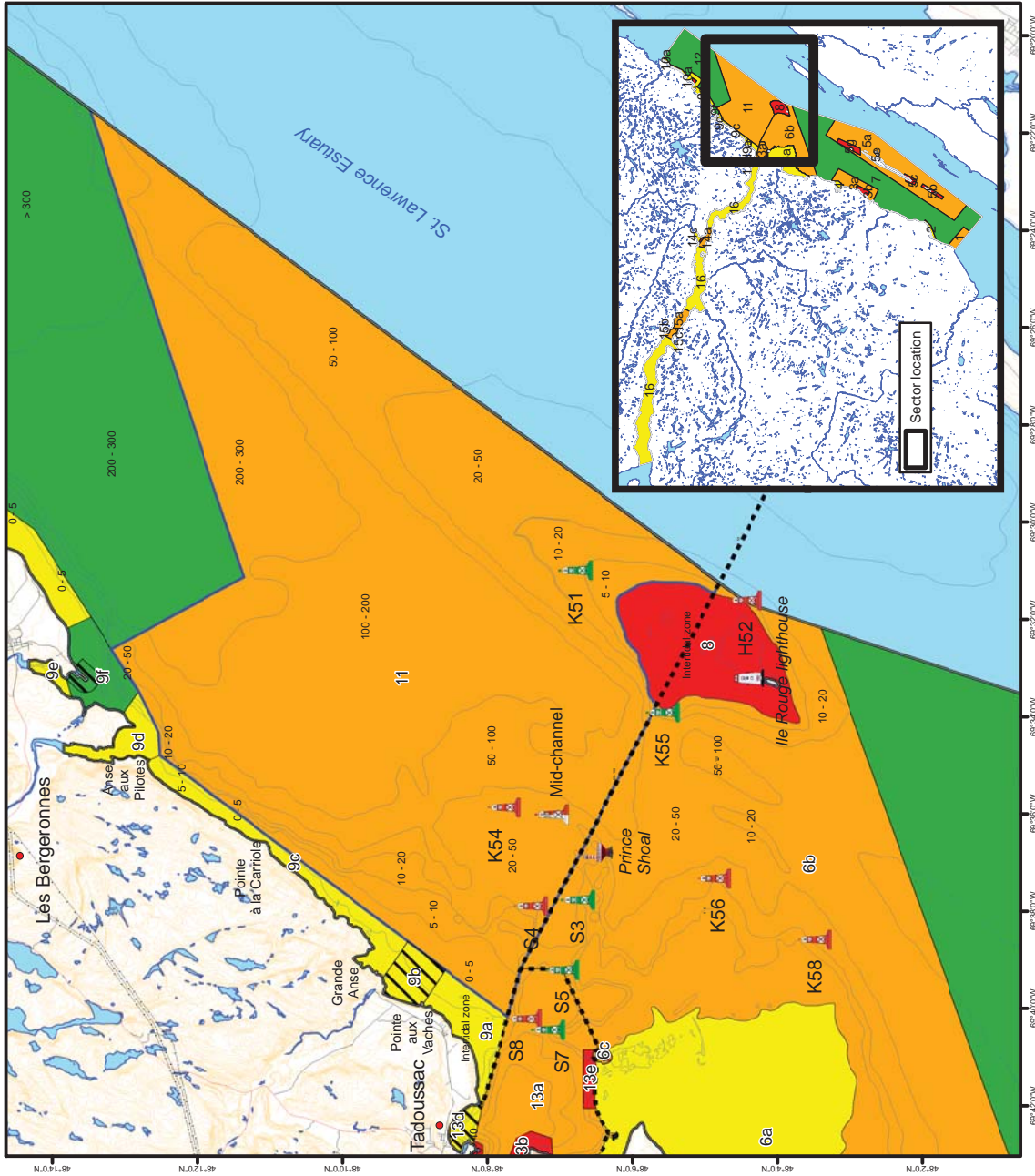
- Lighthouse
- Prince Shoal
- Mid-channel buoy
- Starboard lateral buoy
- Port lateral buoy
- Power line
- Main road
- Secondary road
- Bathymetric contour (m)
- Contour line (m)
- Marine Park ecosystem boundary
- Saguenay-St. Lawrence Marine Park

Zoning

- Zone I (Comprehensive preservation)
- Zone II (Specific protection)
- Zone III (General protection)
- Zone IV (General use)
- Zone II from 01/07 to 31/03 and zone I from 01/04 to 30/06
- Zone III from 01/07 to 31/03 and zone I from 01/04 to 30/06
- Zone III year-round except 15/11 to 30/04 zone IV (surface)
- No hunting
- Aquatic environment (outside park)
- Land environment (outside park)
- Sector shown



Created : June 23, 2008
Parks Canada, Quebec Service Centre



6.2.5 Sector 12: Laurentian Channel - Zone IV

Main Features

Location

The sector known as the Laurentian Channel in the Marine Park covers an area of over 130 km² at the northeastern end of the Park. This area lies off the coastal zone stretching from Grandes Bergeronnes to Les Escoumins and extends to the northern and eastern boundaries of the Marine Park.

Biophysical environment

This marine environment, whose depth varies from 200 metres to over 300 metres, is subject to strong currents. In the summer, there are three very distinct water layers. A layer of fresh water, about 30 metres thick, flows at the surface toward the Atlantic. The middle layer consists of surface water cooled during the previous winter and is very rich in nutrients. Below this lies a layer of cold salt water flowing from the Atlantic. Like the middle layer, the deep water layer flows upstream through the Laurentian Channel (Dionne, 2001).

Key biological components

The Laurentian Channel sector is frequented by numerous species of fish, birds, and marine mammals, but somewhat less intensively than the head of the channel. Beluga, minke, and blue whales can be found there, along with harbour and harp seals and a wide variety of seabirds.

Current uses

The Laurentian Channel sector is mainly used for commercial navigation. A ferry service links Les Escoumins to Trois-Pistoles. This is also the sector where St. Lawrence pilots, whose operational centre is located at Quai des Pilotes (Anse aux Basques), embark and disembark. The sector is used for pleasure boating and marine mammal observation tours, commercial fishing for species like whelk and Atlantic halibut, and seal hunting.

Zoning

Protection objective: To maintain the composition, structure, and functions of the sector's marine ecosystems, habitats, communities, and species, while protecting its underwater landscapes.

Educational objective: To encourage practices that foster the environmentally sustainable use of the marine environment.

Park use objective: To promote the environmentally sustainable use of the marine environment using best management and use practices for all authorized activities.

Zoning: This subsector is designated as a general use zone (Zone IV).

6.3 MAJOR ECOSYSTEM OF THE SAGUENAY FJORD AND ITS MOUTH

6.3.1 Sector 13: Mouth of the Saguenay - Zones I, II, and III

Subsector: 13a-Entrance to the Saguenay	Zone II
Subsector: 13b-Pointe Noire	Zone I
Subsector: 13c-Pointe de l'Islet	Zone I
Subsector: 13d-Baie de Tadoussac	Zone III
Subsector: 13e-Underwater cliff at Îlet aux Alouettes	Zone I

Main Features

Location

This sector encompasses the entire mouth of the Saguenay. It is delimited by a line between the two ferry terminals and extends downstream to the sill of the fjord located near Buoy S5.

Biophysical environment

The mouth of the Saguenay corresponds to the downstream end of the fjord's lower basin, and is up to 250 metres deep. Off Tadoussac the basin still is over 150 metres deep. It ends in a sill barely 20 metres deep.

At its narrowest point, off Pointe de l'Islet, the mouth of the Saguenay is 1.1 km wide. The average flow at its mouth is 2,100 m³/sec (Fortin and Pelletier, 1995, cited in Dionne, 2001).

Specific oceanographic phenomena occur where the waters of the Saguenay Fjord meet those of the lower estuary. The sill at the mouth of the Saguenay is characterized by a density front marking a clear, visible boundary between two masses of water of different temperatures and salinities. The front is also characterized by converging currents and the accumulation of floating debris.

Key biological components

This sector is a biologically rich area notable for the following elements:

- An area of intensive use by the threatened St. Lawrence beluga population, frequented by pods of adults or adults and juveniles. The pods average 18 individuals and are present in the zone 50% of the time in summer (Michaud, 1993).
- A sector regularly used as a feeding ground by minke whales from spring right through till fall (Dionne, 2001).
- An abundance of black-legged kittiwakes (August and September), which use it as a feeding ground (Savard *et al.*, 1997).
- Baie Sainte-Catherine is one of the few places in Quebec where buffleheads and Barrow's goldeneyes, a species of special concern, can be observed in winter (Savard *et al.*, 1997).
- A spawning ground for capelin (spring and summer), a forage species, with a concentration of juveniles in spring, summer, and fall (Ménard, 1998).
- A migration corridor for Atlantic herring and the American eel (Dionne, 2001).

- Concentration of sea trout (adults and juveniles) in spring, summer, and fall (Dionne, 2001).

Current uses

The mouth of the Saguenay is a high traffic a navigational bottleneck for navigation:

- Commercial vessels and a growing number of international cruise ships, marine tour boats, and numerous pleasure boats use the mouth of the Saguenay.
- A ferry service operates year round between Tadoussac and Baie-Sainte-Catherine, crossing the fjord many times a day.
- Baie Sainte-Catherine and Baie de Tadoussac, with their respective wharves and the Tadoussac Marina, are major entry points to the Marine Park and the main departure points for marine tours. Marine tour companies are pushing to use this major departure point instead of their current one, where there are fewer tourists.
- Kayakers follow the rocky cliffs at the mouth of the Saguenay, paddling around Pointe de l'Islet to Baie de Tadoussac, or around Pointe Noire to Baie Sainte-Catherine.
- The dry dock at Tadoussac on the northeastern side of the river mouth is a major storage area for pleasure boats in winter.

Zoning

Protection objective: To protect this highly representative portion of the major ecosystem of the Saguenay Fjord.

The objective is also to ensure the comprehensive preservation of sections off certain land-based observation sites (Pointe Noire and Pointe de l'Islet), fully protect a highly biodiverse subsector (underwater cliff at Îlet aux Alouettes) in order to preserve the beluga whale, and ensure public safety in Baie de Tadoussac.

Education objective: From an educational standpoint, this large sector provides numerous opportunities to discover and enjoy the Marine Park because it is easily accessible to visitors. Various interpretation themes can be presented, including the geological and oceanographic features of the mouth of the fjord and the biology of various marine species.

Park use objective: To provide visitors to the Marine Park the best possible conditions for observing wildlife from the shores of the fjord's mouth, as well safe conditions for navigation. With regard to the use of Baie de Tadoussac, the objective is also to promote the safety of Park users during the hunting season.

This sector must encourage the environmentally sustainable use of the marine environment by using best management and use practices for all authorized activities.

Zoning: To better balance protection and use objectives, this sector is divided into five subsectors.

SUBSECTOR 13a – Entrance to the Saguenay - Zone II: This subsector covers the entire mouth of the Saguenay. It is delimited by a line connecting the two ferry terminals and extends downstream to the sill of the fjord located near Buoy S5. This subsector excludes subsectors 13b, 13c, 13d, and 13e.

This subsector is designated as a specific protection zone (Zone II).

SUBSECTOR 13b - Pointe Noire - Zone I: This subsector takes the form of a 400-metre-wide protective strip at the foot of Pointe Noire, an important site for observing belugas and other marine mammals.

The subsector is designated as a comprehensive preservation zone (Zone I).

Exception: The transit passage of human-powered watercraft (kayaks and canoes) is authorized along the shore in this zone I area to ensure user safety, subject to marine mammal protection regulations (see **Table 7**).

SUBSECTOR 13c - Pointe de l'Islet - Zone I: This subsector takes the form of a 100-metre-wide protective strip at the foot of Pointe de l'Islet, a very important land-based site for marine observation, located between the entrance of the dry dock and the Tadoussac wharf. This subsector excludes the entrance to the dry dock and the Tadoussac wharf.

This subsector is designated as a comprehensive preservation zone (Zone I).

Exception: The transit passage of human-powered watercraft (kayaks and canoes) is authorized along the shore in this zone I area to ensure user safety, subject to marine mammal protection regulations (see **Table 7**).

SUBSECTOR 13d - Baie de Tadoussac - Zone III: This subsector comprises Baie de Tadoussac, considered to be one of the most beautiful bays in the world, up to subsector 13c.

This subsector is designated as a general protection zone (Zone III).

Exception: Because of the use conflict between hunting and the safety of visitors and residents, hunting is prohibited year round (see **Table 7**).

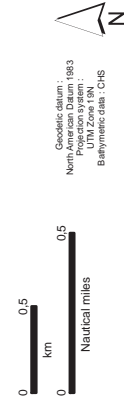
SUBSECTOR 13e – Underwater Cliff at Îlet aux Alouettes - Zone I: This rectangle-shaped subsector is adjacent to Batture aux Alouettes. It extends 1.5 km from Îlet aux Alouettes and is about 0.4 km wide.

This subsector is biologically very rich. It plays a key role as a feeding and rearing ground for seabirds, including the common eider. It is also an important habitat for marine mammals, like the belugas that use the mouth of the Saguenay intensively during the summer.

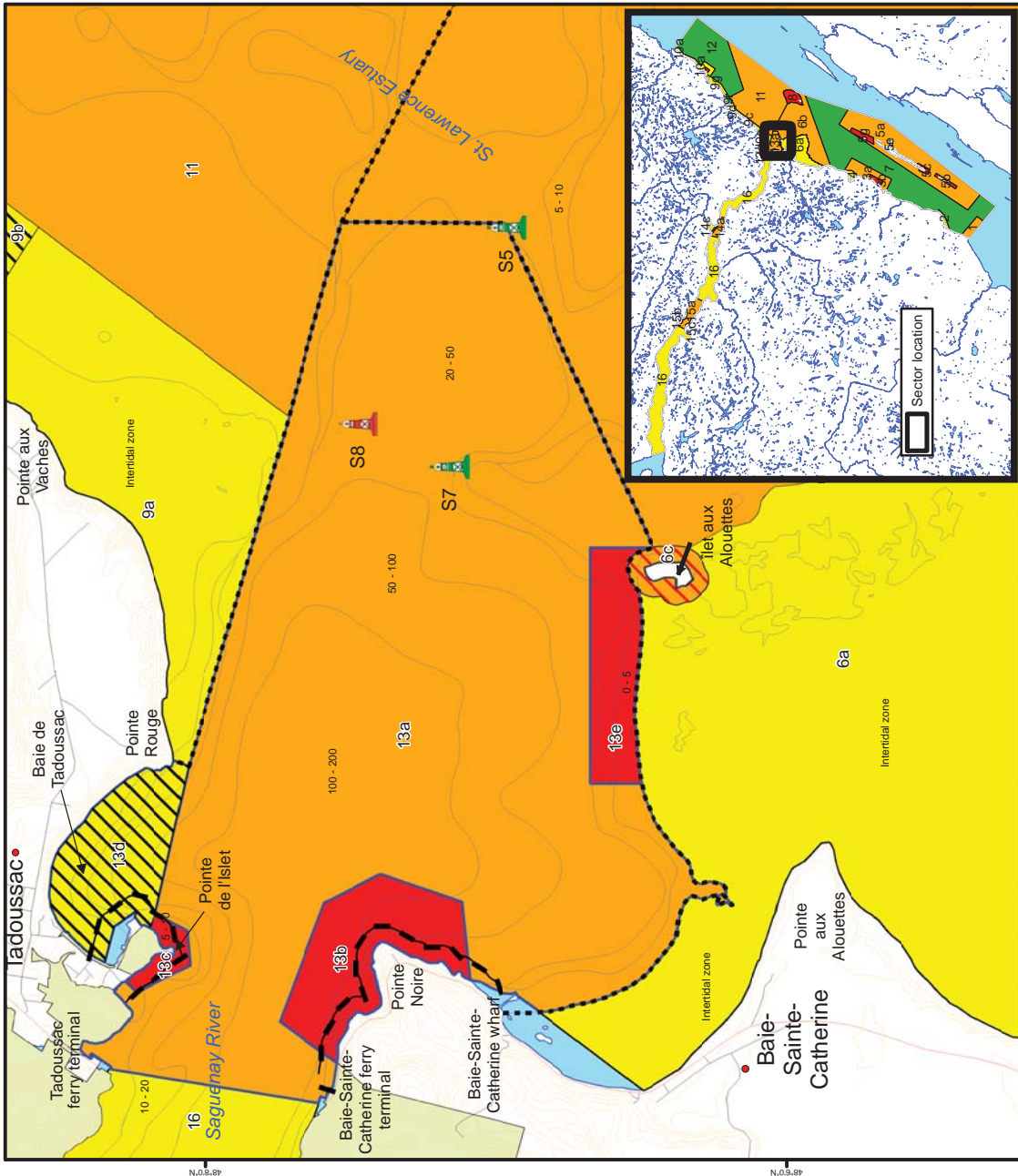
This subsector is designated as a comprehensive preservation zone (Zone I).

SSLMP Zoning Sector 13 : Mouth of the Saguenay Fjord (13.5 km²)

- Legend**
- Starboard lateral buoy
 - Port lateral buoy
 - Transit passage of human-powered watercraft
 - Main road
 - Secondary road
 - Bathymetric contour (m)
 - Contour line (m)
 - Marine Park ecosystem boundary
 - Saguenay-St. Lawrence Marine Park
 - Parc national du Saguenay
- Zoning**
- Zone I (Comprehensive preservation)
 - Zone II (Specific protection)
 - Zone III (General protection)
 - Zone IV (General use)
 - Zone II from 01/07 to 31/03 and zone I from 01/04 to 30/06
 - Zone III from 01/07 to 31/03 and zone I from 01/04 to 30/06
 - Zone III year-round except 15/11 to 30/04 zone IV (surface)
 - No hunting
 - Aquatic environment (outside park)
 - Land environment (outside park)
 - Sector shown
 - Sector number 1



Created : June 23, 2008
Parks Canada, Quebec Service Centre



6.3.2 Sector 14: Baie Sainte-Marguerite - Zones I, II, and III

Subsector: 14a-Section of the fjord off Baie Sainte-Marguerite	Zone II
Subsector: 14b-Entrance to Baie Sainte-Marguerite	Zone I
Subsector: 14c-Travel corridor and marsh at Baie Sainte-Marguerite	Zone III
Subsector: 14d-Anse au Cheval	Zone III

Main Features

Location

This sector, subdivided into four subsectors, comprises a portion of the Saguenay Fjord's middle basin off Baie Sainte-Marguerite, the entrance to the bay, a 50-metre-wide travel corridor upstream from the entrance to the bay, the marsh at the mouth of Rivière Sainte-Marguerite, and Anse au Cheval.

Biophysical environment

Baie Sainte-Marguerite covers an area of 2.3 km² at the mouth of Rivière Sainte-Marguerite (Dionne, 2001).

- The northern shore of this sector is composed of rock outcrops and a variably-grained substrate. Cliffs dominate the southern shore.
- The floor of Baie Sainte-Marguerite is composed of a highly variable substrate (mud, sand, shingle, ice-rafted boulders, and rock outcrops) (Lemieux, 1996).
- The section of the Saguenay Fjord off Baie Sainte-Marguerite forms a sill 120 m deep between the fjord's middle and upper basins.

Key biological components

Baie Sainte-Marguerite is biologically very rich.

- The entrance of Baie Sainte-Marguerite is intensively used by the threatened population of St. Lawrence belugas during the summer (pods comprising adults or adults and young) (Michaud, 1993; Busque, 2006). This site is unique in terms of the regularity and the duration of the belugas' stays (Chadenet, 1997).
- The bay is an important feeding, breeding, shelter, and migration area for a number of fish species. Fourteen fish species have been recorded on the site (Lemieux, 1996), including seven forage species that represent an important link in the food chain.
- The bay's intertidal marsh is the largest in this part of the Marine Park (the Saguenay River) and is home to a large diversity of plant communities (Gilbert, 2004). The bay is one of the main American bulrush marshes in the Marine Park's Saguenay ecosystem.
- The productivity of the American bulrush and spartina marsh and the abundance of small fish attract a number of bird species, including the black duck, red-breasted merganser, double-crested cormorant, common loon, common goldeneye, osprey, and Canada goose.

- Rivière Sainte-Marguerite is a major Atlantic salmon river. Juvenile salmon are found in the river's mouth and come to feed in the intertidal zone, while the adults migrate upriver to spawn (Caron *et al.*, 1996, cited in Lemieux, 1996).
- The sea trout is one of the most common fish species in the bay (Lemieux, 1996). In fact most anadromous trout (sea trout) in the Saguenay River come from Rivière Sainte-Marguerite (Lesueur, 1998).

Cultural resources

Aboriginal archaeological remains dating back at least 6,000 years (Plourde *et al.*, 2001) are located on the southern point of the bay. A number of other potential sites lie at the mouth of Rivière Sainte-Marguerite. Vestiges of a sawmill can be found at Pointe du Moulin and in the area where a millworkers' village was formerly located.

Current uses

Baie Sainte-Marguerite is accessible by land and water. This sector is one of the Saguenay National Park's Major Activity Areas. The interpretation centre presents an exhibit on the St. Lawrence beluga and the history of the logging village. A well-maintained trail leads to a lookout providing a view of the Saguenay River and the entrance of Baie Sainte-Marguerite.

Residents mainly use Baie Sainte-Marguerite and Anse au Cheval for swimming and for recreational fishing from small motor boats. Baie Sainte-Marguerite is also a departure point or transit area for guided sea kayaking excursions.

A recent study on Marine Park attendance shows that 38% of pleasure boaters in the Park visit the Baie Sainte-Marguerite sector (SOM, Survey, Opinion Polls, and Marketing, 2007).

Zoning

Protection objective: To ensure the comprehensive preservation of the area used intensively by belugas in the summer, provide general protection of the bay's intertidal habitat, including the American bulrush marsh, and provide specific protection to this unique portion of the Saguenay Fjord.

Education objective: To educate visitors as to the importance of protecting the marine environment and the habitat of threatened species, using the St. Lawrence beluga as an example.

Park use objective: Encourage the observation of St. Lawrence belugas from a land-based site, reduce the disturbance to belugas by boats and sea kayaks at the entrance of the bay, and encourage recreational trout fishing by local residents in Baie Sainte-Marguerite and Anse au Cheval.

Zoning: This sector has been divided into four subsectors to better balance its protection and use objectives.

SUBSECTOR 14a - Section of the fjord off Baie Sainte-Marguerite - Zone II: This subsector comprises the upper sill and a portion of the middle basin of the fjord. It is delimited on its upstream side by a line connecting the two shores between the downstream point of Anse des Îlets Rouges and the upstream point of Anse à la Jument, and extends downstream to the power line that crosses the fjord. This subsector excludes subsectors 14b, 14c, and 14d.

This subsector is designated as a specific protection zone (Zone II).

SUBSECTOR 14b - Mouth of Baie Sainte-Marguerite - Zone I: This subsector encompasses the mouth of Baie Sainte-Marguerite between subsector 14a and subsector 14c. It is delimited upstream on Rivière Sainte-Marguerite by a straight line corresponding approximately to the low tide mark and downstream by a straight line between the downstream point of Anse des Îlets Rouges and Cap Sainte-Marguerite. This subsector excludes the travel corridor in subsector 14c.

This subsector is designated as a comprehensive preservation zone (Zone I).

Exception: The transit passage of human-powered watercraft (kayaks and canoes) is authorized along the shore of this zone I area downstream from the mouth of the bay to ensure user safety, subject to marine mammal protection regulations (see **Table 7**).

SUBSECTOR 14c –Baie Sainte-Marguerite travel corridor and marsh– Zone III: This subsector encompasses a 50-metre- wide travel corridor running from the shore in the northwestern portion and the marsh in Baie Sainte-Marguerite. Upstream, this subsector ends at the Marine Park boundary. The corridor allows residents to travel in small motor boats for recreational fishing purposes.

This subsector is designated as general protection zone (Zone III).

Exception: To avoid a Park use conflict between public safety, the visitor experience, and hunting, the latter activity must be banned year round in this subsector (see **Table 7**).

SUBSECTOR 14d - Anse au Cheval – Zone III: This subsector comprises the floor of this small bay, which is used for recreational fishing.

This subsector is designated as a general protection zone (Zone III).

SSLMP Zoning

Sector 14 :

Baie Sainte-Marguerite (10.1 km²)

Sub-sectors :

- 14a : Section of fjord facing Baie Sainte-Marguerite (6.93 km²)
- 14b : Mouth of Baie Sainte-Marguerite (0.9 km²)
- 14c : Passing corridor and marsh at Baie Sainte-Marguerite (2.2 km²)
- 14d : Anse au Cheval (0.08 km²)

Legend

- Lookout
- Transit passage of human-powered watercraft
- Power line
- Contour line (m)

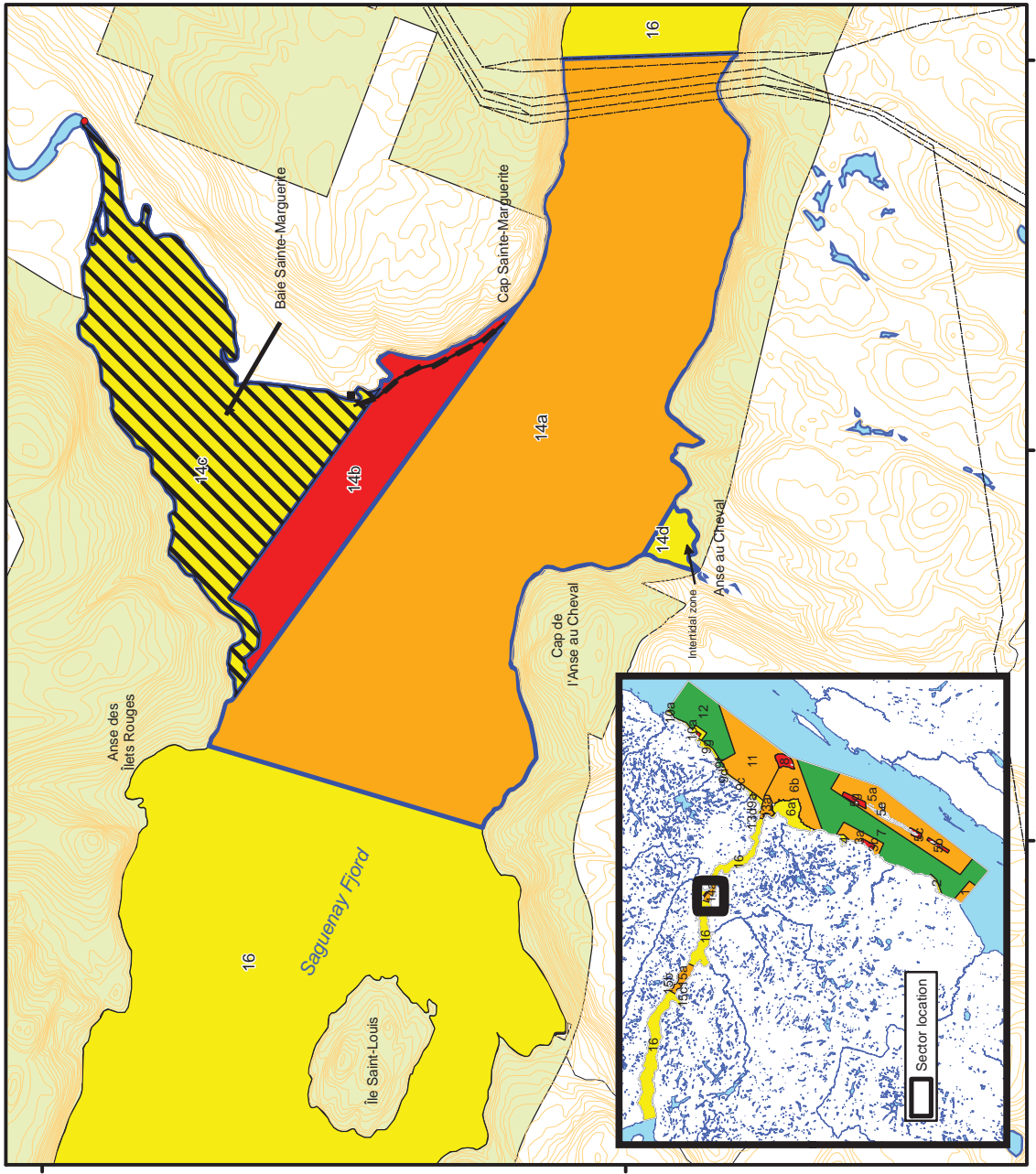
Zoning

- Zone I (Comprehensive preservation)
- Zone II (Specific protection)
- Zone III (General protection)
- Zone IV (General use)
- No hunting
- Parc national du Saguenay
- Main road
- Secondary road
- Bathymetric contour (m)
- Saguenay–St. Lawrence Marine Park
- Aquatic environment (outside park)
- Land environment (outside park)
- Sector shown
- Sector number



Geoidic datum :
North American Datum 1983
Projection :
UTM Zone 18N
Bathymetric data : CHS

Created : June 23, 2008
Parks Canada, Quebec Service Centre



6.3.3 Sector 15: Cap Éternité and Cap Fraternité – Zones I and II

Subsector: 15a-Section of the fjord off Cap Éternité and Cap Fraternité	Zone II
Subsector: 15b- Cap Fraternité haul-out	Zone I
Subsector: 15c- Cap Éternité haul-out	Zone I

Main Features

Location

This sector, which is subdivided into three subsectors, encompasses a portion of the upper basin of the Saguenay Fjord over a length of nearly eight km and has an average width of about two km from shore to shore.

Biophysical environment

This sector is part of the fjord's upper basin and can reach over 250 m in depth. The floor is composed of a thick layer of sediments. The rocky cliffs that soar nearly 230 to 330 m in height on both sides of the Saguenay are typical of a fjord. Cap Éternité and Cap Fraternité lie on each side of the fjord. Rest areas for harbour seals are located at the foot of the cliffs.

Key biological components

This sector encompasses the biggest harbour seal haul-outs on the Saguenay Fjord (Lavigneur *et al.*, 1993). In the early 1970s, a hundred or so harbour seals could be observed on the northern shore of the Saguenay (Boulva and McLaren, 1979). Observations in 1999 revealed that several groups of harbour seal used the site simultaneously (N. Ménard, personal communication). There are other haul-outs on the southern shore of the Saguenay near Cap Éternité, but fewer seals use them (H. Girard, personal communication).

Zoning

Protection objective: To provide special protection to a representative portion of the upper basin of the major ecosystem of the Saguenay Fjord and ensure the comprehensive preservation of the harbour seal haul-outs.

Education objective: To promote better understanding of this portion of the major ecosystem of the Saguenay Fjord and the importance of the haul-outs for the harbour seals.

Park use objective: To facilitate commercial navigation, pleasure boating, and marine tours in this sector, except in the zone I area established to protect the seal haul-outs. To promote safe sea kayaking.

Zoning: This sector is divided into three subsectors in order to better balance its protection and use objectives.

SUBSECTOR 15a - Section of the fjord off Cap Éternité and Cap Fraternité – Zone II: This subsector covers an eight-kilometre-long portion of the upper basin of the Saguenay Fjord. It is delimited on its upstream side by a line connecting the two shores between the downstream point at the mouth of Baie Éternité and the head of the cove on the opposite shore, and extends downstream to the power line that crosses the fjord near Anse de Tabatière. This subsector excludes subsectors 15b and 15c.

This subsector is designated as a specific protection zone (Zone II).

SUBSECTOR 15b - Cap Fraternité haul-out - Zone I: This subsector comprises a 2.5-kilometre-long, 300-metre-wide band running along Cap Fraternité on the north shore of the Saguenay. Its purpose is to ensure the comprehensive protection of the harbour seal haul-out.

This subsector is designated as a comprehensive preservation zone (Zone I).

Exception: The transit passage of human-powered watercraft (kayaks and canoes) along the shore is authorized in this zone I area to ensure user safety, subject to marine mammal protection regulations (see **Table 7**).

SUBSECTOR 15c - Cap Éternité haul-out - Zone I: This subsector comprises a 2.5-kilometre-long, 300-metre-wide band running along Cap Éternité on the south shore of the Saguenay. Its purpose is to ensure the comprehensive protection of the harbour seal haul-out.

This subsector is designated as a comprehensive preservation zone (Zone I).

Exception: The transit passage of human-powered watercraft (kayaks and canoes) along the shore is authorized in this zone I area to ensure user safety, subject to marine mammal protection regulations (see **Table 7**).

SSLMP Zoning Sector 15 : Cap Éternité and Cap Fraternité (16.8 km²)

Sub-sectors:

- 15a : Section of fjord facing Cap Éternité and Cap Fraternité (15.15 km²)
- 15b : Cap Fraternité Haul-out (0.85 km²)
- 15c : Cap Éternité Haul-out (0.8 km²)

Legend

- Power line
- Transit passage of human-powered watercraft
- Main road
- Secondary road
- Bathymetric contour (m)
- Contour line (m)
- Saguenay–St. Lawrence Marine Park
- Parc national du Saguenay

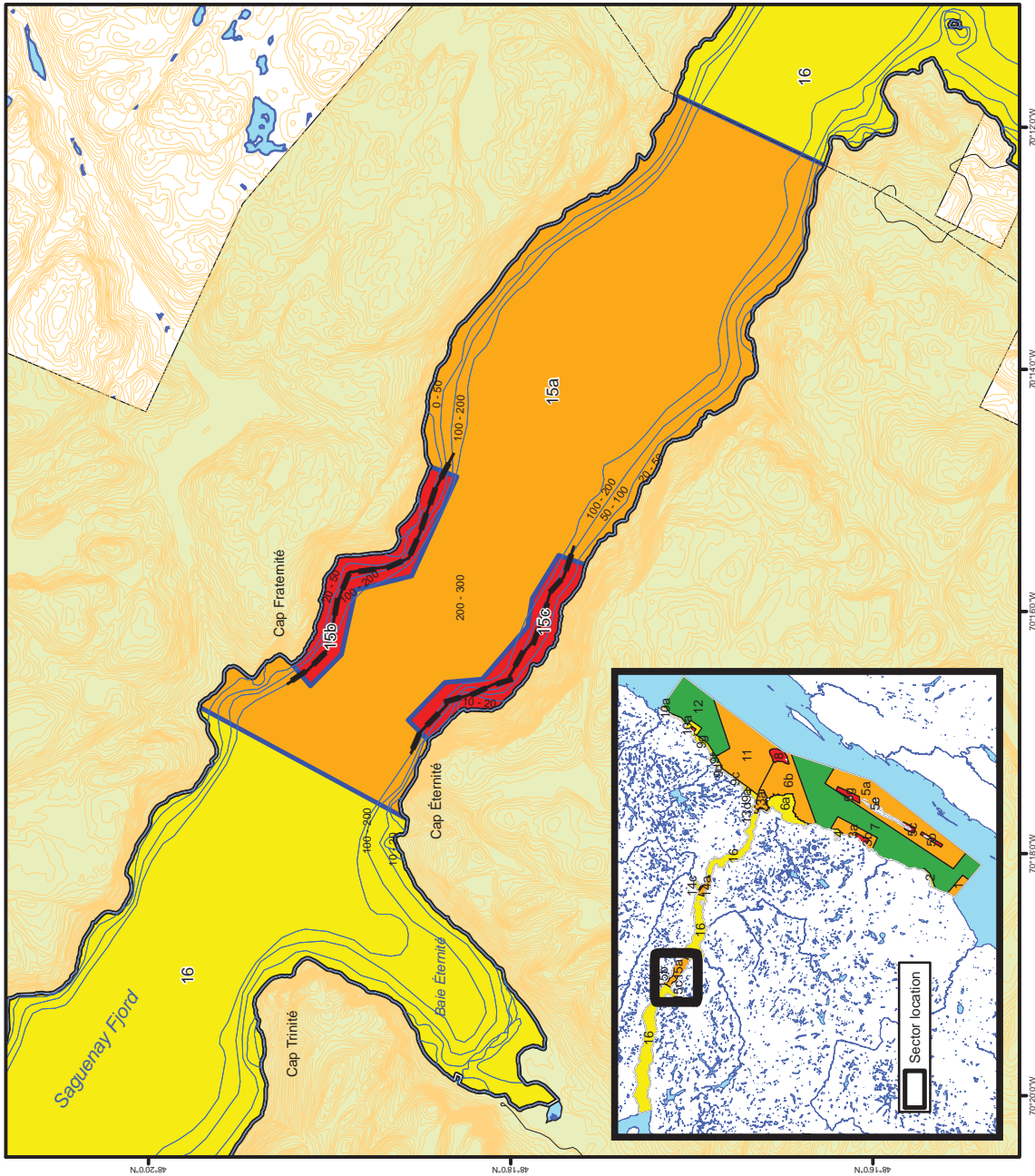
Zoning

- Zone I (Comprehensive preservation)
- Zone II (Specific protection)
- Zone III (General protection)
- Zone IV (General use)
- Aquatic environment (outside park)
- Land environment (outside park)
- Sector shown
- 1 Sector number

Geographic datum:
North American Datum 1983
Projection system:
Bathymetric data: CHS



Created : June 23, 2008
Parks Canada, Quebec Service Centre



6.3.4 Sector 16: Saguenay Fjord - Zone III

Main Features

Location

This sector represents the portion of the major ecosystem of the Saguenay Fjord that lies within the Saguenay–St. Lawrence Marine Park, excluding sectors 13, 14, and 15.

Biophysical environment

The Saguenay is the longest fjord in eastern Canada as well as the most southerly in the eastern part of the continent. It is also one of the few fjords to flow into an estuary (Mousseau and Armellin, 1995). It comprises three successive basins, separated by sills. At the mouth of the Saguenay, the end of the fjord is marked by a 20-metre-deep sill. The Saguenay Fjord has a major influence on the Upper St. Lawrence Estuary ecosystem due to the large quantity of fresh water that flows from the fjord into the St. Lawrence (Dionne, 2001).

Key biological components

The Saguenay Fjord is frequented by harbour seals, whose main haul-outs are located at the foot of Cap Éternité and Cap Fraternité. St. Lawrence belugas also use it, particularly the mouth of Baie Sainte-Marguerite. The fjord is a habitat for numerous fish species, including cod, redfish, halibut, smelt, sea trout, and Atlantic salmon.

Zoning

Protection objective: To afford a general level of protection to this unusual ecosystem.

Education objective: To interpret the sector's geological, geomorphological, and biological features and their importance to the history of the region.















Park use objective: To facilitate the use of this important navigational corridor for commercial and recreational activities. To facilitate recreational fishing and migratory bird hunting, and prohibit seal hunting.

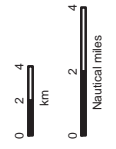
Zoning: This sector encompasses an approximately 69 km stretch of the Saguenay Fjord. Upstream it is delimited by a line connecting the two shores between the point of Cap à l'Est and the opposite shore, which is in fact the upstream boundary of the Marine Park on the Saguenay River. It extends downstream all the way to Tadoussac, but excludes sectors 13: the mouth of the Saguenay; 14: Baie Sainte-Marguerite; and 15: Cap Éternité and Cap Fraternité.

This subsector is designated as a general protection zone (Zone III).

SSLMP Zoning Sector 16 : Saguenay Fjord (171.9 km²)

Legend

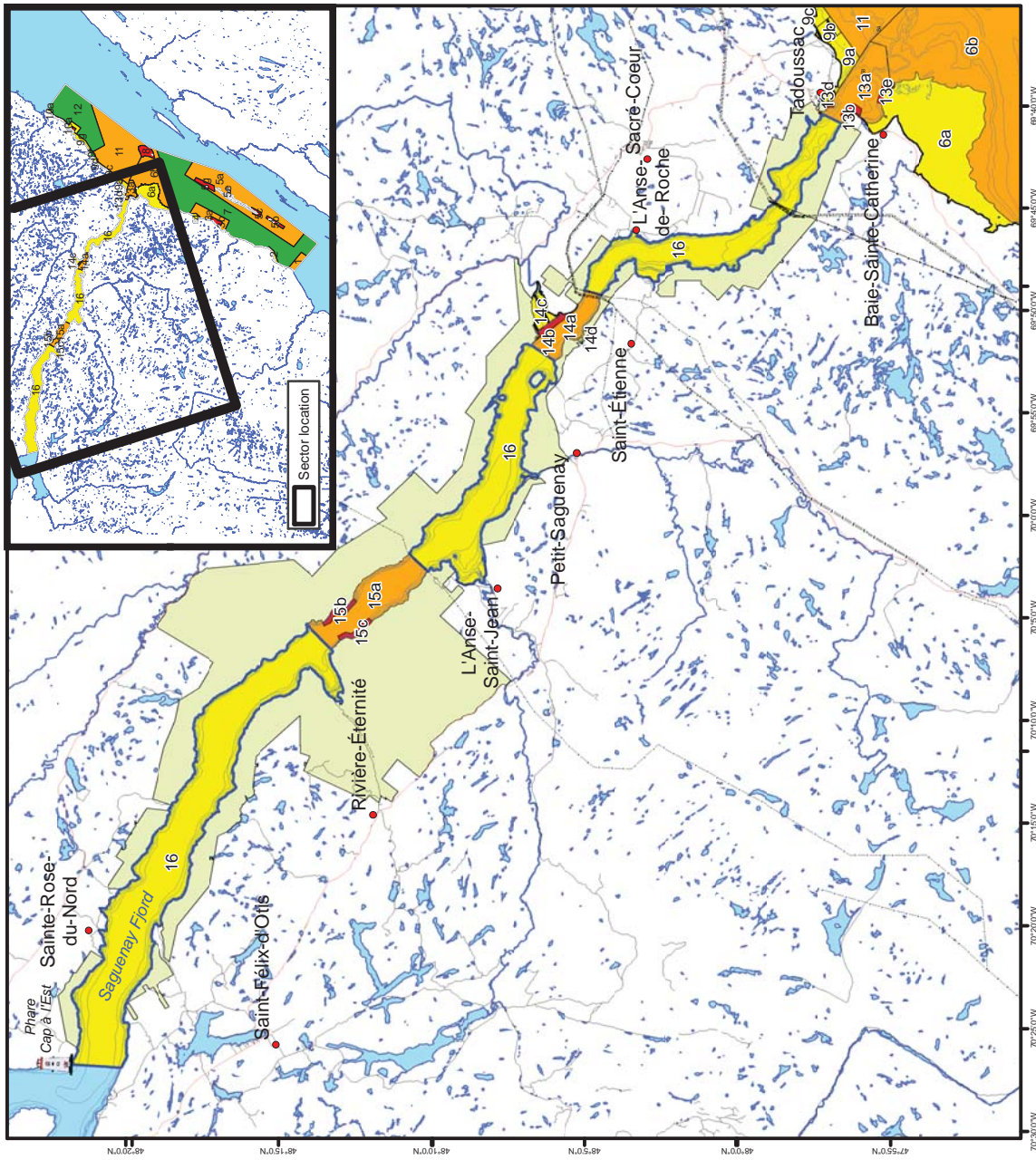
-  Lighthouse
 -  Power line
 -  Main road
 -  Secondary road
 -  Bathymetric contour (m)
 -  Saguenay-St. Lawrence Marine Park
 -  Parc national du Saguenay
- ### Zoning
-  Zone I (Comprehensive preservation)
 -  Zone II (Specific protection)
 -  Zone III (General protection)
 -  Zone IV (General use)
 -  Aquatic environment (outside park)
 -  Land environment (outside park)
 -  Sector shown
- 1 Sector number



Geodetic datum :
North American Datum 1983
UTM Zone 18N
Bathymetric data : CHS



Created : June 23, 2008
Parks Canada, Quebec Service Centre



7. AUTHORIZED ACTIVITIES UNDER THE MARINE PARK ZONING PLAN

Table 8 lists the activities authorized by type of zone in which the sectors and subsectors are located.

Excluding activities deemed to be noncompliant (**Table 4 and Table 5**), the activities are organized into five use categories: scientific research, recreational and commercial activities that do not involve harvesting of natural resources, educational or recreational activities involving harvesting of natural resources, commercial activities involving harvesting of renewable natural resources, and essential public utilities.

The list of activities presented is exhaustive, meaning that any activity that does not appear in **Table 8** or in the list of exceptions (**Table 7**) is banned. Any new activity must be evaluated by Marine Park management. If the evaluation is positive, the activity will be added to this list temporarily until it is permanently incorporated into the subsequent revision of the zoning plan.

Table 8

PERMITTED ACTIVITIES

according to zone

SAGUENAY–ST. LAWRENCE MARINE PARK





October 2008





Zone I
Comprehensive preservation

Sectors
Sub-sectors
3b, 5b, 5c, 5e, 5f, 5g
10b, 13b, 13c, 13e, 14b

1) Scientific research activity		
Scientific research		
2) Activities that don't involve harvesting natural resources		
a) Non commercial educational or recreational activities		
Beach and swimming activities		
Interpretation and education activities		
Special activities	Note 4	
Sea kayaking	Note 1	
Snowmobiling		
Pleasure boating		
Anchoring		
Mooring – Private		
Diving		
Horseback riding in intertidal zones		
Hiking in intertidal zones		
Filming and photography		
Flights over the park at under 2,000 feet		
b) Commercial educational or recreational activities		
Interpretation and education activities		
Special activities	Note 4	
Observation cruise or excursion at sea		
Mooring – Public		
Sea kayaking	Note 1	
Diving		
Horseback riding in intertidal zones		
Shuttle service		
Filming and photography		
Flight over the park at under 2,000 feet		
3) Non commercial activities that involve harvesting natural resources		
Interpretation and education activities		
Seal hunting		
Migratory bird hunting	Note 2	
Line fishing	Note 5	
Shellfish harvesting		
4) Commercial activities that involve harvesting natural resources		
Seal hunting	Note 3	
Fishing (whelk, halibut, clam, etc.)	Note 3	
Line fishing (ice fishing) – outfitters		
5) Essential services		
Periodic maintenance dredging for access to wharves, the seaway, etc.		
Maintenance of marinas, wharves, buoys, lighthouses, etc.		
Navigation (commercial shipping)		
Installation of new boat launch facilities		
Installation of pontoon facilities		

Legend

	Zone I Comprehensive preservation
	Zone II Specific protection
	Zone III General protection
	Zone IV General use

	Authorised activities that don't require a permit
	Authorised activities that require a Saguenay–St. Lawrence Marine Park permit
	Authorised activities that require a permit from other departments
	Unauthorized activities

- Note 1** Safe travel corridor (sectors 15c, 15d) to ensure unimpeded passage of fish and wildlife.
- Note 2** Usage conflict regarding commercial fishing in sub-sectors 9b, 13b, 13c, 13e, 14b.
- Note 3** Exempted commercial fishing operations in Zones I and II. Commercial fishing operations in Zones I and II are exempted from the permit requirement, provided that no harvesting activity exist and must be reported to the Department of Fisheries and Aquaculture.
- Note 4** Special activity: A temporary sporting event. (Marine Park)
- Note 5** Recreational fishing

8. IMPLEMENTATION OF THE ZONING PLAN

Once the Saguenay–St. Lawrence Marine Park zoning plan is incorporated into the new Management Plan, it must go through the following implementation steps:

1. Establish the boundaries for each zone (sectors and subsectors) using longitudinal and latitudinal coordinates, navigational alignments, and visual reference points.
2. Communicate to Park users as quickly as possible the goal and objectives of the zoning plan so that they adopt it as a code of conduct while it goes through the process of being made official by regulation.
3. Select communication and awareness tools for publicizing and enforcing Park zoning (training, publications, signs on land, buoys on the river, etc.).
4. Develop Marine Park zoning regulations and ensure their adoption.
5. Enforce these regulations.
6. In keeping with the Marine Park mandate, adopt the Model Fishery Management Principles and Terms developed for the Marine Park, and monitor the status of the harvested resources.
7. Develop, in conjunction with the authorities and fishers concerned, the means for phasing out commercial fishing activities that are exempted under the Saguenay–St. Lawrence Marine Park zoning plan.
8. Continue to gather data on the Park's ecosystems, habitats, species, and natural processes, as well as on past and current use of this vast marine environment.
9. Include in the Management Plan the obligation to develop, in cooperation with the partners concerned, integrated management plans for sites where management problems cannot be resolved by zoning.

9. CONCLUSION

The preparation of this zoning plan for the Saguenay–St. Lawrence Marine Park has proven a complex task, but it has made it possible to balance the protection and use of these marine ecosystems. This task was carried out with the help of Marine Park managers and employees, specialists from the government departments involved, members of the Marine Park Coordinating Committee and advisory committees, and representatives of the targeted groups that were consulted.

This zoning plan is a management tool intended for Marine Park managers, Canadian and Quebec government departments, and this marine territory's main partners. It is designed to guide the management of human activities so as to foster the environmentally sustainable use of the Marine Park.

This zoning plan is based on current knowledge of this territory's ecosystems, habitats, species, and use. It must be updated periodically during the Management Plan review.

10. REFERENCES

- Arseneau, M.-J., F. Hartog, P. Archambault, L. Pelletier and J.-M. Sévigny. 2002. Évaluation du gisement de pétoncles d'Islande (*Chlamys islandica*) de l'île Rouge : caractérisation des communautés benthiques et évaluation des impacts de la pêche. Study conducted by Fisheries and Oceans Canada for the Saguenay–St. Lawrence Marine Park. Fisheries and Oceans Canada, Maurice Lamontagne Institute, Mont-Joli, Quebec. viii + 43 p.
- Arseneau, M.-J., P. Archambault and P. Goudreau. 2003. Évaluation des impacts de la pêche sur le gisement de pétoncles d'Islande de l'île Rouge. Fisheries and Oceans Canada for the Saguenay–St. Lawrence Marine Park. Regional Science Branch, Maurice Lamontagne Institute, Mont-Joli, Quebec. vii + 38 p.
- Bédard, J., A. Nadeau, J.-P. L. Savard and M. C. S. Kingsley. 1997. La passe de l'Île aux Lièvres: importance stratégique pour la faune marine de l'estuaire. Final report to Canadian Heritage, Environment Canada, Fisheries and Oceans Canada and Wildlife Habitat Canada by Société Duvetnor ltée. Rivière-du-Loup. 69 p.
- Bédard, J., R. Ouellet and J.-F. Giroux. 1987. Migration automnale de la sauvagine dans le haut-estuaire maritime du Saint-Laurent en 1986. Société Duvetnor report to MLCP, Quebec. 29 p.
- Bédard, J., R. Ouellet, J.-F. Giroux. and J. P. Savard. 1988. Migration automnale de la sauvagine dans le haut-estuaire maritime du Saint-Laurent en 1987. Société Duvetnor report to MLCP, Quebec. 29 p.
- Bernard, B. 1999. Parc marin du Saguenay–Saint-Laurent : répertoire informatisé pour l'évaluation des sites riverains et sous-marins à potentiel archéologique. Document produced by Bruno Bernard, archeological consultant for Parks Canada, Underwater Archaeological Unit. 96 p.
- Bernier, M.-A. 2000. Parc marin du Saguenay–Saint-Laurent : Évaluation des composantes culturelles en vue de l'élaboration du plan de zonage. Working document, Underwater Archaeological Unit, Parks Canada, Ottawa, February 2000. 13 p.
- Bernier, M.-A. 2007. Composantes culturelles du parc marin du Saguenay–Saint-Laurent : Document de travail pour l'élaboration du plan directeur. Manuscript report, Underwater Archaeological Unit, Parks Canada Agency, Ottawa, June 2007.
- Biorex inc. 1999. Caractérisation biophysique et des usages d'un secteur retenu pour la détermination d'une zone de protection marine dans l'estuaire du Saint-Laurent. Report produced for Fisheries and Oceans Canada in collaboration with Groupe de recherche et d'éducation sur le milieu marin (GREMM) and Société Duvetnor Ltée. Volumes 1, 2 et 3.
- Boulva, J. and I. A. McLaren. 1979. Biology of the harbour seal, *Phoca vitulina*, in eastern Canada. Bulletin of the Fisheries Research Board of Canada No. 200. Fisheries and Oceans Canada, Ottawa. 24 p.
- Bourget, E., L. Lapointe, J. H. Himmelman and A. Cardinal. 1994. Influence of physical gradients on the structure of a northern rocky subtidal community. *Ecoscience* 1(4): 285-299.
- Bourget, E. 1997. Les animaux littoraux du Saint-Laurent : guide d'identification. Les Presses de l'Université Laval, Quebec City. 268 p.

- Buidin, C., *et al.* (forthcoming). Inventaires des limicoles de la rive nord de l'estuaire maritime du Saint-Laurent entre la rivière aux Canards et la rivière Portneuf. 122 p.
- Busque, V. 2006. Utilisation de la baie Sainte-Marguerite par le béluga du Saint-Laurent (*Delphinapterus leucas*) et les embarcations nautiques : rapport des saisons 2003 à 2005. For the Saguenay–St. Lawrence Marine Park: Parks Canada and Société des établissements de plein air du Québec, Comité ZIP-Saguenay, 51 p.
- Chadenet, V. 1997. Fréquentation et bilan d'activités du béluga (*Delphinapterus leucas*) du Saint-Laurent dans la baie Sainte-Marguerite. Master's Thesis, Université Laval, Sainte-Foy. 75 p. + appendices.
- Dionne, S. (ed.). 2001. Plan de conservation des écosystèmes du parc marin du Saguenay–Saint-Laurent. Parks Canada, Saguenay–St. Lawrence Marine Park . 538 p.
- Falardeau, G., J.-P. L. Savard, J. Bédard, A. Nadeau and M.C.S. Kingsley. 2000. Tendances temporelles et répartitions des oiseaux et des mammifères marins à la pointe ouest de l'île aux Lièvres à l'été 1997. Technical Report Series No. 351, Canadian Wildlife Service, Quebec Region, Environment Canada, Sainte-Foy, x + 90 p.
- Gagnon, M. 1998. Bilan régional - Rive nord de l'estuaire moyen du Saint-Laurent. Zones d'intervention prioritaire 15 et 16. Environment Canada, Quebec Region, Environmental Conservation, St. Lawrence Centre. xx + 74 p.
- Gareau, D *et al.* 2007. Justifications détaillées des activités visées d'interdiction dans le cadre du plan de zonage du parc marin du Saguenay–Saint-Laurent. 17 p.
- Gilbert, H. 2004. Portrait des zones herbacées du Parc marin du Saguenay–Saint-Laurent. Bureau d'écologie appliquée, Sillery. Submitted to Parks Canada, Quebec Regional Office, and Saguenay–St. Lawrence Marine Park, Tadoussac. Février 2004. 20 p. + appendices.
- Gosselin, D. and A. Germain. 2007. Estimés des impacts économiques de Parcs Canada au Québec pour l'année financière 2004-2005; Outil à l'usage des gestionnaires de Parcs Canada au Québec, Parks Canada, January 2007, 69 p. and appendices.
- GREMM. 2007. Validation des aires de fréquentation intensive du béluga dans le parc marin du Saguenay–Saint-Laurent. Groupe de recherche et d'éducation sur les mammifères marins (GREMM). March 2007. 10 p.
- Joint Working Group on the Management of the Common Eider. 2004. Quebec Management Plan for the Common Eider (*Somateria mollissima dresseri*). A special publication of the Joint Working Group on the Management, Quebec, 44 p.
- Lavigueur, L., M. O. Hammill and S. Asselin. 1993. Distribution et biologie des phoques et autres mammifères marins dans la région du parc marin du Saguenay. rapp. manu. can. sci. halieut. aquat. 2220. 40 p.
- Lehoux, D., A. Bourget, P. Dupuis and J. Rosa. 1985. La sauvagine dans le système du Saint-Laurent. Canadian Wildlife Service, Quebec Region.

Lemieux, C. 1996. Acquisition de connaissances des habitats côtiers de l'Anse-Saint-Jean et de la baie Sainte-Marguerite dans la région du Saguenay (1995). GENIVAR Consulting Group Inc. report to the Fish Habitat Management Division, Fisheries and Oceans Canada. 79 p. + 4 appendices.

Lemieux, C. et R. Lalumière. 1995. Répartition de la zostère marine (*Zostera marina*) dans l'estuaire du fleuve Saint-Laurent et dans la baie des Chaleurs (1994). Rapport presented to the Canadian Wildlife Service and Environment Canada, prepared by GENIVAR Consulting Group Inc. 58 p.

Lesueur, C. 1998. Acquisition de connaissances sur les poissons migrateurs et dulcicoles du Saguenay. Rapport du projet triennal : résultats obtenus de 1995 à 1998. Report of Comité ZIP-Saguenay to Fisheries and Oceans Canada, Ministère de l'Environnement et de la Faune, and Canadian Heritage. 74 p + appendix.

Limoges, B. 2002. ZICO de Tadoussac, une fenêtre sur la Boréale, plan de conservation. Union québécoise pour la conservation de la nature, Parc du Saguenay, Canadian Nature Federation, Bird Studies Canada, vi + 69 p.

Maisonnette, C., P. Brousseau and D. Lehoux. 1990. Critical fall staging sites for shorebirds migrating through the St. Lawrence system, Quebec. Canadian Field-Naturalist 104: 372-378.

Ménard, N. 1998. Répartition spatiale et structure des bancs de poissons pélagiques dans une aire d'alimentation des cétacés de l'estuaire du Saint-Laurent. Master's thesis, Université Laval, Sainte-Foy. 123 p.

Michaud, R. 1993. Distribution estivale du béluga du Saint-Laurent; synthèse 1986-1992. Rapp. tech. can. sci. halieut. aquat. 1906 : vi + 28 p.

Department of Justice of Canada, Saguenay–St. Lawrence Marine Park Act (1997, ch.37).
Website: <http://lois.justice.gc.ca/eng/S-1.3/index.html>. Page retrieved June 5, 2009.

Munro, J., D. Gauthier and J. A. Gagné. 1998. Description d'une frayère de hareng (*Clupea harengus* L.) à l'Île aux Lièvres, dans l'estuaire moyen du Saint-Laurent. Rapp. tech. can. sci. halieut. aquat. 2239 : vi + 34 p.

Mousseau, P. and A. Armellin. 1995. Synthèse des connaissances sur les communautés biologiques du Saguenay. Technical Report. Priority Intervention Zone 22 and 23. Environment Canada – Quebec Region, Environmental Conservation, St. Lawrence Centre. 246 p.

Mousseau, P. and A. Armellin. 1996. Synthèse des connaissances sur les communautés biologiques du secteur d'étude Estuaire maritime, Priority Intervention Zone 18. Environment Canada – Quebec Region, Environmental Conservation, St. Lawrence Centre, Technical Report. 340 p.

Mousseau, P., M. Gagnon, P. Bergeron, J. Leblanc and R. Siron. 1998. Synthèse des connaissances sur les communautés biologiques de l'estuaire moyen du Saint-Laurent. Fisheries and Oceans Canada–Laurentian Region, Habitat Management and Environmental Science Directorate, Maurice Lamontagne Institute and Environment Canada, Quebec Region, Environmental Conservation, St. Lawrence Centre. Technical Report. Priority Intervention Zones 15, 16 and 17. Xxvi + 309 p.

MPO. 2008a. Compte rendu – Comité consultatif sur la pêche à l'oursin vert, zone 9 – December 3, 2008. Baie-Comeau, 10 p.

MPO, 2008b. Closed Areas for Shellfish Harvesting North Shore. Press release, November 5, 2008. Quebec. <http://www.dfo-mpo.gc.ca/media/npress-communique/2008/qr-rq57-eng.htm>

MRNF. 2001. Liste des espèces fauniques menacées ou vulnérables au Québec. Esturgeon noir, fiche descriptive.

Website: <http://www3.mrnf.gouv.qc.ca/faune/especes/menacees/fiche.asp?noEsp=20>. Page retrieved November 10, 2008.

Saguenay–St. Lawrence Marine Park. 1995. The Saguenay–St. Lawrence Marine Park, A Crossroads of Life, a Site of Exchange and a Wellspring of Riches. Management Plan. 70 pages. Published with the authorization of the Department of Canadian Heritage and the Minister of the Environment and Wildlife of Quebec.

Saguenay–St. Lawrence Marine Park. 2005a. Cahier du Participant - Zonage préliminaire du parc marin du Saguenay–Saint-Laurent - Ateliers de travail multisectoriels – May–June 2005, 62 p.

Saguenay–St. Lawrence Marine Park. 2005b. Compte rendu des ateliers multisectoriels sur le zonage préliminaire du parc marin du Saguenay–Saint-Laurent, 75 p.

Ménard, N., M. Pagé, V. Busque, I. Croteau, R. Picard and D. Gobeil. 2007. Rapport sur l'état du parc marin du Saguenay–Saint-Laurent 2007. Parks Canada and Parcs Québec, Tadoussac. 69 p.

Plourde, M., É. Langevin and A. McGain. 2001. Recherches archéologiques dans l'aire de coordination du parc marin du Saguenay–Saint-Laurent en l'an 2000 : Cap-de-Bon-Désir (109G), Pointe-à-John 2 (DbEj-22), Fours basques (DbEi-5) et Baie-Sainte-Marguerite (DbEl-10). Report produced by Archéo Topo for the Saguenay–St. Lawrence Marine Park and filed with Parks Canada, Parc du Saguenay, Ministère de la Culture et des Communications du Québec, Université du Québec à Chicoutimi, and Université de Montréal. 251 p.

Robert, M., R. Benoît and J.-P. Savard. 1999. COSEWIC status report on the eastern population of the Barrow's goldeneye (*Bucephala islandica*) in Canada. Canadian Wildlife Service. 59 p.

Robert, M. and J.-P. L. Savard. 2006. The St. Lawrence River Estuary and Gulf: A stronghold for Barrow's Goldeneyes wintering in eastern North America. *Waterbirds*, 29 (4) 437-450.

Savard, J.-P. L. 1990. Population de sauvagine hivernant dans l'estuaire du Saint-Laurent : écologie, distribution et abondance. Technical Report Series No. 89. Canadian Wildlife Service, Environment Canada. Quebec.

Savard, J.-P. L., G. Falardeau, J. Desaulniers and N. Ménard. 1997. Abondance et répartition des oiseaux aquatiques dans le parc marin du Saguenay–Saint-Laurent, secteur estuaire maritime / tête du chenal Laurentien, Québec 1993-1994. Technical Report Series No. 284. Canadian Wildlife Service, Quebec Region, Environment Canada, Sainte-Foy, xi + 113 p.

Simard, Y. and D. Lavoie. 1999. The rich krill aggregation of the Saguenay–St. Lawrence Marine Park: hydroacoustic and geostatistical biomass estimates, structure, variability, and significance for whales. *Can. J. Fish. Aquat. Sci.* 56: 1182–1197 (1999).

SOM, Recherches et sondages. 2006a. Estimation de la fréquentation du parc marin du Saguenay–Saint-Laurent ; Méthodologie d'estimation pour l'année 2005 et les années suivantes, Parks Canada, October 2006, 48 p.

SOM, Recherches et sondages. 2006b. Parc marin du Saguenay–Saint-Laurent – Étude auprès des visiteurs 2005; Parks Canada, June 2006, 64 p.

SOM, Recherches et sondages. 2006c. Étude de fréquentation du parc marin du Saguenay–Saint-Laurent auprès des Riverains, Parks Canada, April 2006, 57 p.

SOM, Recherches et sondages. 2007. Étude de fréquentation du parc marin du Saguenay–Saint-Laurent auprès des plaisanciers, Parks Canada, January 2007, 49 p. et appendices.

Tremblay, F. *et al.* 2007. Portrait des activités humaines actuelles sur le territoire du parc marin du Saguenay–Saint-Laurent.

URBEC inc., 2002. Parc marin du Saguenay–Saint-Laurent. Concept de réseau d'accès nautiques. Rapport final, février 2002, 72 p. and appendix.

11. GLOSSARY

Amphipod: Small, laterally flattened, mainly marine invertebrates in the subphylum Crustacea (e.g., scud).

Benthic: Refers to the bottom of oceans, seas, and lakes or the animals and plants living there.

Biodiversity: Designates the diversity of the living world at all levels: ecosystems, species, and genetic diversity within species.

Biomass: Quantity of living material in a specific area, expressed in units of mass.

Conglomerate: Sedimentary rock composed mainly of pebbles of various sizes cemented together by silica, calcite, or iron oxide. Conglomerates are most often caused by erosion of rocks exposed by tectonic stresses.

Offshore bar: Strip of sand or shingle along a coast or shore and usually enclosing a lagoon.

Haul-out: Area on shore where seals gather.

Epibenthic: Benthic fauna living at the surface of a substrate (e.g., scallops, crabs).

Forage species: Species serving as the primary food of many other species (e.g., capelin is considered to be a forage species because it is consumed by numerous whale, bird, and fish species).

Strand: Part of the shore that is uncovered at low tide (e.g. a mudflat is a muddy strand).

Estuary: Mouth of a river, generally wide, subject to tides and currents, forming a transition zone between the fresh water of the river and the seawater. Estuaries are very distinctive, highly productive, and fragile ecosystems.

Euphasiids: Small marine crustaceans, generally pelagic, often living in schools of many million individuals (e.g., krill).

Fucus: A type of brown algae generally attached to rocks. There are six species in Eastern Canada.

Gastropods: Gastropods are soft-bodied animals that are usually tucked away in a protective shell or carapace.

Glacial: Refers to floating ice.

Hydrodynamic: Refers to water in movement or to the movement of water or other flowing liquids

Sublittoral or subtidal zone: Zone extending out from below low water level (below the mean low tide levels).

Isobath: A line on a marine chart that connects points of equal depth with respect to the water surface.

Kelp: Large, brown marine algae shaped like a broad streamer with a stipe (cylindrical stem) of varying lengths and holdfasts that attach to substrates (usually rocks).

Limicolous: Organisms that live in or at the surface of mud (e.g., shore birds).

Pelagic: Describes species that live in deep water, without coming in contact with the sea bottom (e.g., capelin).

Polychete: Sedentary or free-moving worms with bodies made of cylindrical segments without appendices.

Schist: Metamorphic rock that is insoluble in water, with a flaky structure derived from clays crystallized by dehydration.

Alternate-flowered spartina or saltwater cord grass: Pale green plant typical of salt marshes that tolerates the high salt content of seawater.

Eelgrass: Aquatic plant living in salt water, growing on a sandy substrate in shallow, calm water, whose long, narrow, leaves form waving, upright ribbons when submerged.

APPENDIXES

APPENDIX I

Detailed Justifications for Activity Bans in the Saguenay–St. Lawrence Marine Park (based on Gareau *et al.*, 2007)

Activities	Justifications					
	Protection	Mission		Current Legal Restrictions	Local Impacts	Risk to Public Safety
		Visitor Experience	Education			
Use of personal watercraft	<ul style="list-style-type: none"> ● High risk of collision with marine mammals <ul style="list-style-type: none"> ○ Erratic movement ○ Uncontrolled stops ● Disturbance of marine mammals <ul style="list-style-type: none"> ○ Very noisy (90 dB and over) 	<ul style="list-style-type: none"> ● Disturbance <ul style="list-style-type: none"> ○ Irritating noise ○ No destination (e.g. activity concentrated within a cove) 	<ul style="list-style-type: none"> ● Activity focused solely on performance 	<ul style="list-style-type: none"> ● General navigation regulations 	<ul style="list-style-type: none"> ● Low, due to very marginal presence (less than 10 observations in 2006) 	<ul style="list-style-type: none"> ● Risk of collisions <ul style="list-style-type: none"> ○ Erratic movement ○ Uncontrolled stops ○ Operator inattention ● Difficult conditions <ul style="list-style-type: none"> ○ Water T° = 4°C Isolation (limited emergency access by land) <ul style="list-style-type: none"> ○ Currents and waves
Use of hovercraft	<ul style="list-style-type: none"> ● Disturbance to wildlife <ul style="list-style-type: none"> ○ Access to strands (nesting, whelping) ○ Noise-induced stress for birds and marine mammals ○ Echolocation becomes more difficult 	<ul style="list-style-type: none"> ● Disturbance <ul style="list-style-type: none"> ○ Noise level ○ Proximity of land-based points of access 	<ul style="list-style-type: none"> ● Difficult to convey information due to noise 	<ul style="list-style-type: none"> ● General navigation regulations 	<ul style="list-style-type: none"> ● Low, due to very marginal presence (less than 10 observations in 2006) 	<ul style="list-style-type: none"> ● Risk of collisions ● Strong potential for use on popular beaches

Justifications						
Activities	Mission			Current Legal Restrictions	Local Impacts	Risk to Public Safety
	Protection	Visitor Experience	Education			
Water skiing, parasailing, and other related towing sports ²	<ul style="list-style-type: none"> ● High risk of collisions with marine mammals <ul style="list-style-type: none"> ○ Erratic movement ○ Inattention ○ High speed ● Movement incompatible with marine activity regulations 	<ul style="list-style-type: none"> ● Irritating (fast, erratic movement, noise) 	<ul style="list-style-type: none"> ● Focused on performance, low educational potential 	<ul style="list-style-type: none"> ● General navigation regulations 	<ul style="list-style-type: none"> ● Low, due to very marginal presence (less than 10 observations in 2006) 	<ul style="list-style-type: none"> ● Risk of collisions <ul style="list-style-type: none"> ○ Erratic movement ○ Operator inattention ● Difficult conditions <ul style="list-style-type: none"> ○ Water T° = 4°C ● Isolation (limited emergency access by land) <ul style="list-style-type: none"> ○ Currents and waves
Commercial services related to migratory bird hunting	<ul style="list-style-type: none"> ● Limited number of suitable sites on the north shore ● Risk of pressure on resource 	<ul style="list-style-type: none"> ● Potential monopolization of hunting areas ● Not very compatible with other types of users 	<ul style="list-style-type: none"> ● Educational aspects of hunting as it is currently practiced could be lost 	<ul style="list-style-type: none"> ● Regulations concerning migratory bird hunting 	<ul style="list-style-type: none"> ● Commercial hunting could cause space conflicts and reduce access for local hunters ● Possible use conflicts if number of hunters increases (kayakers, hikers, etc.) 	<ul style="list-style-type: none"> ● Risk generally low ● Majority of sites are isolated ● Certain intensive-use zones should be monitored (Baie-Sainte Catherine, Grande-Bergeronnes, Baie de Tadoussac, etc.)
Dredging activities other than periodic maintenance ³	<ul style="list-style-type: none"> ● Disturbs fish habitat <ul style="list-style-type: none"> ○ Destruction of sea floor ○ Re-suspension of sediments ○ Contamination by re-suspension of contaminated sediments 	N.A.	N.A.	<ul style="list-style-type: none"> ● Three laws already regulate the activity ● Compulsory environmental assessment and approval 	<ul style="list-style-type: none"> ● Marginal activity 	<ul style="list-style-type: none"> ● Low ● Long term monitoring necessary

² Tubing, barefoot waterskiing, parasailing, kneeboarding, wakeboarding, hydrofoiling, wakeskating, and wakesurfing, etc.

³ The purpose of periodic dredging is to remove accumulated sediments on the channel floor in order to maintain the nominal depth of shipping lanes, ports, marinas, boat ramps, and port facilities.

Justifications						
Activities	Mission			Current Legal Restrictions	Local Impacts	Risk to Public Safety
	Protection	Visitor Experience	Education			
Building of artificial reefs for divers (including sinking of boats)	<ul style="list-style-type: none"> Disturbs fish habitat Source of pollution 	<ul style="list-style-type: none"> Introduction of waste into the Park Disturbance of natural and cultural underwater landscape 	<ul style="list-style-type: none"> Neither natural nor historic Underwater landscape already rich and varied 	<ul style="list-style-type: none"> Two laws regulate this activity Authorisation permitted 	<ul style="list-style-type: none"> No case or known project in the Marine Park 	<ul style="list-style-type: none"> Needs research Diving hazards comparable to any other site
Trawling (of sea floor and surface waters)	<ul style="list-style-type: none"> Nonselective <ul style="list-style-type: none"> Ground fish: at risk Pelagic fish: food for whales Damage to sea floor Accidental capture of small marine mammals 	N.A.	N.A.	<ul style="list-style-type: none"> Two regulations Banned in the Saguenay Moratorium in the upper estuary 	<ul style="list-style-type: none"> No active trawl fishing in the Marine Park 	N.A.
Aquaculture	<ul style="list-style-type: none"> Environmental impacts uncertain Risk of introducing exotic species Intensive rearing is incompatible with the Park's mission 	N.A.	N.A.	<ul style="list-style-type: none"> Regulated by law Authorization from MDDEP 	<ul style="list-style-type: none"> No known activity within the Park Suitable sites outside the Park 	N.A.
Immersion of solid waste in the ocean	<ul style="list-style-type: none"> Integrity of the sea floor Danger of entanglement for marine mammals Risk of pollution 	N.A.	N.A.	<ul style="list-style-type: none"> Regulated by law Permit required 	<ul style="list-style-type: none"> Marginal activity in the Park, according to available data Commercial fishing and dredging will be affected 	N.A.
Rip rap stabilization work unrelated to essential public infrastructures	<ul style="list-style-type: none"> Alteration of river banks (erosion, sedimentation, etc.) Alteration of sea floor (fish habitat) 	<ul style="list-style-type: none"> Alteration of marine landscapes 	Currently N.A. Inform visitors about impacts	<ul style="list-style-type: none"> Quebec policy Authorization necessary 	<ul style="list-style-type: none"> Major impact on essential infrastructure Important implications for development of nonessential infrastructures 	<ul style="list-style-type: none"> To be determined Varies depending weather and location Alternative techniques should be explored

Activities	Justifications					
	Mission		Current Legal Restrictions	Local Impacts	Risk to Public Safety	
	Protection	Visitor Experience				Education
Activities causing the destruction or alteration of marshes	<ul style="list-style-type: none"> Very fragile and environmentally important areas that are slow to recover after a disturbance Very limited areas in the Park Potential serious disturbances (hiking, mountain biking, etc.) 	<ul style="list-style-type: none"> None for the moment, but potential is strong 	<ul style="list-style-type: none"> Reduced if the environment is too disturbed Currently no activity 	<ul style="list-style-type: none"> Quebec regulations 	<ul style="list-style-type: none"> Low, because currently few disturbances 	<ul style="list-style-type: none"> Difficult to assess Possible long term impacts
Motorized vehicle traffic in intertidal zones	<ul style="list-style-type: none"> Destruction of vegetation Disturbance to sea floor Pollution 	<ul style="list-style-type: none"> More environmentally friendly means of transportation exist (walking, etc.) 	<ul style="list-style-type: none"> Disturbance due to noise and impacts on sea floor 	<ul style="list-style-type: none"> Quebec regulations 	<ul style="list-style-type: none"> Often used for wildlife harvesting Adaptation necessary, use unnecessary 	<ul style="list-style-type: none"> High, due to tides

Appendix II

Management Principles and Terms for Sustainable Fisheries in the Saguenay–St. Lawrence Marine Park

Whereas the governments of Quebec and Canada recognize that the purpose of the Saguenay–St. Lawrence Marine Park (SSLMP), in reference to the mirror federal and provincial legislation, is "to increase, for the benefit of the present and future generations, the level of protection of the ecosystems of a representative portion of the Saguenay River and the St. Lawrence Estuary for conservation purposes, while encouraging its use for educational, recreational and scientific purposes," complemented by the *Oceans Act*, the *Fisheries Act*, the *Species at Risk Act*, and the *Quebec Act respecting threatened or vulnerable species*, we should make sure that the fishing activities taking place in the Park meet the protection and presentation objectives of this important marine heritage site. From this perspective, the ecosystem-based management approach and the precautionary principle are the foundations that allow us to carry out this objective.

SSLMP model fishery management principles

1. The purpose of the ecosystem-based approach to management is to ensure that management decisions regarding the use of the SSLMP take into account the dynamic and interactive nature of marine ecosystems, human interactions with the marine ecosystems and the limited capacity of marine ecosystems to recover following disturbances caused by man with a view to their conservation. This involves integrating the scientific data available on the species targeted by the fishery at issue, the species not targeted, the trophic level of the targeted species and its role in the food chain and in the ecosystem.
2. The precautionary principle advocates caution in any activity which could change the natural environment. It is particularly important to do so when only a portion of the facts regarding ecosystems, habitats and species are known.
3. The SSLMP constitutes a marine conservation area subject, under its management plan, to a zoning plan defining the degree of conservation and the degree of use of this territory. Fishing activities must respect this zoning plan, which was established based on the scientific information available on the ecosystems, habitats and species and which takes into account the social and economic impacts of each activity currently practised in the Marine Park.
4. Plans or measures regarding fishing activities practised in the SSLMP must take into account the SSLMP's conservation objectives and remain the responsibility of Fisheries and Oceans Canada. They will be established in consultation with the clientele exploiting marine resources, the provincial government, and Parks Canada.
5. Native communities will be able to continue their fishing activities in the Marine Park based on the agreements established and in consideration of conservation objectives for the targeted ecosystems, habitats and species.

6. Fishing activities must not target species designated under the Canada *Species at Risk Act* or listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or species designated or registered on the threatened or vulnerable species list under the Quebec *Act respecting threatened or vulnerable species*, as well as unique populations.
7. Fishing activities carried out within the boundaries of the SSLMP must rest on exemplary management measures based on an appropriate level of scientific knowledge.

Good fishing practices in the SSLMP

1. Using fishing methods and gear that minimize the negative effects on the bottom, coast, breeding grounds and benthic communities.
2. Only select fishing gear may be used, i.e., fishing gear that allows non-targeted species to escape.
3. Fishing practices entailing a minimal risk of gear loss (Canadian Code of Conduct for Responsible Fishing Operations, 1998, guideline 1.7).
4. Retrieving, whenever possible, all lost fishing gear and reporting their loss (Canadian Code of Conduct for Responsible Fishing Operations, 1998, guideline 2.8).
5. Using materials that reduce the period of time during which lost gear continues to catch animals (e.g., cotton rather than nylon nets).
6. Reducing the power consumption associated with fishing activities (e.g., using motors that burn less fuel, using reclaimed oil that has no impact on the service life of the motor, preventive maintenance of motors) (Canadian Code of Conduct for Responsible Fishing Operations, 1998, guideline 1.3).

SSLMP model fishery management

1. The SSLMP will shortly be designated a special fishing area of the St. Lawrence Estuary by Fisheries and Oceans Canada, within which the SSLMP model fishery management principles will apply.

Authorized fishing activities in the SSLMP

1. All commercial fishing activities (including seal hunting) currently carried out in General Use Zones (Type IV) of the SSLMP are authorized in consideration of the management measures established by Fisheries and Oceans Canada, except for the fishing activities that will be banned in the SSLMP mentioned in clauses C.3.d and C.3.e of the model fishery management principles and terms.
2. Commercial fishing activities (including commercial seal hunting) currently carried out in Specific Protection Zones (Type II) and General Protection Zones (Type III) of the SSLMP will be authorized **but considered derogatory activities with regard to the**

degree of conservation of these zones. This means that they will be banned in the medium and long terms following negotiations between Parks Canada, Fisheries and Oceans Canada, and the fishers and hunters concerned. In the meantime, they must respect the SSLMP model fishery management principles and terms and the management measures established by Fisheries and Oceans Canada.

3. Bait fishing (capelin, smelt, herring) is authorized in the upper and lower portions of the St. Lawrence Estuary for commercial fishers conducting their fishing activities in the SSLMP and who have a licence to this effect from Fisheries and Oceans Canada.
4. All recreational fishing, including ice fishing and seal hunting (with a licence for personal use), currently taking place in General Protection Zones (Type III) and General Use Zones (Type IV) of the SSLMP are authorized in consideration of the management measures established by Fisheries and Oceans Canada.

Fishing activities currently banned or not practised in the SSLMP.

1. All commercial fishing activities are forbidden in the Saguenay Fjord.
2. Recreational shellfish harvesting is forbidden in the Saguenay Fjord.
3. All fishing activities using mobile gear are forbidden in the upper St. Lawrence Estuary.
4. Aquaculture is not a fishing activity practised in the SSLMP.

Fishing activities that will be banned or not authorized in the SSLMP

1. No fishing activities (recreational or commercial) will be authorized in Comprehensive Protection Zones (Type I).
2. No fishing activities (recreational or commercial) will be authorized in Specific Protection Zones (Type II), except for the derogatory commercial fishing activities previously authorized in clause C.1.b of the model fishery management principles and terms.
3. No commercial fishing will be authorized in General Protection Zones (Type III), except for the derogatory commercial fishing activities previously authorized in clause C.1b of the model fishery management principles and terms.
4. All fishing using gear that disrupts the habitat or is likely to destroy the sea floor (e.g., dredging) will be banned, except for the scallop harvesting currently practised in the SSLMP, which is considered a previously authorized derogatory commercial fishing activity.
5. Commercial fishing activities targeting the following species will be banned: capelin, smelt and herring, except for the previously authorized bait fishing activities.

6. Commercial fishing activities at the mouth of the fjord, between the sill and a line between Pointe-Rouge and Pointe-Noire will be banned to cover the entire ecosystem representative of the Saguenay Fjord.
7. Aquaculture will be banned.
8. No new commercial fishing licence authorizing fishing activities within the boundaries of the SSLMP will be issued by DFO so as to enhance the degree of protection of its ecosystems and habitats.