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DEPARTMENT OF FISHERIES AND AQUACULTURE

Issues Scan of Selected Coastal and Ocean Areas of Newfoundland and Labrador

Final Report

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Issues Scan of Selected Coastal and Ocean Areas of Newfoundland and Labrador

Department of Fisheries and Aquaculture
Department of Environment and Conservation

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ACKNOWLEDGEMENTS

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Most importantly, considerable thanks are given to the many residents of the coastal management areas that took the time to meet and discuss what they consider to be the coastal and ocean issues in their particular region. Efforts such as theirs play a significant role in attaining the goal of community-driven coastal and ocean management in this province.

EXECUTIVE SUMMARY

The province of Newfoundland and Labrador has recently initiated the development of a province-wide coastal and ocean policy framework and strategic plan to support an integrated approach to coastal and ocean management. This report represents the first phase of this initiative: an issues scan of specific coastal and ocean areas of the province. These efforts support the goals of Canada's Ocean Action Plan (OAP).

Several areas of the province of Newfoundland and Labrador have taken the initiative at a community-level to develop integrated management committees to address coastal and ocean management in their particular region. At this point in time, five specific regions have approached the province to bring attention to the coastal and ocean issues in their region: the Great Northern Peninsula, the Bay of Islands, the Coast of Bays, Placentia Bay, as well as Bay St. George/Port-au-Port Peninsula[1]. These five regions represent coastal management areas (CMAs), geographic areas that support collaboration among multi-sector oceans users; respond to environmental threats; and support economic opportunity.

Large Ocean Management Areas (LOMAs) are geographical areas designated by Fisheries and Oceans Canada as having high priority for ocean management. Ecological reserves, provincial parks, and natural areas nested within two Federal LOMAs, the Gulf of St. Lawrence LOMA and the Placentia Bay-Grand Banks LOMA, are also included in this report.

Prior to the future development of a policy framework and strategic plan for coastal and ocean management in this province, it was deemed necessary to complete a review of coastal and ocean issues in these priority coastal areas. Following a review of current literature and meeting with representatives of a variety of stakeholder groups from across the province, the coastal and ocean issues of these areas began to emerge. These various issues have been placed into twelve over-arching 'Aspects of Coastal and Ocean Management' categories: Aquaculture, Commercial Fisheries and Fish Processing, Marine Infrastructure, Land-Based Infrastructure, Land-use Planning, Climate Change, Tourism, Integrated Management, Community Sustainability, Culture and Heritage, Natural Areas, and Marine Environmental Quality. Results of the literature search are provided in two Appendices, one for documents used in this report, and a second for future use in policy development.

Due to differing circumstances and activities in each of these regions, the scope and priority of issues differed for each coastal management area. Considering the current issues raised and apparent trends in current and future activities, a set of recommendations has been given. These recommendations are provided to assist with effective development and implementation of a policy framework and strategic plan for coastal and ocean management in this province.

[1] Please note that the Bay St. George CMA was established after initial discussions for this project began, and is therefore not included in this scope of work.

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1 INTRODUCTION

The province of Newfoundland and Labrador has recently begun initiatives to develop a provincial coastal zone and ocean policy framework and strategic plan so as to develop an integrated management approach to coastal and oceans development and uses within the province.

The provincial coastal and oceans policy development currently ongoing is under the direction of both of the Department of Fisheries and Aquaculture (DFA) and the Department of Environment and Conservation (DEC). A Provincial Coastal and Oceans Network (PCON) has also been created, with representatives from eleven provincial departments to advise and provide direction specific to their particular department.

This initiative, by lending support to the development of a provincial coastal and ocean policy framework and strategic plan, will contribute to several deliverables under Phase I of Canada's Oceans Action Plan (OAP). This plan is intended to serve as an overriding structure under which all Federal-Provincial-Territorial-Aboriginal ocean activities and management initiatives are to be coordinated.

At this point in time, five specific regions have approached the province to bring attention to the work currently being done at the community level: the Great Northern Peninsula, the Bay of Islands, the Coast of Bays, Placentia Bay, as well as Bay St. George/Port-au-Port Peninsula[2]. These areas are referred to as coastal management areas (CMAs), created to help provide a basis for Integrated Management (IM) of coastal areas, one of the key principles of the OAP.

Prior to the development of the policy framework and strategic plan, it was deemed useful to complete a review of coastal and ocean issues for the priority coastal management areas of the province (see Figure 1). Ecological reserves, provincial parks, and natural areas nested within the Gulf of St. Lawrence Large Ocean Management Area (LOMA) and the Placentia Bay – Grand Banks (PB-GB) LOMA are also included in this report.

This report can be considered a credible representation of issues currently facing coastal and oceans areas of this province. However, when drafting a provincial coastal zone and ocean policy framework and strategic plan, further CMAs must be investigated - particularly within the Labrador region.

[2] Please note that the Bay St. George/Port-au-Port Peninsula CMA was established after initial discussions for this project began, and is therefore not included in this scope of work.

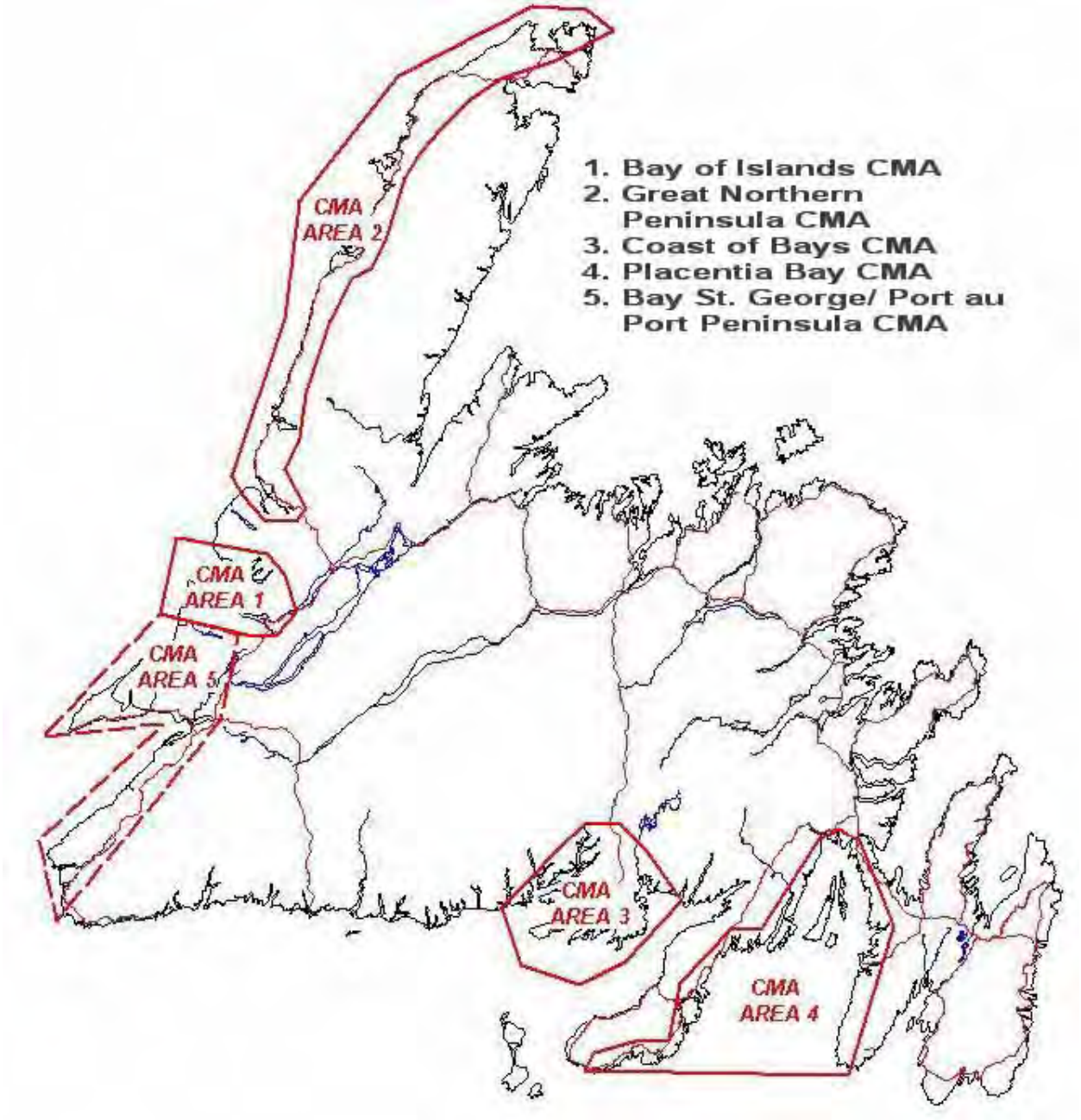


Figure 1: Five Priority Coastal Management Areas in Newfoundland and Labrador

2 PROJECT OVERVIEW

Overall a number of issues arose during consultations for this report. These issues covered a wide range of topics and affected many different industries and activities within the province. The issues associated with each CMA in the province varied; however there are a number of underlying issues affecting several areas of the province.

Within each CMA, several issues were determined to affect greater than one aspect of coastal and ocean management. When analyzing the issues that fell under the identified 'Aspects of Coastal and Ocean Management' categories, the issues that occurred in the greatest frequency and affected a number of industries or activities within that region were drawn out. These issues were deemed to be core challenges to coastal and ocean management in their respective region and deserving of being priorities for action.

Table 2-1: Priority Issues to Coastal and Ocean Management in each CMA

CMA	Challenges to Coastal and Ocean Management
Bay of Islands	• Poor water quality • Land-use planning • Coastal accessibility
Northern Peninsula	• Highway infrastructure • Funding for integrated management initiatives • Rural sustainability
Bay St. George/ Port-au-Port Peninsula	• Concerns over oil and gas development • Pollution from industrial waste disposal • Non-traditional uses of the coastline (i.e.: tourism)
Coast of Bays	• Waste management • Capabilities and condition of road infrastructure • Wharf space
Placentia Bay	• Risk of an oil spill • Marine-user conflicts • Infrastructure needed to support marine-related industry

Suggestions are given in Section 10.1 - Recommendations as to points of interest and concerns that must be addressed within the development of the policy framework and strategic plan for provincial coastal and ocean management. These recommendations provide a way forward to ensure the effective implementation of a plan that will ensure sustainable development and future responsible management of our coastal and marine resources.

3 METHODOLOGY

BNG-Group Ltd. was hired to undertake this Issues Scan of Selected Coastal and Ocean Areas throughout the province. The initial steps in this process included a literature review in which many relevant documents and reports were collected for future use by DFA and DEC. See Appendix A for a complete list of relevant literature collected.

Contact was made with groups around the province affected by coastal and ocean issues in these particular areas. These groups include, but were not limited to, regional economic development boards, coastal zone management committees, provincial and federal department representatives, fish harvesters committees, tourism operators, and aquaculture operators. A comprehensive list of stakeholders contacted for this report can be found in Appendix B. Details regarding what the current issues are, the cause of the issues, the history of the issues, and previous action taken to address these issues were collected during these meetings with stakeholders.

The opinions of individuals on the coastal and ocean issues in their area were obtained in a variety of ways – including face to face meetings, telephone interviews, as well as questions through e-mail. When meeting or speaking with individuals, an introduction of the scope of work was first given, followed by the goals of DFA/DEC in completing this project. A questionnaire followed to ensure all key points were covered in each meeting. An outline of the questions covered for each meeting can be found in Appendix C.

Investigation into potential emerging issues associated with current trends in activities and industries was also addressed. After considering the results of the initial several meetings, it was apparent that many issues were common among stakeholders and could be grouped within several categories.

A summary table compiling all issues raised during consultations and in the literature review can be found in Appendix D. Data gaps in available information, as well as challenges to addressing coastal and ocean management were also noted throughout the consultation process.

4 LARGE OCEAN MANAGEMENT AREAS (LOMAs)

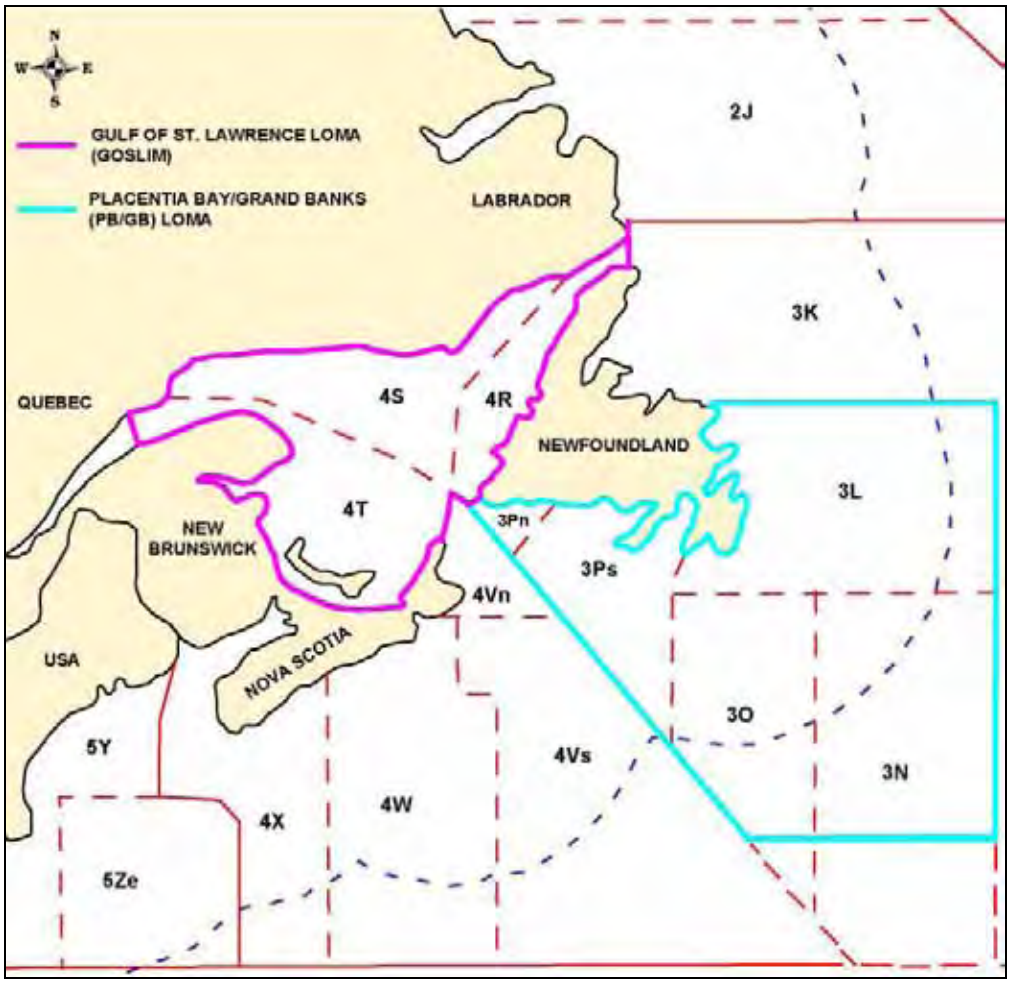
Canada is considered to be an international leader of ocean governance. By passing the Canada's Oceans Act in 1996, Canada became a lead country in adopting comprehensive oceans management legislation. The Oceans Act sets out the management framework for Canada's oceans based on an ecosystem approach, with guiding principles of sustainable development, integrated management, and the precautionary principle. Canada's Ocean Strategy (COS) and the Operational Framework for Integrated Management, issues as companion policy documents in 2002, re-emphasize these principles.

In 2004, with an inclusive legislative and policy framework in place, the Federal Minister of Fisheries and Oceans was directed to develop an Oceans Action Plan. This plan is intended to serve as a structure under which all ocean activities and management initiatives are to be coordinated.

The Oceans Action Plan has identified five priority Large Ocean Management Areas (LOMAs) within Canada, designated by Fisheries and Oceans Canada. These are areas in which integrated management is highly promoted and much research is conducted to maximize understanding of the marine environment in these regions. Two of these LOMAs border Newfoundland and Labrador. The *tentative* boundaries of the Placentia Bay-Grand Banks (PB/GB) LOMA and the Gulf of St. Lawrence (GOSLIM) LOMA can be seen in Figure 2.

Within these two LOMAs, a series of coastal management areas (CMAs) have been indicated by stakeholders/ community interests with support of DFO, DFA, and DEC. These smaller geographic areas support collaboration among multi-sector oceans users; respond to environmental threats; and support economic opportunity. These CMAs are the Bay of Islands, the Great Northern Peninsula, the Coast of Bays, Placentia Bay, and Bay St. George/Port-au-Port Peninsula.

This report focuses on the coastal and ocean management activities and issues in four provincial CMAs, nested within the LOMAs; such as provincial parks, ecological reserves and natural areas.



Conrad Mullins, personal communication

Figure 2: Tentative Newfoundland and Labrador Limits of the GOSLIM & PB-GB LOMAs

4.1 GULF OF ST. LAWRENCE LOMA

In Newfoundland, the Gulf of St. Lawrence Integrated Management (GOSLIM) LOMA extends from Cape Ray at the southwest point of the Island, to Cape Bauld at the tip of the Northern Peninsula, and covers waters within the entire Gulf. Sections of the Maritime Provinces and a segment of the Quebec coastline also border the GOSLIM LOMA, thus activities under each jurisdiction are to be considered within an integrated management plan (DFO, 2005).

The CMAs nested within the GOSLIM LOMA are the Bay of Islands, the Great Northern Peninsula and the Bay St. George/Port-au-Port Peninsula area, which are discussed in Sections 5, 6 and 7, respectively. Wilderness and ecological reserves and provincial parks

located within the GOSLIM LOMA that contain coastal components are discussed in Sections 4.3 and 4.4 respectively.

Mullins & Brennan (2006) discuss building on existing infrastructure and working in partnership with local organizations as effective ways to move forward on the GOSLIM initiative. They emphasize that common terms of reference and basic guidelines need to be developed and followed by each jurisdictional area.

The GOSLIM area was identified as a LOMA in part because of its unique oceanographic features, such as its similarity to an inland sea with a distinct ecosystem, freshwater runoff from the land, three deep troughs, seasonal ice cover, a cold intermediate layer, shallow depths and high levels of biological productivity and diversity (DFO, 2006[1]). Due in part to these characteristics, there are many socio-economic aspects that must also be considered. The many surrounding communities of the provinces surrounding the GOSLIM area vary culturally and socially, but all are dependent upon the Gulf waters for their livelihood.

DFO (2006) identifies some key human activities that are general issues of concern within the GOSLIM LOMA.

Commercial fishing may be having an effect on habitat and ecosystems, and the removal of biomass and harvesting species down the food chain may be unbalancing the food web structure. There is a need to ensure that land-based facilities for handling ballast water are available, so that invasive species and their associated diseases and parasites do not become introduced into GOSLIM waters.

Land-based activities such as shoreline development is resulting in a loss of habitat, specifically of important wetland and estuary areas, and is also leading to a significant rise in the amount of contaminants being released into the marine environment. Climate change is an issue expected to have substantial impacts in years to come, causing changes to ocean processes, increases in coastal erosion and modification of species distribution.

With some seismic testing and exploratory drilling occurring within this LOMA, there is potential for negative impacts on fish and marine mammals, as well as the risk of accidental spills. The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) (2005) outlines the scope of the Strategic Environmental Assessment for a study area of oil and gas exploration on the west coast of Newfoundland. Project-environment interactions may include, but are not limited to: noise, habitat disturbance, air quality issues, operational discharges, conflict with commercial fisheries, attraction of seabirds to lights/flares on vessels and conflicts with other projects.

It has also been reported that some of the deep waters within the Gulf of St. Lawrence have low concentrations of dissolved oxygen (DFO, 2006[2]). This factor can have an effect on habitat and

organisms of the region, however according to DFO (2006[2]) this information has rarely been integrated in research on distribution, migration, growth and reproduction.

A study in 2001 (Neis, 2001) examined the social effects on women in rural Newfoundland resulting from a decline in the fishing industry. Many issues were identified relating to education and training, services, incomes, social assistance and employment insurance regulations, housing policies and health services. Although this study is specific to Newfoundland, the cultural issues identified may be comparable to other rural, coastal communities around the entire GOSLIM LOMA.

4.2 PLACENTIA BAY – GRAND BANKS LOMA

The Placentia Bay-Grand Bank (PB-GB) LOMA (see Figure 2) proposed boundary covers most of the east and south coast of the island, extending from Cape Ray to a point near Musgrave Harbour (the northern boundary of the 3L NAFO division). The CMAs nested within the PB-GB LOMA are the Coast of Bays and Placentia Bay, which are discussed in sections 8 and 9. The wilderness and ecological reserves and provincial parks located within the PB-GB LOMA that contain coastal components are discussed in Sections 4.3 and 4.4 respectively.

The Government of Canada is developing an integrated management plan for this LOMA under the Oceans Action Plan. A main principle to guide this plan will be ecosystem-based science. Ecosystem objectives will be identified including enhanced management measures for ecologically and biologically significant areas (ESBAs), as well as other objectives related to productivity, biodiversity and water and habitat quality.

New governance arrangements are a key area to consider when developing a management plan for the PB-GB LOMA. Key features of governance will include interdepartmental and intergovernmental collaboration; strengthened relations with sectoral users and strengthened inter-sectoral collaboration; increased citizen engagement; as well as increased relations and improved collaboration in an international context.

The Grand Banks cover an area of 500,000 km^2, and Placentia Bay is an area where many of the coastal impacts of activities taking place on the Grand Banks are felt, such as the closure of fish plants and impacts from developments such as the transshipment terminal for Grand Banks crude oil. The initial phase of the Oceans Action Plan has focused on establishing a local planning committee for integrated management in Placentia Bay. As well, a technology advisory council will be established, making Placentia Bay a prime site for oceans technology projects, such as the already established SmartBay initiative.

In 2005, Transport Canada initiated an assessment of risk of accidental spills along the south coast of Newfoundland (Transport Canada, 2006). The study used a combination of quantitative risk assessment techniques and local knowledge to identify risk and community

concerns. The results of the study will provide the basis for Transport Canada to determine the adequacy of the current spill prevention and preparedness regime.

A related issue is that of the intentional release of oil into the marine environment. Ships passing by the coast of Newfoundland sometimes choose to illegally dump their bilge water, which can contain oil and oily residues, instead of disposing of it in a proper way. In the PB-GB LOMA, it is estimated that approximately 300,000 seabirds are killed each year from the dumping of bilge oil (CBC News, 2002), which is more than the number of birds affected in the Exxon Valdez major spill in 1989.

There are some particularly important coastal ecosystems located within the PB-GB LOMA. Some of these have protection or management plans in place. There is a Marine Protected Area (MPA) located on the Eastport Peninsula, which provides habitat for an abundance of marine wildlife. There have been local controls in place in the Eastport area since 1995 when the Eastport Peninsula Lobster Protection Committee (EPLPC) was formed. Members limited the harvest area and also implemented a system of V-notching, to ensure egg-bearing females remain in the water. This is an example of how management measures initiated at the community level can develop into something more comprehensive. The MPA was officially designated in 2005 by DFO.

The Burgeo area is an important nesting area for piping plover, and in 2003 the Burgeo Diversification Development Board made a request to Parks Canada for the establishment of a National Marine Conservation Area (NMCA) on the South Coast of Newfoundland (Newfoundland and Labrador Legacy Nature Trust, 2007). NMCAs are established by Parks Canada to protect and conserve representative examples of Canada's natural and cultural heritage, while at the same time providing opportunities for public education and enjoyment. In NMCAs, activities such as fishing, shipping and other recreational and traditional activities are permitted. NMCAs are protected from activities such as ocean dumping, undersea mining and oil and gas exploration and development. Receiving designation as an NMCA demonstrates how protection and conservation practices can be harmonized with resource use in marine ecosystems (Newfoundland and Labrador Legacy Nature Trust, 2007)

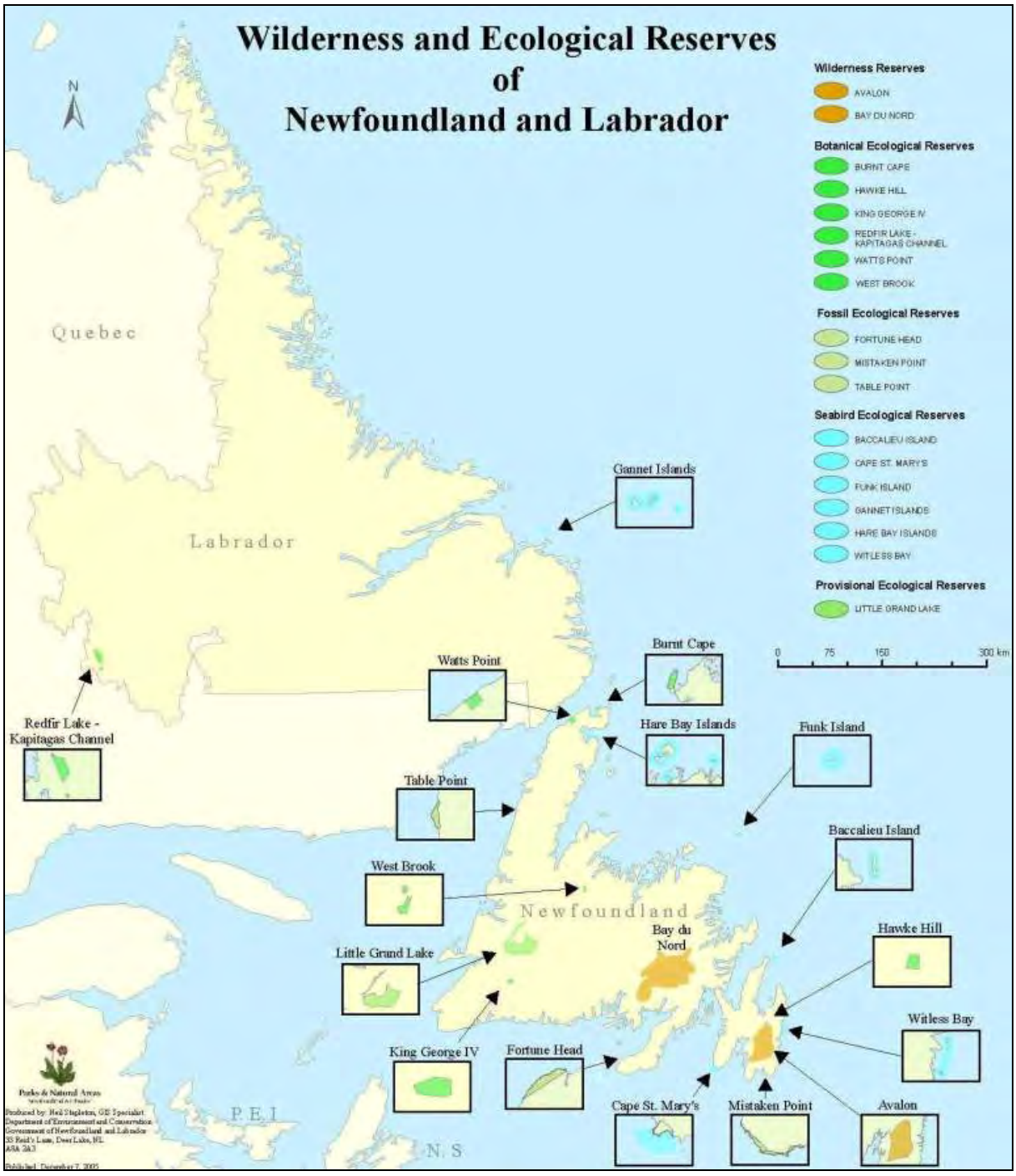
4.3 WILDERNESS AND ECOLOGICAL RESERVES – COASTAL AND OCEAN ISSUES

Issues related to wilderness and ecological reserves nested within these two LOMAs are included in the scope of this report.

The Parks and Natural Areas Division of the Department of Environment and Conservation, who work in conjunction with the Wilderness and Ecological Reserve Advisory Council (WERAC), administer Wilderness and Ecological reserves. Reserves are created to protect the province's natural heritage, and play a key role in Newfoundland's conservation strategy. Each

reserve has a reason for designation, whether it is to protect wilderness, wildlife, geology or biodiversity (Parks and Natural Areas, 2006).

The *Wilderness and Ecological Reserves Act* (*WER Act*) guides the designation of provincial reserves, which is considered to be one of the best examples of wilderness-protection in Canada. This piece of legislation ensures that protected areas maintain their unique natural qualities. Issues within reserves that have coastal and ocean components will be discussed in this document.



Courtesy of Parks and Natural Areas

Figure 3: Wilderness and Ecological Reserves of Newfoundland and Labrador

4.3.1 Burnt Cape Ecological Reserve

Burnt Cape Ecological Reserve was developed in 1998 to protect unique plants on an exposed part of the limestone barrens of Northern Newfoundland. Some of the notable rare plants located at the Burnt Cape Ecological Reserve include the Arctic bladderpod (*Lesquerella arctica*), Alpine arnica (*Arnica alpina*), Dwarf hawksbeard (*Crepis nana*), Burnt Cape cinquefoil (*Potentilla usticapensis*) as well as Fernald's braya (*Braya fernaldii*), Long's braya (*Braya longii*) and the Barrens willow (*Salix jejuna*).

Burnt Cape Ecological Reserve **Courtesy of Parks and Natural Areas**

The main issues identified for Burnt Cape Ecological Reserve include climate change (Catto, 2006) and increased tourist activity, both of which have the potential to increase coastal erosion. When damage of vegetation occurs (i.e.: by human disturbance), the exposed foundation is more vulnerable to processes such as frost wedging. This can cause rapid breakdown of rock and is a dominant form of erosion along the entire Newfoundland coastline.

Since coastal sites lacking foliage are more susceptible, it is important to ensure that vegetation in the Burnt Cape area is sustained, which may require public awareness campaigns. Warmer temperatures, potentially associated with climate change, could have an effect on unique plants within this ecological reserve by causing conditions that would increase predation by certain species such as the Diamondback moth larvae and fungi species (Catto, 2006).

4.3.2 Table Point Ecological Reserve

Table Point Ecological Reserve was established in 1990 to protect fossils and rocks that document changes to the continental shelf of an ancient ocean. The Table Point Ecological Reserve Management Plan (Parks and Natural Areas, 1990) outlines the local geology and paleontology of the area.

Sea level rise in this reserve is evident, due to the presence of marine species such as trilobites, brachiopods, crinoids, ostracodes and others (Catto, 2006), which typically occur on the bottom of the ocean floor. These preserved fossils on land show that this area was once underwater.

This reserve is at risk for erosion. Catto (2006) recommends that more research on types of erosional forces be conducted to obtain quantifiable measurements at Table Point.

Table Point Ecological Reserve **Courtesy of Parks and Natural Areas**

4.3.3 Baccalieu Island Ecological Reserve

This reserve, established in 1995, is the largest protected seabird island in Newfoundland and Labrador and has the largest Leach's storm petrel colony in the world (Parks and Natural Areas Division, n.d.[1]). The effects of climate change and associated impacts on the Baccalieu Island Seabird Ecological Reserve are comparable to the effects felt in similar regions within the province. No other coastal issues were identified for this ecological reserve.

4.3.4 Cape St. Mary's Ecological Reserve

The Cape St. Mary's Ecological Reserve is home to several species of seabirds and waterfowl, including the endangered Harlequin duck. Established as an Ecological Reserve in 1983, visitors can witness gannets, murres, kittiwakes and razorbills in their natural habitat from as close as ten metres away (Parks and Natural Areas, 1983).

The cliffs and sea stacks in the area exhibit certain points of weakness, which are susceptible to erosion and slope failure. Edges of the path from the Interpretation Centre are becoming increasingly eroded, which poses a threat to visitor safety. Staff at the centre educate visitors to remain on the trails and to stay away from the cliff edge. In 2001, sections of the trail were relocated which resulted in an immediate decline in erosion rate (Catto, 2006).

Concern was expressed over the possibility of an oil spill in the area, its deleterious effects on the seabird colony, as well as the capability to respond to a spill in such a sensitive area.

4.3.5 Mistaken Point Ecological Reserve

Mistaken Point fossil Ecological Reserve contains Ediacaran fossil assemblages that are of international significance. Fossils located at Mistaken Point are some of the oldest assemblages of complex multicellular organisms yet described anywhere in the world (Queen's University Research, 2003), and represent the geological boundary between the Precambrian and Cambrian era where soft-bodied organisms evolved into hard-shelled ones. Mistaken Point received official designation as an Ecological Reserve in 1987, and there was an extension to the western boundary in 2002 (Parks and Natural Areas, 1987).

The formation of bedrock in this area is such that it is relatively unaffected by erosion, thereby preserving the integrity of the reserve and its associated palaeontological collection (Catto, 2006).

No specific coastal management issues were raised for the Mistaken Point Ecological Reserve.

Mistaken Point Ecological Reserve **Courtesy of Parks and Natural Areas**

4.3.6 Witless Bay Ecological Reserve

Witless Bay Ecological Reserve includes four islands, Gull, Green, Great, and Pee Pee, which contain the largest number of breeding puffin pairs in North America. The islands were originally designated as a wildlife reserve in 1964. They became an ecological reserve in 1983.

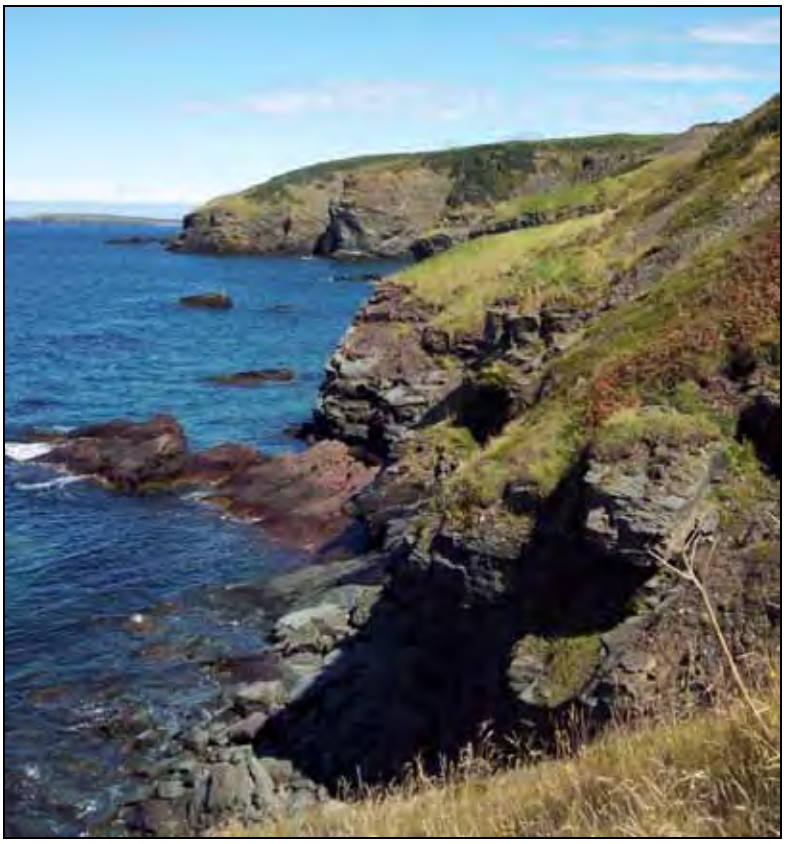
Witless Bay seabird Ecological Reserve, Witless Bay beach in particular, is adjacent to the community, highway and fishery-related traffic, thus making it somewhat more vulnerable to various sources of local pollution and debris (Catto, 2006).

Additionally, some consider the effects of speed, noise and visual appearance of tour boats and other marine vessels to be stressful to seabirds. It is necessary to ensure that the regulations governing boat operators are respected when conducting activity around seabird reserves so as not to disturb the birds.

More research is needed in the area to determine the morphological response of the beaches surrounding the reserve to sea level rise and storm wave activity, as well as to identify what best practices should be in relation to tour boats in the area of seabird reserves (Catto, 2006).

4.3.7 Fortune Head Ecological Reserve

The Fortune Head Ecological Reserve was established in 1992 to protect significant fossil assemblages, and has recently implemented a new interpretation center that greatly assists in the educational capacity for this area, however no coastal management issues were identified for this reserve.



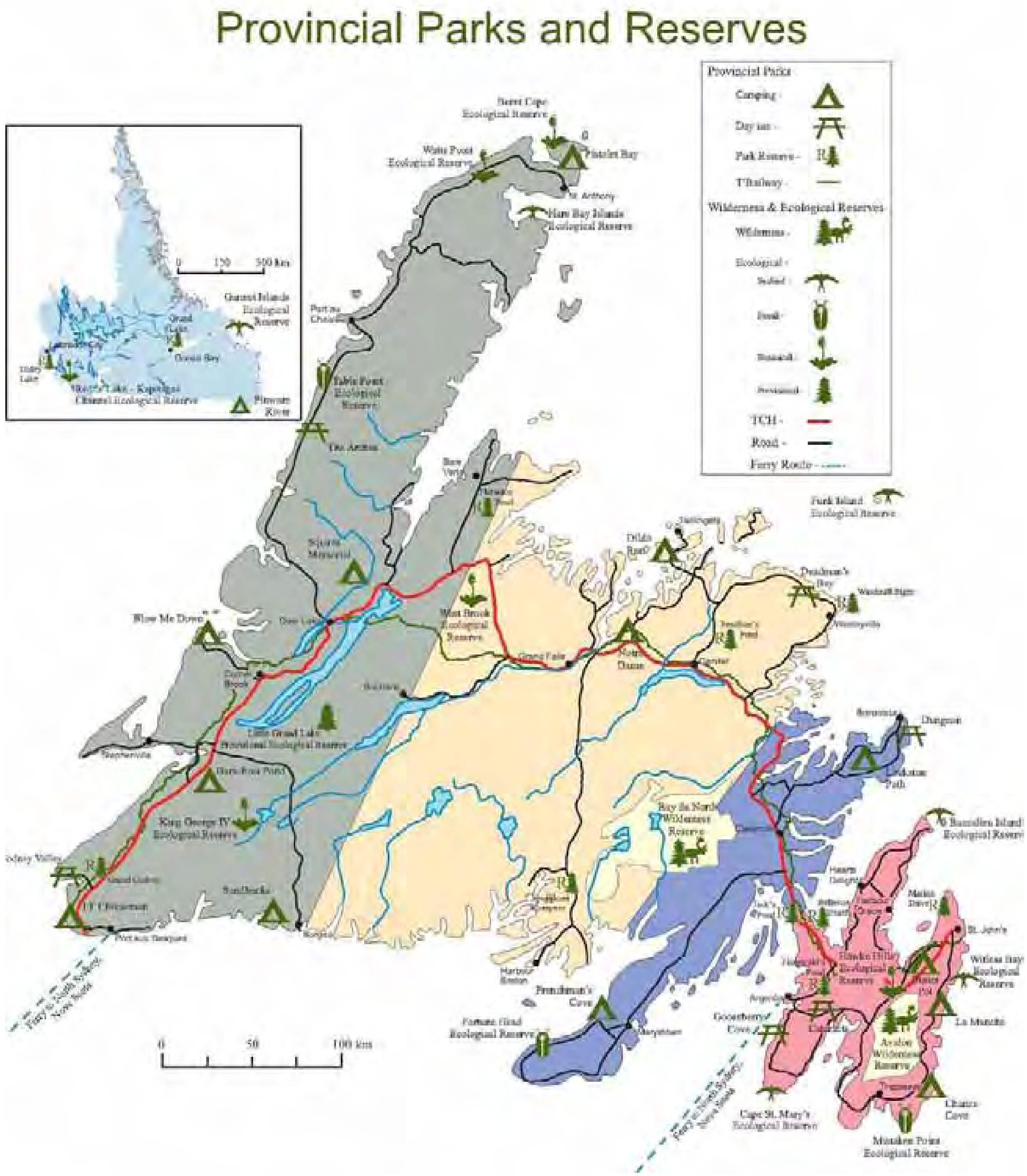
Fortune Head Ecological Reserve **Courtesy of Parks and Natural Areas**

4.4 PROVINCIAL PARKS – COASTAL AND OCEAN ISSUES

The Parks and Natural Areas Division of the Department of Environment and Conservation establish provincial parks to ensure the protection of unique natural history throughout Newfoundland and Labrador, while still allowing for human use and enjoyment.

The main distinction between reserve areas and provincial parks is that parks are generally smaller, and provide an array of services that allow people to enjoy a variety of outdoor activities such as hiking, camping, and boating. Conversely, wilderness and ecological reserves limit human activity. Provincial parks are governed under the *Provincial Parks Act.*

Section 4.4 discusses issues within provincial parks with coastal or ocean components that have been brought to attention by various park staff and local citizens.



Courtesy of Parks and Natural Areas

Figure 4: Provincial Parks and Reserves of Newfoundland and Labrador

4.4.1 Blow Me Down

Situated on a peninsula between Lark Harbour and York Harbour, magnificent views of the Blow Me Down mountains and the Bay of Islands make this park one of the most scenic locations to visit on the west coast. The Blow Me Down mountains show evidence of once being glaciated, as indicated by the presence of erratics and unweathered striated bedrock (Catto, 2006).

There is past evidence of avalanches in the Blow Me Down area and according to Catto (2006), current conditions are suitable for such events which poses a risk to some surrounding infrastructure. Highway 450 runs along the south side of the Humber Arm and has already experienced some slope failures, which have led to the disruption of some traffic.

The risk of flooding is pronounced in the Blow Me Down area, as well as the entire southern side of the Humber Arm, due to an increased level of precipitation. It is likely that if current climate change trends continue there will be enhanced risk for flooding here.

There have also been reports of salmon poaching occurring within the park, as well as within surrounding estuaries and at sea.

4.4.2 J.T. Cheeseman

Situated on the Cape Ray barrens, J.T. Cheeseman has a variety of natural features, ranging from bogs to rolling, forested hills, as well as tidal flats. Erosion of the sand dunes and beaches at J. T. Cheeseman Provincial Park is occurring due to both natural and anthropogenic causes (Catto, 2006). Rising sea level has made the littoral areas here more vulnerable to coastal erosion and storm surges.

The sand dunes and beaches in this area provide habitat to the threatened piping plover, however this habitat is continuously being diminished, as is the population of these shorebirds (Catto, 2006). Besides loss of habitat, climate variations could potentially affect the availability and diversity of food sources for the Piping plover. As well, increased refuse attracts seagulls which are predators of these smaller shorebird.

ATV and snowmobile activities are highly regulated and, in some cases, restricted by legislation in the park, however these activities as well as human and dog foot traffic are causing further degradation to the dunes and beaches.

4.4.3 Pistolet Bay

Pistolet Bay Provincial Park conserves a representative section of the Long Range Mountains on the coastline. The sediments and landforms there provide reliable evidence of elevated sea level (Catto, 2006). Seasonal ice pushes boulders landward, depending upon the tidal range at the time. Geomorphologists consider the unique landforms found within this park, such as ice shove ridges, to be some of the best-developed examples in the world.

Discussion with Provincial park managers did not identify issues within the Pistolet Bay Provincial Park. Further investigation may be required in order to identify particular concerns in this area.

4.4.4 The Arches

The Arches **Courtesy of Parks and Natural Areas**

The Arches is a day-use Provincial Park that preserves two sea arches, created by erosion. Erosion has caused the roofs to fracture, and eventually they may collapse to form sea stacks (Catto, 2006). As there have been no studies to date documenting current rates of erosion at The Arches, an information gap exists. The Parks and Natural Areas Division have suggested the need for a coastal planner to monitor the area.

4.4.5 Codroy Valley

Many waterfowl typically make use of the Codroy Valley Provincial Park, near the Long Range Mountains, due to its salt and freshwater marshes, deltaic systems and fringing and barrier beaches (Catto, 2006). As a day-use park, it is necessary to ensure that proper signage and other educational materials are prominent, as the cumulative effect of many short-term users over time could lead to a repetitive pattern of problems, such as littering and activities related to habitat destruction.

4.4.6 Grand Codroy

The Grand Codroy Provincial Park Reserve in the magnificent Codroy Valley has been named as a "Ramsar site", an international designation for identifying important wetlands areas worldwide. The river estuary is a part of the Eastern Habitat Joint Venture program of the North American Waterfowl Management Plan, which emphasizes the need to maintain nesting and staging grounds to support abundance and diversity of birds.

Threats to this area include future development and improper land-use practices, such as an abundance of cottages being constructed in the area. By erecting such structures, patterns of waterfowl use could be altered and siltation could become a problem, thus lowering the overall health of the estuary.

4.4.7 Pinware River (Labrador)

The Pinware River Provincial Park, opened in 1974, is named after 1,500 million year old black volcanic rock found in the area (Catto, 2006). Pinware Hill is one of the earliest Palaeo Indian archaeological sites in the province, dating back nearly 9,000 years (Parks and Natural Areas Division, n.d.[2]).

The Pinware River is an important salmon river, due to migration patterns of salmon, brook trout and eels. The park manager expressed a need for improved catch and release practices.

The Pinware River Valley is an area important for migratory birds and it has been reported that, early in the season, many waterfowl gather in the lagoon that marks the boundary of the park. Hunting of these birds occurs by boat and creates a safety issues for campers within the adjacent park.

A significant issue is enforcement capacity within the park. Concern was expressed regarding adequate training and equipment for enforcement personnel. The point was communicated that conservation officers perform their job well, but the capacity is simply not there for operational efficiency.

Coastal erosion is an issue within the Pinware River Park, and an estimate of thirty feet of shoreline has been lost in the last ten years in some sections, which may eventually lead to the loss of an important area termed the "fishing point."

There appears to be a lack of research performed in the Pinware River area, and suggested studies include fauna and flora inventories, as well as population studies for wildlife in the area.

4.4.8 Chance Cove

Chance Cove Provincial Park is located on the southeast Avalon Peninsula, and represents a beach classification common to most Southern Shore beaches in Newfoundland, which are

defined by reflective, high-energy gravel systems. Severe northeasterly storms have great impacts on the beach at Chance Cove (Catto, 2006).

Chance Cove **Courtesy of Parks and Natural Areas**

Storm overwashing, an impact typical of climate change, in Chance Cove Provincial Park is causing the landward migration of the barachoix lagoon in the area.

Poaching of species such as the Grey seal, Oldsquaw duck, scoters and many other seabirds is evident by the presence of shotgun shells and old nets in the area, and fines have been laid in the past.

Debris has been washing up on the shores of Chance Cove, however the exact source of this marine debris is unknown.

4.4.9 Frenchman's Cove

Frenchman's Cove Provincial Park, located on the west side of the Burin Peninsula, encompasses a large barachois, sand and mud flats, mixed forest, and tidal lagoons that provide habitat for many species of birds. A large section of the park has been leased for the establishment of a 9 hole golf course.

Poor land use practices in Frenchman's Cove Provincial Park have resulted in a decreased amount of sediment available to the beach system. Increasing development has left the area steeper and coarser, rendering it more susceptible to erosion during storms. It is anticipated that if unrestricted tourist activity continues, erosional effects will be greatly accentuated (Catto, 2006).

4.4.10 Sandbanks

The sand dunes and coastal features at the Sandbanks Provincial Park near Burgeo are similar to those at J. T. Cheeseman and are under similar stresses that cause erosion (Catto, 2006). Erosional forces are dominant in the areas of greatest anthropogenic disturbance, such as along footpaths and areas where beach fires have been lit.

Due to coastal erosion, an old cemetery within park boundaries has become threatened and remedial practices are being considered.

Sandbanks **Courtesy of Parks and Natural Areas**

It is suggested that an improved education and awareness program be developed, including features such as increased signage. These efforts would help inform people on the importance of the sand dunes, beach formations, vegetation, and organisms that help contribute to the stability of the coastal features. It is suggested that boardwalk facilities be expanded in the park to help prevent people from wandering over the sensitive dunes.

4.4.11 Deadman's Bay

Deadman's Bay Provincial Park is located on the northeast coast near Lumsden (Parks and Natural Areas Division, n.d.[3]). There is a beach of fine, white sand and the park provides an excellent area for viewing icebergs in early summer.

Erosion of the beach within Deadman's Bay Day-use Provincial Park has occurred in the past. Due to continued development of the tourism industry in the area, this issue is expected to become a growing concern in the future (Catto, 2006).

No other coastal issues have been brought to our attention regarding the Deadman's Bay Provincial Park.

4.4.12 Dungeon

The Dungeon day-use Provincial Park in Bonavista Bay exhibits a collapsed sea cave erosional feature that is connected to the Atlantic via tunnels. According to Catto (2006), the entire Bonavista Peninsula is subject to increased winds, thus making it conducive for increased rates of erosion and the eventual collapse of the cave roof. Long-term studies in the area would be useful to determine the rates of coastal erosion of bedrock features in the area.

4.4.13 Gooseberry Cove

The beach of fine pebbles, granules and a relatively small amount of sand at Gooseberry Cove, Placentia Bay, is known to experience periodic cycles of erosion and deposition on a yearly basis (Catto, 2006). With increased exposure to storm activity and decreased amounts of snow and ice cover, coupled with rising sea level, it is expected that all beaches within Placentia Bay, including the one at Gooseberry Cove, will shift towards a coarser, steeper, narrower beach profile over time.

Parks and Natural Areas, Newfoundland and Labrador (2006) refer to the fact that the waters at Gooseberry Cove are unsuitable for swimming due to the high degree of tidal and current activity. It is suggested that this restriction be more avidly displayed for park users.

4.4.14 Bellevue Beach

A long sand and beachrock bar in Bellevue Beach Provincial Park Reserve, Trinity Bay, separates the sea from a placid barachois. This area protects a beach complex, saltmarsh and habitat for migrating shorebirds and is a mix of gravel-and-sand flats. As the beach at Bellevue continues to be exposed to storm waves, the rate of erosion in the area will rise and result in a progressive weakening of the system, increasing its risk for damage (Catto, 2006).

Bellevue Beach has also been known to be an important capelin spawning beach. Since this area provides important habitat for both birds and fish species, it is necessary to ensure that sufficient protective measures are taken in order to preserve this sensitive environment.

No other coastal issues have been brought to our attention regarding the Bellevue Beach Provincial Park.

4.4.15 Jack's Pond

The heathlands in the region provide an area of high habitat diversity, as well as migration routes for the Canada lynx, black bear and coyote. There have been no coastal issues identified regarding the Jack's Pond Provincial Park in Placentia Bay.

4.4.16 Windmill Bight

Windmill Bight Provincial Park Reserve in Bonavista Bay park provides protection for a plateau bog and coastal dune landforms that are relict to Newfoundland, which will not regenerate naturally under present environmental conditions (Catto, 2006). It is also part of the eastern hypo-oceanic barrens eco-region, which is a rarity in the northeastern island portion of the province. The park's lagoon is also a feeding area for migratory seabirds.

Since the supply of sediment here is dependent upon sand flux from the Straight Shore coastline, both natural and human activities could have an impact upon beaches making them coarser, narrower and more vulnerable to erosion during storms. Heightened tourist usage of the beach results in disturbance of beach sand, which could eventually necessitate artificial beach nourishment, but so far this has not been needed.

There was a proposal submitted to the provincial government in 2001 for the development of a golf course within Windmill Bight Provincial Park Reserve. However, under the *Provincial Parks Act*, the course was not permitted since it exceeded the five-hectare limit for commercial development. In order for the proposed Windmill Bight golf course to have proceeded, the section of land would have to be removed from the park. Active opposition to this development from various organizations and members of the public assisted in maintaining protection of this area.

4.4.17 La Manche

The La Manche Provincial Park provides accommodations for camping, and also provides a range of activities such as swimming, hiking, bird watching, as well an interpretive program with natural history and special events components.

The community of La Manche was first established around 1840 as a fishing community and was known as one of the best fishing coves on the southern shore (Parks and Natural Areas, n.d.[4]). In 1966, there was a large storm that essentially wiped out all of the existing infrastructure, boats and houses in the area.

Today the La Manche area is occupied by cabins and the East Coast Trail Association has reconstructed a suspension bridge connecting north and south sections of the East Coast Trail. The old site of the community is an important area for tourism, as well as for showing the possible effects of poor coastal planning. Lessons from the disaster at La Manche should be taken into account when developing other rural coastal areas.

There have been no other specific issues raised for the La Manche Provincial Park.

4.4.18 Marine Drive

Marine drive Provincial Park Reserve contains Middle Cove Beach and Shoe Cove, just north of St. John's. Middle Cove beach is one of the most highly frequented beaches on the Avalon Peninsula, and therefore is subject to a steady flattening on the upper part of the beach during the tourist season (Catto, 2006).

Middle Cove beach is an important area for capelin spawning. It is possible that this activity could be hampered if storms cause the gradual steepening of the lower beachfront, thus curtailing a significant ecological and cultural activity in the area.

4.5 NATURAL AREAS SYSTEM PLAN: STUDY AREAS

The Province's Natural Areas System Plan (NASP) identifies future candidate protected areas within the province, primarily based on an eco-region approach. These reserves are to be established on the basis of preservation of a representative portion for each eco-region in the province. The boundaries of each reserve should be based on ecological criteria. Appendix E outlines potential candidate sites for protection within the GOSLIM and PB-GB LOMAs, as designated by the Parks and Natural Areas division of the Department of Environment and Conservation, as well as their associated eco-region and significance for protection (Parks and Natural Areas, 2005).

For candidate sites, potential issues and problems should be thoroughly assessed before further consideration of any official designation as a protected area. The need for management plans, as well the potential for more staff, was identified.

In new proposed protected sites, mining, agriculture, hydro developments or new construction would not be permitted. Existing cabins and traditional activities within the area would be permitted to remain as they are.

5 COASTAL MANAGEMENT AREA (CMA) – BAY OF ISLANDS

5.1 COASTAL MANAGEMENT IN THE BAY OF ISLANDS

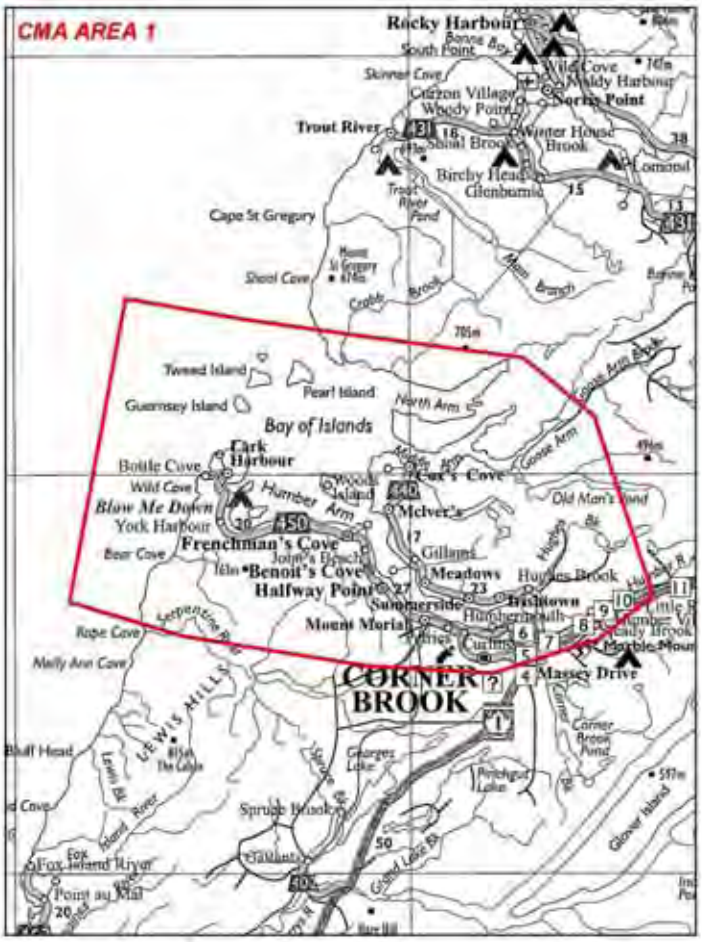


Figure 5: Coastal Management Area – Bay of Islands

5.1.1 History of Coastal Management in the Bay of Islands

The Bay of Islands Coastal Management Area comprises the Bay of Islands located on the west coast of Newfoundland and is contained within the Gulf of St. Lawrence (GOSLIM) LOMA. The area includes the contained islands and the Humber, North and Middle Arms, and receives outflow from the Humber River.

In the early 1990's, the Humber Arm Environmental Association Inc. was formed by a group of citizens concerned about high levels of marine pollution in the Bay of Island area. In 1991, this

group became incorporated with the Atlantic Coastal Action Program (ACAP), becoming the organization commonly known as ACAP Humber Arm.

When the group was initially formed, public consultations were held to identify particular issues and public concerns. From these sessions, a vision statement was developed, as well as goals and objectives. The ACAP Humber Arm vision statement was adopted:

> *" We see the communities around the Humber Arm as vibrant, economically sustainable centers. They surpass standards in air and water quality and are ecologically diverse with aquatic organisms and terrestrial wildlife. All occupations and industries are designed with minimal environmental impact in mind and all development decisions respect and uphold the integrity of the communities' natural surroundings."*

Since being formed, ACAP Humber Arm has embarked upon a number of coastal management reports and initiatives, including:

- Public Consultation Workshops – 1997/1998
- Coastal Resource Inventory and Mapping Project with DFO– 1997
- Comprehensive Management Plan for the Bay of Islands – 1997
- Coastal Matters: A Comprehensive Look at Coastal Management in the Humber Arm Estuary – 1999
- Integrated Management in the Coastal Zone: Identifying Coastal Issues, Conflicts and Opportunities in the Bay of Islands - 2000
- Nurturing a Vision for our Coast: An Integrated Management Plan for the Bay of Islands – 2004
- Development of a new management plan to address the principles of Canada's Oceans Strategy.
- State of the Knowledge On The Bay of Islands Marine Environment - 2005
- Poster Series to provide public education and outreach– 2006

DFO has partnered with ACAP Humber Arm on a number of coastal management initiatives since 1997, and more recently, ACAP Humber Arm has been contracted by DFO to perform Coastal Visioning Sessions, to supply background information and provoke thought on coastal management. These Visioning Sessions provide an opportunity for community stakeholders to voice their opinions on what direction they would like to see coastal management to strive towards.

5.1.2 Committee Membership

Committee structure includes executive, education and communications, and science and research sub-committees, of which only non-government members have voting capacity. In

2006, ACAP Humber Arm added members to its Board of Directors to involve a broader range of stakeholders throughout the Bay of Islands.

Board of Directors:

- Humber Economic Development Board
- Great Humber Joint Council
- College of the North Atlantic
- Corner Brook High School
- Western Newfoundland Model Forest
- Sir Wilfred Grenfell College
- Corner Brook Pulp and Paper
- Aquatic Centre for Research and Education
- Natural History Society
- Western School District & Bay of Islands Marina

Government Advisors:

- NL Dept of Environment & Conservation
- NL Dept of Fisheries & Aquaculture
- City of Corner Brook
- NL Dept of MUN Affairs
- Fisheries and Oceans Canada
- Environment Canada

5.2 ACTIVITIES IN THE BAY OF ISLANDS CMA

Traditional activities in the Bay of Islands region have been tied to the coast. People were originally attracted to the area because of a rich fishery base and ample forestry resources.

Fishing and fish processing continues to be one of the main activities in the Bay of Islands. Fish harvesting and processing in the area surround species such as lobster, crab, Atlantic herring, mackerel, capelin, Atlantic Cod and other groundfish. Most fishing activity takes place at the mouth of the Bay of Islands or outside the headlands, where it is then often processed at one of three fish plants within the bay (ACAP Environmental Association Inc., 2004).

Forestry has always been an important sector in the Bay of Islands region, due to the pulp and paper industry. The Corner Brook Pulp and Paper Mill was established in 1925 and remains one of the main employers in the Bay of Islands area, constituting a large portion of the economic base. The mill owns and operates private wharf facilities along the Corner Brook waterfront.

Other industries operating wharf facilities include a Lafarge gypsum plant, an Oceanex shipping facility, as well as several oil companies (Irving, Ultramar and Imperial Oil) which operate oil storage tanks. Cruise ship traffic has also been increasing, bringing many tourists to the Bay of Islands region, mostly between July and October.

Traditionally the Bay of Islands area, particularly the Humber River, has had a large recreational component, with activities such as boating, hunting, sport fishing, hiking, camping and snowmobiling taking place on a regular basis. In Corner Brook, the first marina that was

built in 1973 has since been upgraded and now provides space for 60 boats. The construction of a second marina in Summerside began in 2005.

Tourism in the area is expected to increase. People are becoming more interested in outdoor activities and ecotourism, and the Bay of Islands provides excellent opportunities to engage such activities. Cruise ship traffic has also been increasing, bringing many tourists to the Bay of Islands region, mostly between July and October.

In the recent past, increasing coastal development in the Bay of Islands has included the Humber Valley Resort developed along the Humber River, which prides itself on providing high quality accommodations and activities in a quiet, scenic natural setting.

5.3 COASTAL AND OCEAN ISSUES IN THE BAY OF ISLANDS

5.3.1 Aquaculture

While the potential for aquaculture exists in the Bay of Islands, it is not currently a major industry in the area. This is partially due to the poor water quality in the area, directly attributable to the release of raw sewage into the area. If sewage treatment becomes a reality in the future, water quality may improve to levels appropriate for aquaculture development.

The only aquaculture facility in the Bay of Islands specializes in blue mussel aquaculture and is located in Goose Arm, where the waters are mostly unaffected by pollution. Even so, this site is not currently in operation. There could be potential to develop other aquaculture sites in the Middle and North Arm, since water quality here is relatively untouched by sources of pollution.

5.3.2 Commercial Fisheries and Fish Processing

According to local residents, the lobster population in the Bay of Islands area is increasing, possibly due to warming of the waters. Even so, residents have expressed concern over the management of these stocks, and would like to see strict controls on quotas and harvesting techniques to ensure the maintenance of current stock levels.

Since 1993, there has been a ban on shellfish harvesting in the Humber Arm, as well as sections of Lark Harbour, York Harbour and Cox's Cove. The cause of this closure was unacceptable levels of bacteria and fecal coliforms found in the water column, as well as in the tissues of these organisms. Environment Canada (2005) explains that shellfish can accumulate pollutants in high concentrations from surrounding waters, even if they are a considerable distance away from pollution sources. There would be serious health risks associated with the ingestion of such shellfish. DFO has conducted water quality studies in the area and has since initiated some remedial work, thereby leading to some improvement in water quality in the area.

Residents and groups in the Bay of Islands have expressed concern regarding fish offal being dumped into the marine environment. In the past, untreated wastes from fish processing

facilities were simply discharged, untreated, into the surrounding marine environment. Efforts are being made to send fish-offal to fish meal and fertilizer companies in the region. There is also a designated fish offal dumping site in Goose Arm.

Alternatively, liquid waste from fish processing facilities is referred to as grey water, and is still released into the Humber Arm. Grey water can include freshwater, chemicals and disinfectants, high levels of organic materials as well as pathogens. These can potentially change the composition of the water and have impacts upon plants and organisms in the surrounding environment. Potential negative effects include algal blooms, offensive odours, localized areas of anoxia and acute toxicity.

The practice of 'refreshing' shellfish refers to the live holding of shellfish before processing, where a continuous flow of fresh seawater circulates through the tanks to preserve the quality of the product. If there is poor water quality near a plant, this could negatively impact the practice by increasing costs and reducing efficiency of the plant operation.

5.3.3 Marine Infrastructure

Cruise ship traffic has increased in the Bay of Islands area and concern was expressed over whether there is sufficient wharf infrastructure to support this expanding tourism sector.

It was pointed out that a majority of local citizens and tourists alike do not know what is available in terms of accessible wharves and slipways, which especially causes troubles when trying to partake in various recreational activities such as kayaking, diving and recreational boating.

ACAP Humber Arm has developed a map to help address this issue, which identifies the locations of particular recreation and tourism activities. This map was distributed to tourist chalets and community halls. It is recommended that information such as this continue to be developed and promoted to local interests as well.

5.3.4 Land-Based Infrastructure

Due to past washing out of roads and unstable land, it is recommended that water drainage patterns be seriously considered when constructing new road infrastructure.

Corner Brook operated originally on a system of combined storm and sanitary sewers, but over the last few decades the city's policy has been to separate these sewers. This process has mostly been on a case-by-case basis, when repair or reconstruction work was being done. The City of Corner Brook has begun to implement the first stage of a sewage treatment plan, which involves combining existing multiple sewage outfalls together into one, as well as installing screeners and diffusers as a basic level of treatment. In order for the water quality issue to be addressed properly, these infrastructure needs must be dealt with.

5.3.5 Land-use Planning

The municipal landfill site for Corner Brook in Wild Cove is used by the city, and the surrounding communities as well. Initially this was not intended to be a regional landfill site and is now close to reaching full capacity. It will be imperative to secure a new site for garbage disposal and also consider a regional approach to waste management.

As industrial and coastal development increases, residents are concerned that there may not be enough public access to the coastline. A variety of interviewees identified a lack of land-use planning within the Bay of Islands area, as a potential source of conflict. Several individuals suggested creating such a plan for the Bay of Islands region. More specifically residents would like to see certain areas locked in long-term for particular uses of the coastal zone, such as open spaces, residential development, traditional usage and public accessibility. The Crown of the Valley Development Corporation in Pasadena particularly identified the need for land-use planning in areas that are not incorporated within municipalities, as currently there are no guidelines to direct development in these areas.

5.3.6 Climate Change

As climate change becomes more evident, issues regarding storm surges and their associated damages will continue to develop.

An old section of the town of Lark Harbour, which is referred to as ‘Down Below’, is at sea level which causes some sections of the roads to become over washed during storm surges. It is questioned who will be responsible for repairing or replacing breakwaters and boardwalks in the area if they become damaged during storm events.

According to Catto (2006), the mean annual precipitation in the Corner Brook region has increased by 15% during the period 1944 – 2004. Increased precipitation is contributing to flood hazards, especially along the southern side of the Humber Arm (Catto, 2006). Directly related to land-use planning is the removal of vegetation that serves to stabilize the coastal land. If a land-use plan was created for the area, these sensitive areas could be identified and zoned for minimal development in order to maintain the integrity of the coastal area.

5.3.7 Tourism

Tourism in the Bay of Islands area is increasing, however some residents and groups feel that benefits are limited due to poor quality of the surrounding marine environment.

Several areas that have been closed in the past due to poor water quality have improved and could potentially be reopened. Public perception is vital, as residents would promote their communities more and engage in marine activities themselves if they were informed about improvements to marine environmental quality.

Interest was expressed in creating a fisheries interpretation center near Lark Harbour to promote awareness of traditional fishing practices.

Dewey (n. d.) recognizes that climate change may have an effect on various areas of industry, especially tourism and eco-tourism, by limiting access to natural areas, increasing the forest fire index, and impacting winter sports by causing more extreme weather patterns.

5.3.8 Integrated Management

ACAP Humber Arm, supported by Environment Canada (EC) and DFO, has been successful in involving a range of stakeholders in integrated management and community stewardship initiatives. In previous public consultations by ACAP Humber Arm, citizens were generally unaware of the concept of integrated management, but were supportive of its principles and processes once introduced to them (Penney, 2000). The need to promote and provide more education on integrated management to the general public was acknowledged. The need to strengthen the relationship and communications between fish harvesters and integrated management groups was also specifically identified.

The Mi'kmaq Alsumk Mowimsikik Koquey Association (MAMKA) (2006) indicated that there was difficulty recruiting community members to attend workshops and other information sessions regarding ocean management and that "participants feel that these initiatives have little importance in their daily lives." It was suggested that individuals need to be informed on how they are connected to the coastal zone, and how effects on the environment are directly attributable to peoples' attitudes and actions.

A challenge to advancing integrated management identified by ACAP Humber Arm is a lack of resources, including financial, data, mapping, software and human resources.

5.3.9 Community Sustainability

The need to further diversify businesses and industry in the Bay of Islands area was highlighted in meetings with various groups in the region. An area of potential development involves current exploration for oil and gas reserves in the region. There has been some seismic testing occurring within the waters, however it is felt that the residents do not have a understanding of this process.

A resident of Corner Brook brought attention to the fact that a considerable portion of fishermen in the area will be retiring within several years, thus making available a number of fishing licenses. It has been suggested that instead of licenses being returned to the government, residents would like to see licenses passed on to younger fish harvesters in the community, thus keeping the benefits within the community and potentially drawing individuals from younger generations back to the area.

5.3.10 Culture and Heritage

A cultural issue that was raised is the subject of complacency regarding marine pollution (ACAP Humber Arm, pers. comm.). Many people simply accept the fact that the surrounding marine environment is polluted from raw sewage, and believe that it to be inevitable. There was reference to working towards shifting social attitudes in a direction that fosters stewardship and promotes the idea of individuals participating in responsible coastal and marine resource use.

Woods Island is currently an area known as a significant place for recreational activities and summer cabins and, in the past, a large residential area on the west coast. Interest has been expressed in initiating a clean up of the island, complete with global positioning system (GPS) documentation of old roads, buildings, debris, as well as inventories of present flora and fauna. The resultant environmental and cultural profiles could provide information on the resettled area.

Due to rampant development in the recent years, housing prices on the coast are rising. Currently there is a freeze on development on Humber Valley riverfront property and local people feel as if they being 'shut-out' because they cannot afford the cost of living associated with these areas. Residents of small coastal communities are becoming unable to afford property and housing in their own communities, as interest of individuals from outside the province and country to purchase coastal housing in the region continues to grow. This can be considered a growing cultural issue within the region, and province as a whole.

5.3.11 Natural Areas

In addition to the parks and wilderness and ecological reserves previously discussed, the Humber River is a scheduled Salmon River under DFO regulations. The Salmonid Association of Eastern Newfoundland (SAEN) indicated that there have been reports of a significant level of poaching occurring on the river, and in particular within the associated estuaries and at sea. Concern involving the management of the area was expressed, in particular whether there is an adequate level of monitoring and enforcement on the Humber River (as well as other major rivers in the province). It was suggested that River Guardians hired by private security companies in the area should have appropriate training to properly address poaching issues.

It has been suggested that the Provincial Government take a more active role in monitoring salmon rivers and stocks, and also embark upon more initiatives to educate the public about salmonid biology and the effects of poaching (Nehemiah Pinsent, pers. comm.). A need has been expressed for more scientific research on salmon populations, in particular the need to identify and address the barriers to increasing the salmon population.

5.3.12 Marine Environmental Quality

The release of raw sewage has been an issue for the Bay of Islands for many years. Residents in the area feel that this complacency is no longer acceptable and that a treatment plant should be seen as an investment as opposed to an expense.

Corner Brook is currently one of the largest coastal communities in Canada without a plan in place to address the proper disposal of its sewage (ACAP Environmental Association Inc. 2006). Releasing untreated sewage effluent into the marine environment may lessen the value of coastal properties, poses health risks to people, animals and plants, can reduce the aesthetic value of the area and hamper further developments in other sectors.

The major source of sewage is from the municipal sector of Corner Brook, however waste from some adjacent towns also contributes to the problem. In total, thirty-two sewage outfalls are located within the Bay of Islands, discharging approximately 12.5 million litres of raw sewage in to the marine environment on a daily basis (ACAP Environmental Association Inc., 2004).

This release of raw sewage into the marine environment may be causing trouble for other sectors. The degraded water quality has deleterious effects on surrounding fisheries, to the point that imparting a shellfish ban in some areas was necessary. As well, certain swimming areas have had to be closed due to harmful levels of bacteria and fecal coliforms in the water and substrate. Recreational and tourism initiatives are potentially being hampered by poor marine quality.

Poor marine quality can impede success and progress of other marine-related activities, in particular those related to tourism and recreation. It has been suggested that there is a need for more research on the marine environment and constant monitoring of environmental quality indicators.

Currently, the main barrier to providing sewage treatment is considered the difficulty in developing funds and the cost of capital infrastructure for such initiatives.

A Canada-wide strategy for managing municipal wastewater effluent is being developed by the Canadian Council of Ministers of the Environment (CCME) in consultation with federal, provincial and municipal governments. This strategy will be submitted for approval in fall of 2007, and will apply to small, medium and large outfalls.

DFO has conducted a coastal survey and a water monitoring program in Lark Harbour and York Harbour to identify sources of bacterial contamination, which have contributed to the closures of some harbours in the area. Working together with ACAP, EC and the Canadian Food Inspection Agency (CFIA), some remedial work has been undertaken and as a result, the water quality in some areas has improved.

Marine debris is an ongoing issue and is continuously found in the waters and washed up on the shores within the Bay of Islands. Most of these items are sea-source marine debris, and includes items such as plastic gloves, bait bags, bottles and old fishing gear.

Prior to 1997, the Corner Brook Pulp and Paper Mill released its untreated industrial effluent into the Humber Arm, containing freshwater, suspended solids, nutrients and plant hormones. This has resulted in a loss of fish habitat, reduction in water clarity, increases in temperature and decreases in water salinity. At present this effluent is now pumped into a treatment plant that includes physical, chemical and biological breakdown and effluent is now discharged at levels well below the limits set by the Federal Government. Treating wastewater with primary and secondary methods removes organic material, reduces water toxicity and increases oxygen levels.

Build-up of bark and other organic materials accumulated from past activities (i.e.: floating logs down river) has created anoxic areas within the Humber Arm. According to ACAP Environmental Association Inc. (2005), the decomposition of this sludge on the bottom and the subsequent production of hydrogen sulphide and methane gas further deplete the dissolved oxygen level. The water layer above this fibre mat is a deep, stable layer with little mixing, therefore the oxygen supply is not replenished regularly. There has been speculation as to what would happen if attempts were made to remove this pile, however there have been no conclusive results, thus the build-up has remained as is.

The Government of Canada has developed a National Programme of Action for the Protection of the Marine Environment from Land-based Activities (Government of Canada, 2006). This provides an assessment of the state of Canada's coastal and marine environment and identifies management objectives, strategies and priority actions to be implemented. Initiatives such as these help to address environmental quality issues, such as ones currently being faced in the Bay of Islands.

5.4 DATA GAPS / CHALLENGES

Much of the research that has been completed in the Bay of Islands area has been related to water quality. Listed below are selected topics suggested as future research topics, many of which were identified in a gap analysis study performed by ACAP Humber Arm.

- Water circulation within the Bay of Islands
- Inventory of shoreline vegetation
- Biological overview and ecosystem profile studies
- Drainage basin and underground water flow patterns
- Fibre mat studies (area covered, removal options and study of the surrounding marine environment)

- Fecal coliform contamination in York Harbour and Lark Harbour
- Seabed mapping and integration of existing data in to geographic information systems (GIS)
- Update potential pollution sources inventory
- Sediment studies
- Social science research
- Identify sensitive areas
- Monitoring program at mouth of Humber River to determine effects of agricultural runoff
- Potential for aquaculture and more recreational opportunities

One of the main challenges that were identified is the lack of resources, in particular - funding sources.

Various sources have mentioned that there are difficulties getting various levels of government to work together. In order to effectively develop strategies for research and action, there is a need for increased vertical and horizontal integration within government departments, as well as between other organizations. Additionally, information sharing amongst research groups and research projects is not sufficient. In some cases, it is a matter of awareness; one group does not know what another is doing. In other cases however, companies do not release their findings to other groups. There should be more coordination regarding past, present and future studies, thereby facilitating efficient research by all sectors.

As identified in Table 5-1, the primary challenges to addressing coastal and ocean issues in this region may be considered to be water quality, land-use planning and coastal accessibility. These challenges can be regarded as possible priorities for action.

Table 5-1: Coastal and Ocean Management Challenges in the Bay of Islands

Aspects of Coastal and Ocean Management'	Challenges
Aquaculture	• Poor water quality/MEQ
Commercial Fisheries and Fish Processing	• Poor water quality/MEQ • Complacency of local residents (i.e. shellfish closure, poor water quality)
Marine Infrastructure	• Ability of existing infrastructure to support expansion of cruise ship industry
Land-Based Infrastructure	• Consideration of drainage patterns when building roads
Land-use Planning	• Inadequate coastal planning in some areas • Obtaining new landfill site • Lack of public access to coastline
Climate Change	• No plan to cope with climate change
Tourism	• Poor water quality • Mechanisms to inform tourists of publicly available marine infrastructure (i.e. slipways, etc.)
Integrated Management	• Lack of awareness and understanding with general public regarding ceoncept of integrated management • More resources needed (financial, human)
Community Sustainability	• Keeping fishing licenses within communities
Culture and Heritage	• Effect of water quality on traditional usages/activities, human health, and fisheries • Ability of local residents to afford property in small communities due to rising demand for coastal properties
Natural Areas	• More education on the effects of poaching needed for the general public and River Guardians
Marine Environmental Quality	• Poor water quality • Lack of development plan in Goose Arm (i.e. construction of cabins) • Undetermined effects of fibre mat on seabed • Need for more stringent regulations governing sewage disposal • Lack of financial support for sewage treatment facilities

5.5 PATH FORWARD

One of the main recommendations for a path forward for the Bay of Islands CMA is for groups to foster more efficient partnerships and collaborative arrangements with post-secondary institutions and other organizations for research. This will help to reduce any redundancy in study topics and will encourage groups with similar goals to work together.

ACAP Environmental Association Inc. (2004) has suggested that it would be beneficial to perform socio-economic studies on the impacts of wastewater pollution, such as a cost-benefits analysis of improving water quality.

It would be useful to develop a concrete set of baseline indicators with specific values for environmental sectors. Although some areas may already have defined indicators, these should be incorporated into a larger scheme for the entire Bay of Islands region. Jamieson et al (n. d.) describe how ecosystem objectives should be established at the LOMA level, whereas MEQ indicators should be developed at the CMA scale to provide scientific evaluation that ecosystem-based management is being achieved.

MAMKA (2006) suggests that more work be done to identify the roles of other species that play a key role in the marine ecosystem, versus placing focus on past commercially viable species. By having a greater understanding about the entire dynamic between all marine species, decisions regarding management will be more comprehensive and based on reliable ecosystem principles.

Research should also be completed on the potential of other alternative activities and industries in the Bay of Islands area. Diversifying marine and coastal uses would greatly contribute to sustainability in the area.

Education and outreach programs would foster information sharing and engage a broader range of stakeholders. Website development, stakeholder forums, public speakers and strategic planning sessions would support this goal.

6 COASTAL MANAGEMENT AREA (CMA) – GREAT NORTHERN PENINSULA

6.1 COASTAL MANAGEMENT ON THE GREAT NORTHERN PENINSULA

Figure 6: Coastal Management Area – Great Northern Peninsula

6.1.1 History of Coastal Management on the Great Northern Peninsula

The region of the Great Northern Peninsula, stretching from Cape St. Gregory to Cape Bauld, has been involved in coastal management since 2000. Coastal management of this area is currently directed by the Integrated Coastal Zone Management (ICZM) Steering Committee with administration provided by two Regional Economic Development Boards in the area: the Red Ochre Regional Economic Development Board (Zone 7) and the Nordic Economic

Development Board (Zone 6). DFO has provided guidance and support throughout these processes.

Since the initial work began in 2000, seven steps of the coastal planning process in this region have been completed. These seven steps include:

- Completion of the Community Based Resource Inventory (CCRI) – 2000
- Stakeholder/User Group Database – 2001
- Preliminary Consultation with Stakeholders – 2002
- Data Collection – 2003/2004
- Public Education and Consultation – 2004
- ICZM Action/Communications Plan - 2005
- Implementing the Pilot Projects – 2006

Red Ochre Regional Economic Development Board contracted Intervale Associates Inc. to lead the board through the completion of the seventh step of the planned integrated coastal zone management (ICZM) process in the region – implementing the pilot projects. The goals of this step were to:

> *"Heighten awareness of coastal planning in the region, to establish an overall willingness amongst stakeholders to participate in the pilot project planning process, to help clarify the sense of purpose of the meetings and workshops, and to promote a spirit of cooperation amongst stakeholders to move forward" (Intervale Associates Inc, 2006).*

These pilot projects involved two specific committees on the Great Northern Peninsula: the Cow Head Conservation and Heritage Committee and the St. John Bay 14B Lobster Protection Committee.

The Cow Head Conservation and Heritage Committee was established to preserve and present the special features of the community of Cow Head, as well as an area of the community known as 'the head.' Intervale worked with this committee to organize public meetings, obtain information on present resource use of Cow Head, facilitate a stakeholder workshop, as well as develop plans for future management initiatives (Intervale Associates Inc, 2006).

The St. John Bay 14B Lobster Protection Committee was formed in 2004 by fish harvesters in this area to allow a mechanism by which informed decisions could be made regarding the future of lobster stocks and management activities in the area. Intervale worked with this committee to organize a public meeting and planning workshop. They also made contact with representatives from DFO and Memorial University to identify ways in which the committee

could cooperate with these groups to complete research that way would add to the ability of the committee to meet their goals (Intervale Associates Inc, 2006).

The ICZM steering Committee is currently focused on further developing the two ICZM pilot projects, as well as implementing aspects of their communications plan to ensure greater understanding of ICZM and the committee throughout the Great Northern Peninsula.

6.1.2 ICZM Steering Committee Membership

- Red Ochre Regional Board Inc.
- Nordic Economic Development Corporation
- Department of Innovation, Trade & Rural Development
- 14B Lobster Protection Committee
- Community Representative, Zone 6
- Community Representative, Zone 7
- Fisher Representative, Zone 6
- Fisher Representative, Zone 7
- Cow Head Conservation & Heritage Committee
- Department of Fisheries & Aquaculture
- Parks Canada (Gros Morne National Park)
- Department of Fisheries and Oceans
- ICZM Coordinator

6.2 ACTIVITIES ON THE GREAT NORTHERN PENINSULA

The activities on the Great Northern Peninsula have historically focused on the commercial fishery and fish processing. Both industries continue to be the economic drivers in the area, however the closure of the groundfish industry in the early 1990's demanded a change in focus for the economy of the area. Following this closure, a diversification of the fishery on the Great Northern Peninsula occurred. Attention was also expressed for the need of a greater presence of industries such as tourism, eco-tourism, mineral exploration, and aquaculture.

Limited fishing of species such as lobster, shrimp, and snow crab still takes place on the Great Northern Peninsula, as well as fish processing in approximately 18 communities throughout the region (Fisheries Task Report, 2006). Aquaculture has also been considered in the region, however the physical conditions and geography of the area are not ideal for the development of aquaculture operations (e.g.: exposed coastline with little shelter, drift ice). The limited number of sheltered bays available in the area have been considered in the past for development of aquaculture operations, however no marine aquaculture sites are currently in operation.

Tourism has been further developed on the Great Northern Peninsula since closure of the ground fisheries. Considering the popularity of tourism in the Gros Morne region, the great opportunity to lure visitors to areas further north on the Northern Peninsula has not been over-looked.

6.3 COASTAL AND OCEAN ISSUES ON THE GREAT NORTHERN PENINSULA

6.3.1 Aquaculture

Compared to other regions of Newfoundland, the Great Northern Peninsula has less than ideal characteristics for aquaculture. An unsheltered coastline and drifting ice cover in the region during winter months can cause issues for equipment and operations. There has been interest in development of further land-based grow out hatcheries, due to good sources of groundwater to meet hatchery requirements.

6.3.2 Commercial Fisheries and Fish Processing

To address the issues associated with the commercial fisheries and fish processing on the Great Northern Peninsula, representatives from the Red Ochre Economic Development Board and the Nordic Economic Development Corporation established a Northern Peninsula Fisheries Task Force. The responsibilities of the group included examining the regional fishing sector to develop a set of recommendations for policy makers *"that will assist in the recovery of the fishing sector on the Great Northern Peninsula and maximize economic and social benefits"* (Fisheries Task Report, 2006).

While this report is seen as a working document, a final report was completed in January 2006, and presented to the Minister of Fisheries and the local Member of Parliament during a meeting in April 2006. The final report lists 37 specific issues, addressed by a total of 44 recommendations. These recommendations focus on a number of policy areas, including resource management, resource allocation, vessel licensing/replacement, processing capacity, market stability, quality enhancement, and fish price stability – to name a few (Fisheries Task Report, 2006). A follow up report to this piece of work will soon be completed.

The issues of transporting un-processed fish product out of the Great Northern Peninsula for further processing was raised several times. Interest was expressed in ensuring available opportunities for expansion of the processing sector. The idea of investing in secondary processing was expressed several times as a method by which the value of fish products could be increased.

Other fishery issues identified include a decrease in lobster populations in St. John Bay, a lack of science based data, and underutilization of traditional knowledge.

V-notching of lobster tails in St. John Bay has been on-going for some time with the long-term goal of re-establishing lobster populations to 1980s levels, however fish harvesters are eager to know if their efforts have been making a difference to overall population success. Committee members felt that greater research was needed to determine the success of v-notching efforts. Fish harvesters and researchers in the region have had a good working relationship and fish harvesters are eager to ensure further research is completed in the future.

The idea of the introduction of a protected area within St. John Bay has been suggested in the past and fish harvesters seem to be open to this idea, as long as it is not associated with a complete closure of the area.

While a community-based coastal resource inventory (CCRI) has been completed in the area, some fish harvesters still felt that the knowledge of local and older generations of fish harvesters was continuing to be under-utilized. The individuals acknowledged the need for science-based data, however they felt that more of an effort should be made to ensure the traditional knowledge was put to use so as to prevent a “loss of culture”.

6.3.3 Marine Infrastructure

Issues were raised several times concerning harbour infrastructure in the region. A long-term funding commitment for maintenance, repairs, and modernization of docking facilities in communities on the Great Northern Peninsula, such as Cow Head, Trout River, Sally’s Cove, Port-au-Choix, and Bird Cove, is required. Concerns were also raised surrounding Port-au-Choix and Bird Cove’s need for repairs to their docking facilities. Additionally, St. Barbe has witnessed multi-user conflicts in the past with respect to docking space for both the Labrador ferry and local fish harvesters.

6.3.4 Land-based Infrastructure

Attention was brought to the need for improvements to the current highway system on the Great Northern Peninsula for both tourism and transportation requirements. The completion of the Labrador Highway is predicted to cause an increase in traffic in the area, as it will then allow a continuous route through the Atlantic Provinces and Quebec.

It was suggested that safety and emergency response services be improved to meet current and future needs to ensure accidental events are managed properly.

There is also concern that increases in tourism will place increased pressure on infrastructure (e.g.: sewage treatment, waste management) to a level that cannot be supported by existing facilities (particularly near Gros Morne – Rocky Harbour).

6.3.5 Land-use Planning

The Limestone Barrens extend from Port-au-Choix National Historic Site in the south to Burnt Cape Ecological Reserve at the northern tip of the Peninsula, along approximately 300 km of the western edge of the Northern Peninsula. This area is home to 114 of the 271 rare vascular plants species on the island of Newfoundland, including several species holding threatened, endangered, or species of concern status (Limestone Barrens - Ours to Protect, n.d.).

Several land-use concerns have been raised in the Limestone Barrens areas of the Northern Peninsula. Current human activities that pose a threat to the limestone barrens include gravel removal, quarrying, the operation of ATV's and other vehicles, dumping/litter, and the drying of wood and fishnets. This is discussed in more detail in the Natural Areas section.

Other areas of the coastline with coastal dunes have been facing alteration due to human activities, such as ATV use. Considering the role of coastal dunes in maintaining the integrity of beach areas, it was suggested that importance should be placed limiting human activities that alter the stability of these types of coastline.

Attempts have been made in the past to protect the area known as 'the head' (Cow Head), due to its cultural and historical significance. The head is known for its historical fishing village, early settlers (such as Maritime Archaic, Groswater Paleo-Eskimo, and recent Indian), archaeological sites, and unique geology. Issues have been faced in the past due to land ownership. Desire was expressed for the area to be re-zoned by the municipality as a heritage site to protect the site from future development and also the need for the development of a management plan to aid in directing future efforts for the site. These concerns have raised the need for improved land-use planning in communities such as Cow Head.

6.3.6 Climate Change

Coastal erosion and storm surge issues have specifically been raised concerning areas near the communities of Daniel's Harbour, Trout River, Sally's Cove, Parson's Pond, and Raleigh. There has been a call for the need for highway improvements or possible relocation further inland, away from the edge of the coastline.

Considering the proximity of many homes and roads on the Northern Peninsula to the coastline, the issue has been raised calling for the need of hazardous coastal areas in the region to be mapped in detail. This work would ensure the identification of areas with vulnerable characteristics (e.g.: unstable similar soil types, high wave activity, and exposed coastline) to ensure focus is placed on high-risk areas where comparable events could potentially occur in the future.

The Department of Environment and Conservation has developed a Climate Change Action Plan for the province of Newfoundland and Labrador. This action plan provides a sectoral

analysis of this issue, as well as suggested actions to address climate change. It should be noted that this action plan provides specific actions related to coastal zone planning in the province: the government will implement long-term environmental monitoring and assessment of existing and potential aquaculture sites, as well an action stating that government will promote the consideration of climate change impacts in areas of the province that have initiated efforts towards Integrated Coastal Zone Planning (DEC, 2005).

6.3.7 Tourism

Much work has been done in the past number of years to increase the number of tourists visiting the Northern Peninsula, such as the development of an inventory of potential tourist attractions in the area by the Red Ochre Economic Development Board.

There has been interest in several communities along the coast of the Great Northern Peninsula, such as Parson's Pond, Woody Point, Cow Head and Norris Point, to further develop their marine-related tourism by encouraging the visitation of yachts and small cruise ships to the area. The Red Ochre Economic Development Board has also expressed an interest in developing cruise ship docking infrastructure and tourist friendly waterfront facilities (i.e.: waterfront bathroom facilities).

Some ICZM Steering Committee members expressed opinions concerning a lack of government support for these types of projects in the past (financial, administration). Committee members felt it was important to assess the feasibility of such developments in the region.

A decline in activity and membership of the Viking Trail Tourism Association in recent years has potentially had effects on the ability of the region to take advantage of tourism opportunities. When speaking to the Gros Morne Cooperative Association, it was identified that a new Destination Marketing Organization, which is marketing oriented, is currently being established to build upon past work completed by groups such as the Viking Trail Tourism Association. This group now has over 80 members in the region stretching from Port-aux-Basques to Southern Labrador to enhance the "Western Newfoundland Labrador Tourism Experience". Partnerships may be required to fill gaps in areas such as establishing business networks, product development, and collaboration between enterprises.

6.3.8 Integrated Management

While the coastal management initiatives undertaken by the ICZM Steering Committee in the past has been relatively successful in improving communication between various stakeholder groups, among other goals, several issues remain associated with coastal management in the region.

A lack of understanding exists amongst the general public regarding integrated coastal zone management. Past community meetings held by DFO have indicated a positive response to the concept, however many people felt that further education initiatives should take place to explain the goals and methods of successful integrated management.

It was also stated that an effective means of providing information and communicating to the public on the progress of the ICZM Steering Committee must be addressed in the near future. The committee is currently in the final stages in the development of a website, however concerns were raised regarding literacy rates in the area. People felt that alternative methods of communication were required in order to address this issue and to inform the large number of people in the area who do not have efficient computer skills.

It was felt that there is a lack of involvement from youth, as well as older generations. Several people suggested that future attention be placed on developing methods to attract youth of the Great Northern Peninsula to coastal management and inform them on the coastal issues currently facing their communities.

It was felt by some ICZM Steering Committee members that further progress of the integrated management initiatives in the province required additional commitment and personal endorsement by local politicians, such as MHAs, as well as high-level government employees in various provincial departments.

A Books for Boats program has been ongoing for a number of years in the area from Trout River to Port-au-Choix through funding provided by Atlantic Coastal Action Program (ACAP), the local Member of the House of Assembly, the Department of Fisheries and Oceans, and Memorial University. This program, adopted from the ACAP Humber Arm, promotes a hands-on learning approach of coastal issues in the area and allows an opportunity for Grade 9 science curriculum objectives to be achieved outside the classroom. There is a desire to expand this program north to include the entire Great Northern Peninsula, however concerns have been raised surrounding the securing of long-term funding sources for regions presently involved, as well as future expansion.

The Committee hopes to facilitate communication between groups that require research to be completed and the researchers and organizations with the ability to carry out such programs. Mechanisms must be in place to ensure the Committee is made aware of groups and organizations with the resources to do this research.

6.3.9 Community Sustainability

Since the collapse of the groundfish fishery in this region, there has been a significant decease in population, with many youth and young residents leaving the region to find work elsewhere. This out-migration has had a significant impact on the region, yet there is still much optimism

that the region can one day re-gain its sustainability to produce economically strong communities.

The Great Northern Peninsula, as part of the west coast of Newfoundland, has recently become part of a *proposed* study through the work of the Community–University Research for Recovery Alliance (CURRA). This proposed research hopes to involve Memorial University researchers from St. John's, Corner Brook, and Bonne Bay as well as a variety of community groups to support regional efforts to develop and implement a recovery strategy for the fishing industry and fish stocks in this region of the province. This research, if funded, will provide a collaborative, community-based, interdisciplinary method by which to help renew vulnerable communities and marine habitat in this province.

There have been efforts to diversify the economy in the area by shifting focus away from forestry, fishing, and mining to transportation and tourism. The economic development boards have also been promoting supplemental incomes sources such as the selling of berries (strawberry, partridge, raspberry), craft stores, and sheep rearing.

The Nordic Economic Development Corporation (2007) has developed a strategic plan based on identified areas that have the greatest potential to encourage economic growth on the Northern Peninsula. These areas include:

- Tourism, recreation and crafts
- New economy/IT
- Forestry, mining and agrifoods
- Fishery and aquaculture
- Human resources

6.3.10 Culture and Heritage

The Cow Head area was one of the two integrated management pilot project areas of the Northern Peninsula. A large effort over the past number of years has taken place in an effort to preserve the heritage of the area, which is known for its historical fishing village, early settlers (such as Maritime Archaic, Groswater Paleo-Eskimo, and recent Indian), archaeological sites, and unique geology.

The Cow Head Heritage and Conservation Committee have been trying to secure funding to promote and further develop the historical area known as 'the head'. When speaking with the committee, they expressed a need for signage, as well as educational and promotional materials for distribution, not only to tourists, but also to the residents of the community to build community awareness and engagement.

The committee expressed interest in completing surveys with cabin owners in the area, as well as developing ways to reach out to local residents that don't usually get involved in projects

such as this. An emphasis for future work will be on protection of the area, including fossils and artifacts, as well as encouraging the municipal development of by-laws to expand the level of protection provided for the area.

The Cow Head pilot project is still in a communications phase - an open house was held, however there was a very low turnout. More efficient methods must be developed to communicate to the community and increase their knowledge of the work being completed.

Emphasis was also placed on the need for funding to ensure small community museums are maintained, not only on the Northern Peninsula, but the province as a whole. Many consider these small museums of vital importance in ensuring the history and heritage of the community are maintained for the knowledge of future generations.

6.3.11 Natural Areas

The Limestone Barrens is a unique geological area of our province that supports a number of rare and endangered species of plants. In addition to human actions causing degradation of the flora and unique geology of the area, other issues surround the need for further development of the stewardship program in the area, increased education initiatives and additional partnerships with other organizations and academia.

Since 2001, a committee consisting of representatives from Memorial University, the Legacy Nature Trust, and various Federal and Provincial departments has been working towards the implementation of a stewardship program, restoration and conservation of the area, and educating the general public regarding how their activities can have direct effects on the sensitive flora in the region.

Ecological reserves in this CMA, Burnt Cape Ecological Reserve and Table Point Ecological Reserve, are discussed in detail in Section 4.3.1 and 4.3.2 respectively.

6.3.12 Marine Environmental Quality

Sewage is a concern with regards to the marine environmental quality in the area. Due to significant number of communities continuing to release their untreated sewage into the coastal marine environment of the Great Northern Peninsula, the water quality in the area may be compromised. Several fish harvesters, during consultations, raised a concern regarding potential effects of increased volumes of untreated sewage on lobster populations in the area, specifically within the St. John Bay area.

While the provincial government regulates sewage discharge, municipalities may implement sewage by-laws that would ensure restriction on the types and amounts of particular substances released in their local sewage system. Many small communities have not implemented these types of regulations to govern sewage disposal. Additionally, communities

without treatment facilities often do not have the finances to support start-up costs, maintenance or operations of these systems.

The level of effect that this marine environmental quality issue will have on the tourism industry in the area in not known, however there seems to be a general consensus that sources of pollution must be eliminated in order to allow the expansion of other industries, such as tourism.

6.4 DATA GAPS / CHALLENGES

During our consultations, the Red Ochre Economic Development Board and ICZM Steering Committee members raised a number of areas they felt contained information gaps. It was felt that further research should be conducted on the demographics of the area as well as research covering social aspects, such as what features should be focused on to maintain sustainable communities and businesses.

By predicting the changes in demographics for the area, it was also felt that the effects of changing demographics on local businesses, communities, and schools, could be investigated. It was also brought to our attention that further work could be conducted to determine what opportunities exist for the aquaculture industry, as well as other industries, in the region.

Long-term plans must be completed to confirm the coastal management governance model for the Northern Peninsula to ensure that clear roles and responsibilities are set forth for all parties involved.

Issues with engaging individuals within older generations was identified as a challenge. Literacy rates of older generations in the region was identified as a possible reason for this.

Challenges also face small-scale projects, such as the Cow Head integrated management pilot project, due to financial difficulties and the resultant strain and increased pressure on available volunteers.

As identified in Table 6-1, the primary challenges to addressing coastal and ocean issues in this region may be considered to be highway infrastructure, funding for integrated management initiatives, and rural sustainability. These challenges can be regarded as possible priorities for action.

Table 6-1: Coastal and Ocean Management Challenges on the Great Northern Peninsula

Aspects of Coastal and Ocean Management	Challenges
Aquaculture	• Research to determine opportunities
Commercial Fisheries and Fish Processing	• Fisheries policy concerns (as outlined in the Fisheries Task Report) • Research into potential of secondary processing in area
Marine Infrastructure	• Improvements of some marine infrastructure needed
Land-Based Infrastructure	• Condition of provincial highway • Access to emergency services (i.e.: chemical spill response) by communities
Land-use Planning	• Inadequate coastal land-use planning in some communities
Climate Change	• No plan to cope with climate change (ie: erosion issues)
Tourism	• Perceived lack of government support for marine-based tourism initiatives in area
Integrated Management	• Lack of awareness/understanding regarding integrated management with general public • Lack of involvement of youth in coastal planning • More resources needed (human, financial) • Need to make use of various mediums of communication (i.e.: presentations, radio, paper)
Community Sustainability	• Out migration of coastal communities (rural sustainability) • Lack of economic diversification
Culture/ Heritage	• More resources needed (financial, human)
Natural Areas	• Further stewardship initiatives for Limestone Barrens • More education needed for residents on effects of activities on Limestone Barrens
Marine Environmental Quality	• Impacts of sewage on marine environmental quality • Need for more stringent regulations governing sewage disposal • Lack of financial support for sewage treatment facilities

6.5 PATH FORWARD

At present time, the main focus of the ICZM Steering Committee is on the further development of the integrated management pilot projects initiated in 2006. These projects will be used as a method by which to provide tangible deliverables to the residents of the Great Northern Peninsula to show progress that has been made by the IM process. Concerns were also raised over the need for a management plan for the community of Cow Head to ensure public education on the history of the area is promoted and some level of awareness is raised.

The Steering Committee felt that a greater level of collaboration was required between communities in the region, and other groups, such as Memorial University, all levels of government, and non-governmental organizations. The committee also emphasized the desire to work more closely with Western Newfoundland and Southern Labrador groups to promote sharing of perspectives on coastal management, as well as 'best practices' experiences on past efforts.

The ICZM Steering Committee stressed that integrated management is not an expensive initiative for a region to take part in, and that the basic requirement to sustain integrated management on the Great Northern Peninsula is to ensure funding is made available annually for an ICZM Coordinator. They felt that this level of funding would allow leverage to obtain other sources of funding.

7 COASTAL MANAGEMENT AREA (CMA) – BAY ST. GEORGE/ PORT-AU-PORT PENINSULA

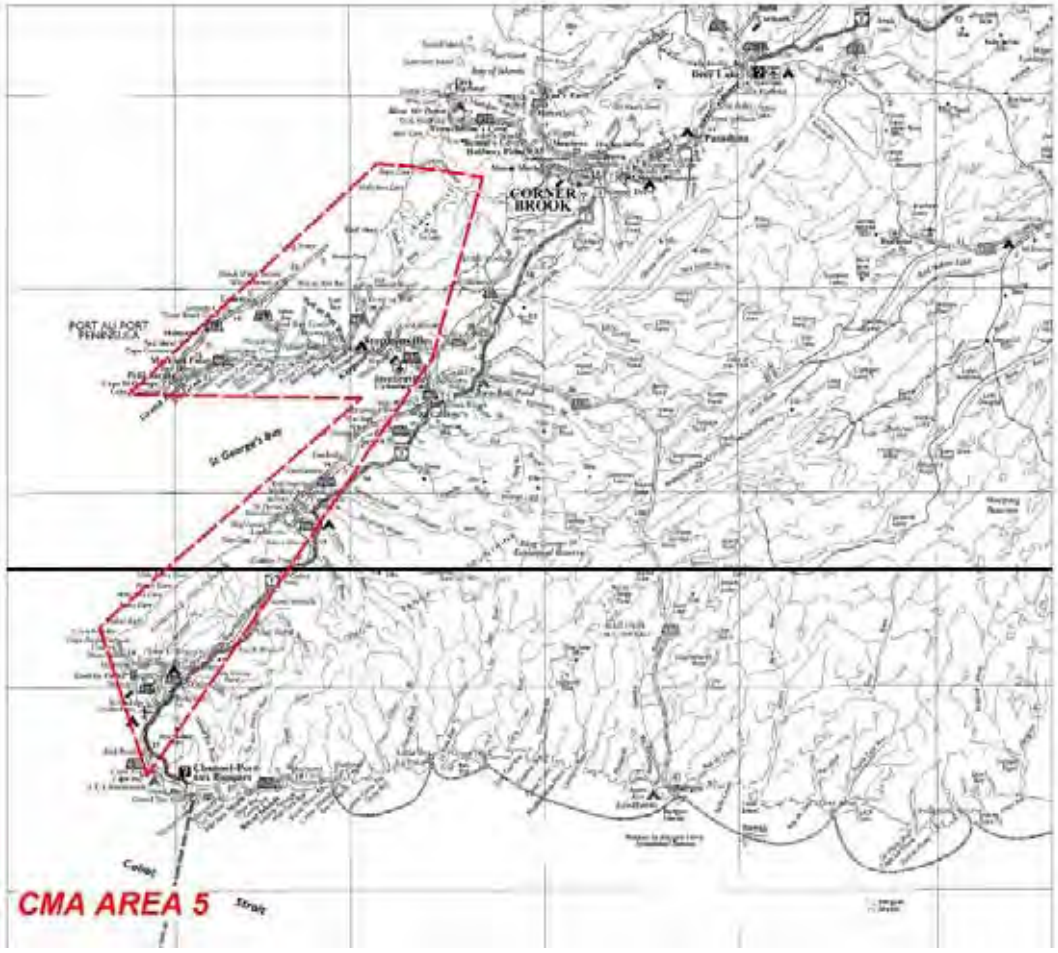


Figure 7: Coastal Management Area - Bay St. George/Port-au-Port Peninsula

7.1 HISTORY OF COASTAL MANAGEMENT IN BAY ST. GEORGE/ PORT-AU-PORT PENINSULA

The Bay St. George/Port-au-Port Peninsula CMA extends from Cape Ray in the south to Serpentine River in the north. A Steering Committee was established in 2006 and have prepared a draft Terms of Reference document that outlines their mission statement, mandate, committee membership and guidelines for conducting steering committee meetings.

Traditional activities within the Bay St. George/ Port-au-Port Peninsula CMA consist of fisheries and forestry activities, however recently there has been a shift towards focusing on other

industries for potential growth, such as tourism, eco-tourism, mineral exploration, mining, oil and gas exploration and aquaculture. There have been indications that there is a renewed interest and awareness among residents in the area of the social, cultural and spiritual value of the coastal waters.

The area of Stephenville Crossing is a rich estuary that supports a variety of waterfowl, and has been identified as an Eastern Habitat Joint Venture (EHJV) site by The North American Waterfowl Management Plan (NAWMP). This designation has been widely supported by residents in the region, and municipal stewardship to protect the wetland habitat in the area has been effective. Signage, educational and interpretive programming, as well as a strong emphasis on conservation within the entire town have created a sense of ownership and pride in local residents (Intervale Associates Inc., 2003).

There have been issues identified within this CMA, which include concerns over oil and gas development, as well as pollution from industrial waste disposal. Residents would like to see the potential for tourism and other non-traditional uses of the coastline to be further developed in the area. The Coastal Planning Committee is currently conducting a series of strategic planning sessions to develop list of priorities and determine a comprehensive inventory of stakeholders in the region.

Note that the Bay St. George/Port-au-Port Peninsula CMA was established after initial discussions for this project began and is therefore not included in this scope of work.

8 COASTAL MANAGEMENT AREA (CMA) – COAST OF BAYS

8.1 COASTAL MANAGEMENT IN THE COAST OF BAYS

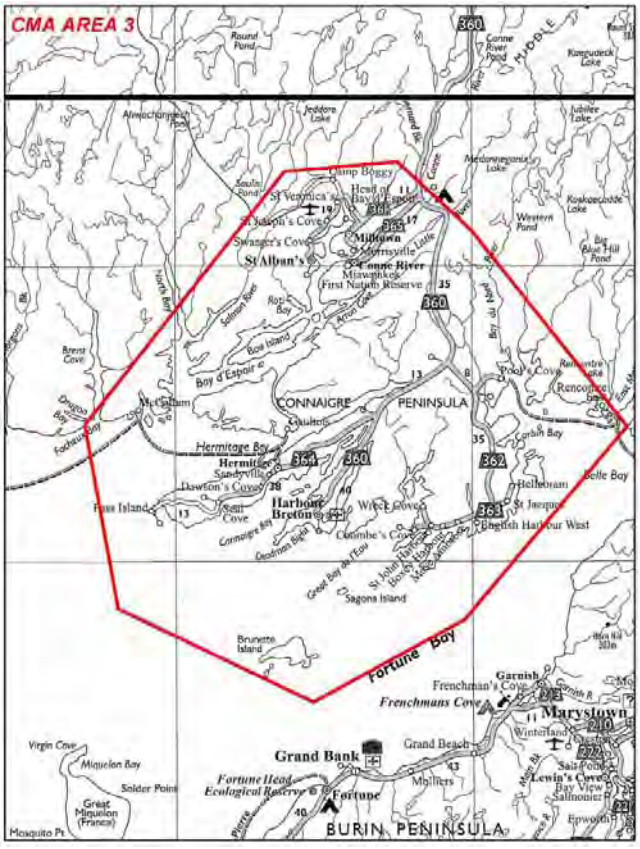


Figure 8: Coastal Management Area – Coast of Bays

8.1.1 History of Coastal Management in the Coast of Bays

The Coast of Bays Region encompasses a geographic area that extends from McCallum in the west to Rencontre East in Fortune Bay. A Coast of Bays Coastal Planning Committee has been in place since 2005, managing 22 communities and over 1,356 kilometres of coastline (CWR Consulting, 2004). The Coast of Bays zone has been geographically broken down into three sub regions: Fortune Bay North Shore, Connaigre Peninsula and the Bay d'Espoir Region.

Through collaboration with communities and stakeholders, the Coastal Planning Committee promotes and coordinates an integrated relationship amongst all sectors to encourage and

support harmonious, productive and sustainable coastal areas (Coast of Bays Corporation, 2006).

The Coast of Bays Corporation (COBC), with support from the federal Department of Fisheries and Oceans (DFO) and the provincial Department of Fisheries and Aquaculture (DFA) started preliminary projects in the region since 1998 to catalogue the biological and physical characteristics of the coastal area; to inform community stakeholders of the coastal planning initiative; to build community support; to continually include stakeholders in the planning process; and to establish the Coast of Bays Coastal Planning Committee. A survey was conducted throughout the communities between September 23 to October 24, 2002, to investigate the interest and need for a coastal planning committee in the region (Industry Support Services Inc, 2002). It was determined that a planning committee should be formed.

In 2004, the COBC hired CWR Consulting to develop a document entitled 'Moving Forward, A Strategy for Developing Coastal Zone Management Plan for the Coast of Bays Region of Newfoundland and Labrador'. Additionally, an Integrated Management Plan for the area is currently being drafted.

The Federation of Newfoundland Indians (FNI) and the Miawpikek First Nation (MFN), of the Conne River Band Council, have come together under the protocols of the Aboriginal Aquatic Resources & Oceans Management (AAROM) program to form the Mi'kmaq Alsumk Mowimsikik Koqoey Association (MAMKA). The goal of MAMKA is to represent the communities of the FNI and MFN in multi-stakeholder and other advisory and decision-making processes used for aquatic resources and oceans management (MAMKA, 2007). Currently MAMKA and the Coastal Planning Committee do work with each other, however a representative of MAMKA felt that the two groups could accomplish more by working more closely together.

8.1.2 Committee Membership

The Coastal Planning Committee is comprised of ten individuals and several ex-officio members representing various stakeholder groups.

Stakeholder:

- Coast of Bays Corporation
- Municipalities
- Harbour Authorities
- FFAW (Inshore fish harvesters)
- Recreational Boaters
- Fishery Committees
- Conne River Band Council
- Newfoundland Salmonid Growers Association
- FFAW (Plant Worker)
- Coast of Bays Tourism

Ex-Officio*:*

- Department of Fisheries and Oceans
- Department of Fisheries and Aquaculture
- Atlantic Canada Opportunities Agency
- Tourism, Culture and Recreation
- Department of Environment and Conservation
- Newfoundland Aquaculture Industry Association
- Crown Lands
- Department of Transportation and Works

8.2 ACTIVITIES IN THE COAST OF BAYS

The waters of the Coast of Bays Region were traditionally used for the fishery and transportation. A commercial cod fishery in 3PS remains open and economically important to the region (CWR Consulting, 2004). The region is also diversifying into other sectors including aquaculture, fish processing, hydroelectric production, forestry, agriculture, and recreation and tourism.

8.3 COASTAL AND OCEAN ISSUES IN THE COAST OF BAYS

8.3.1 Aquaculture

Aquaculture in the Coast of Bays region began in the mid-1980's and focuses on four main species: Atlantic salmon, steelhead trout, Atlantic Cod and blue mussels. The region is well suited for aquaculture operations, both cage and suspended gear culture, due to its sheltered bays, inlets and freshwater lakes. This region offers some of the warmest surface temperatures in coastal Newfoundland (DFO, n.d.).

Newfoundland and Labrador's farmed salmon production is predicted to triple over the next three years, creating over 200 new full-time year-round jobs plus additional indirect jobs on the south-coast of Newfoundland and Labrador. Investments include $4.5 million from DFO, $6 million from ACOA, $10 million from DFA and $135 million from Cooke Aquaculture Inc., an independent salmon farming company based in New Brunswick. Cooke Aquaculture will enter three million smolts (young salmon) annually into the new farms on the south coast of NL, generating an annual production of approximately 17.8 thousand whole fish equivalent metric tonnes worth approximately $86.5 million (Government of Newfoundland and Labrador, 2006).

It was suggested that a speedier environmental assessment process may facilitate further investments. A company must go through at least twelve government departments prior to receiving approval. The provincial government seems very supportive of the industry and the process seems more structured, however the federal process has been slower in their response to proposed projects. There should be more coordination between the provincial and federal environmental assessment processes to ensure timely and efficient decision-making.

Concern has been expressed regarding the ability of road infrastructure, waste management infrastructure, and existing support industries to support the growing aquaculture industry.

After discussions with a number of groups in the region, it became clear that some conflict between fish harvesters and aquaculture does exist within the communities. Some fish harvesters in these communities, such as Belleoram, feel that they have not been consulted enough with respect to the placement of aquaculture facilitates in Fortune Bay. Lobster fish

harvesters are also concerned with the loss of access to fishing grounds. There is potential for fishing gear becoming caught in aquaculture gear (mooring systems, etc).

There seems to be support for the aquaculture industry as long as it is done in an environmental friendly way, however concern exists on the effects on the wild population in the Coast of Bays Region could be further studied.

The Conne River Band council also feel that the aquaculture industry must continue to consult the Band and that the Band continues to be involved in the licensing process. Some Band Council Members feel that the aquaculture industry is impacting traditional use of the area, creating competition for space and polluting the beaches (Mi'kmaq Alsumk Mowimsikik Koqoey Association, 2006).

Some residents also felt that there is a need for more aquaculture fish processing plants in the region. There is also an issue with the feed storage facilities on wharves, as it attracts seagulls and rodents. There should be suitable feed storage on the wharves to avoid this problem.

Concerns exist surrounding the levels of sea lice near aquaculture facilities. While it is not known if this is an issue in the area, it was suggested that steps be taken to address residents' concerns on this matter. The Provincial Government may consider researching the concentrations of sea lice near aquaculture sites.

8.3.2 Commercial Fisheries and Fish Processing

The fishery has traditionally been at the center of the Coast of Bays economy. In spite of the recent decline in some fish stocks, the commercial fishery continues to be a principal economic activity in many communities throughout the area. (DFO, n.d.).

During discussions with a fisher in the area, issues were raised regarding the availability of the labour force in Hermitage. There appears to be a shortage of workers for the fish plant due to the older than average age of residents in the communities, the number of jobs created with the aquaculture industry and the number of young people leaving the communities for employment. The Hermitage fish plant is currently changing to process salmon and trout.

Fish harvesters in the Coast of Bays region have concerns regarding the expansion of the aquaculture industry. Fish harvesters are concerned about the location of aquaculture sites, loss of lobster fishing grounds and loss of fishing gear. They feel that more consultation is required in determining the placement of aquaculture farms and the potential effects of aquaculture on wild fish populations in the Coast of Bays should be further researched.

Fish harvesters have raised the question of whether compensation would be rewarded in these situations. Some fish harvesters feel that there are safety concerns surrounding the mooring systems of aquaculture sites, they feel that there should be a better beacon system in some areas. Concerns have also been raised about past mussel farms that have abandoned

equipment and gear in the bay causing a potential navigational hazard, some fish harvesters are concerned about this happening again in the future.

8.3.3 Marine Infrastructure

Within many communities in the Coast of Bays Region, sharing marine infrastructure among many users is a growing concern. In several communities the wharves are small and are servicing several industries at once, including fishery, aquaculture, tourism and recreation. After discussions with individuals in the Coast of Bays Region it became clear that they feel that improvements need to be made to the current marine infrastructure in the area.

Concerns have also been raised by the aquaculture industry in the area regarding the ability of the wharves in the region to serve many industries, which include an increasing aquaculture industry, fish harvesters and recreational users. In Belleoram, for example, the wharf is used by fish harvesters, aquaculturists and recreational users. There is a general consensus that existing wharf space cannot support existing and emerging industries. Aquaculture operators expressed concerns that the current and future overcrowding of wharves pose safety and efficiency concerns for the users.

The following is a list of wharves and the industries that share them within the region.

Table 8-1: Wharves and Users in the Coast of Bays Region

Community Wharf	Users
Pool's Cove	• Intra-provincial ferry service, • Local fish harvesters, • Recreational users, and • Aquaculture industry.
Belleoram	• Local fish harvesters, • Aquaculture boats, and • Recreational users
Wreck Cove	• Traditional fish harvesters, • Little room for recreational users, • No aquaculture, however if there were there would be no available wharfage.
Hermitage	• Intra-provincial ferry service, • Local fish harvesters, • Recreational users, and • Aquaculture industry.
Harbour Breton	• Traditional fish harvesters, • Little room for recreational users, • No aquaculture, however if there were there would be no available wharfage.
McCallum	• Intra-provincial ferry service (from Hermitage wharf), • Fish harvesters, • Aquaculture, and recreational.
Milltown	• Recreational boaster, and • Aquaculture.
St. Alban's	• Several different aquaculture companies, • Little space available for recreational boaters, and • Regional delivery of salt occurs at this wharf each fall.

(AquaNeuve Solutions Inc., November 2005.

Provincial ferries currently operated from two of the wharves, Pool's Cove and Hermitage, which raises additional problems for the users. These ferry services are offered by the Department of Transportation and Works and offer passenger/freight services only (AquaNeuve Solutions Inc., November 2005).

The Conne River Band Council feels that their harbour infrastructure is unsuitable to support their commercial fishing fleet. They are currently in the process of constructing a new small craft harbour, which they are hoping to have complete in two to three years. This is a joint venture between DFO, Conne River and the Department of Indian and Northern Affairs.

8.3.4 Land-Based Infrastructure

Issues have been raised regarding road infrastructure. With an increase in aquaculture production there is a need for increased transport of feed, equipment and smolt to the facility and waste from the facility. The roads in this region will likely have to be improved to support this increase in heavy traffic. Improvements to road infrastructure are required for a number of reasons including access to wharf by transport trucks, handling the additional transportation requirements for the aquaculture industry and increased tourism in the area.

Waste management is also becoming a growing concern for the aquaculture industry. There is an increase in plastic bags, boxes, etc., which places pressure on existing dump facilities. Having a compactor in the region may decrease some demands on these facilities by making the shipping out of recyclables feasible. Aquaculture operators are also concerned about the management of silage/dead fish and feel there may be a business opportunity for someone to produce liquid fertilizer.

Feed storage has caused an increase in the number of rodents and seagulls on the wharves. It is felt that there should be better feed storage infrastructure in place in the region. It was also suggested that the environmental effects of biofouling and chemical spraying of feed should be researched.

There are three municipal dumps in the region: McCallum, Harbour Breton, and St. Jacques. Yet, due to their vicinity to the coast there are leaching concerns with each.

There appears to be an opportunity for support industries to be established in the Coast of Bays Region. Opportunities exist in a number of areas, including machine shops, welding shops, machine supply shops, fiberglass services and diving services. This is currently an issue as there are limited businesses in the area providing these services, making it difficult to support planned aquaculture expansion.

8.3.5 Land-use Planning

After discussions with groups in the Coast of Bays Region it was determined that there are residential and industrial zoning concerns in the area. Considering predicted growth in the aquaculture industry, it is felt that this issue must be dealt with immediately.

Many of the communities in the region have issues with waterfront access due to road infrastructure and available waterfront space. Many of the roads leading to wharves are narrow and access by transport trucks is limited, as is evident in Pool's Cove and Belleoram.

8.3.6 Climate Change

According to Catto et al, 2003, Hermitage, Morrisville and St. Alban's were rated as having a 'high' vulnerability level for coastal erosion. Classifications of 'high' vulnerability depends on many factors including pervasive jointing, evidence of frost action, peat, macrotidal ranges (4.1

to 6.0 m), erosion rates of –0.6 to –1.0 meter per year, and one year maximum wave heights between 6.0 to 6.9 meters, among other factors.

It should be noted that a representative from the Conne River Band Council felt that the tides are higher than they have been in the past and they feel that the effects of global warming on coastal erosion for the Coast of Bays Region should be further researched.

8.3.7 Tourism

The tourism industry for the Coast of Bays Region is a work in progress. The Coast of Bays is an ideal location for aquatic adventure due to its small bays, inlets, coves and waterways. Tourists can enjoy sailing, scuba diving, whale watching and bird observation. Fortune Bay has a large bald eagle colony and Hermitage is known for whales. The Region offers nature trails for hiking, the Bay du Nord Wilderness Reserve and many licensed rivers and brooks where anglers can catch an Atlantic salmon or trout (The Coaster, n.d.).

There are many annual festivals in the Coast of Bay Regions including:

- Powwow, Conne River,
- Tradition by the Sea, Harbour Breton,
- Iron Skull Festival, Belleoram,
- South Coast Arts Festival, Hermitage-Sandyville, and
- Red Head Rock Concert (The Coaster, n.d.).

To attract more tourists to the area, the general view from groups in this region is that there must be improvements to the highway and municipal roads. The development of waterfront tourist facilities and the improvement of port development in the region will encourage marine-related tourism, such as yachts and small cruise ships visiting the region. In attempts to deal with the issue of low tourism in the area, the Coast of Bays Arts and Exploration Centre has been constructed.

8.3.8 Integrated Management

An aspect of integrated management is the need for transparency within all levels of management. Specifically, there was a call for DFA and DEC to allow coastal management reports, such as this report, to be open for public access.

It has been recommended that more information be supplied to residents on research that has previously been completed on the effects of aquaculture on wildlife fish stocks.

Residents suggested that a clause be included in the licensing agreements of aquaculture operations that they must hold annual consultations with stakeholders in the area (throughout initial stages and operations).

8.3.9 Community Sustainability

By approaching rural sustainability using the principles of integrated management, it can be ensured that an effective and collaborative plan will be developed for the future of these regions.

Fishery Products International closed the Harbour Breton fish plant in 2004, claiming it could no longer afford to operate the plant at a loss, leaving approximately 350 workers without jobs (CBC News, 2006). It is suggested that small communities develop contingency plans to allow survival of their community when a collapse of a key industry occurs.

It was suggested there is a need for further economic diversification in the Coast of Bays region. The area should not depend solely on one industry (i.e. aquaculture) for its survival. There should be a range of active industries within small towns to help them survive and grow in the future. As previously mentioned, there is a demand for support industries and further investigation could identify areas of gaps.

8.3.10 Culture and Heritage

In attempts to deal with the issue of low tourism in the area, the Coast of Bays Arts and Exploration Centre has been constructed. The Coast of Bays Arts and Exploration Centre will introduce visitors to the culture and heritage of the region. The facility has a cultural exhibit explaining experiences of the travelers to the region. There is also a theatre at the centre where one can view a video on the Coast of Bays Region, there is a demonstration area allowing visitors to participate in carving, rug hooking or lobster pot making. There is a craft store and art gallery to display and retail local works and there are climate-controlled archives for the storage of important historical documents so they can be preserved for future generations (The Coaster, n.d.).

The Sunny Cottage Heritage Centre, which is located in Harbour Breton is the former residence of a local merchant and is set up as a museum with artifacts displayed. The St. Lawrence Anglican Church is located in Belleoram, which has historical significance to the spiritual and economic past of the area. A fund has been established to raise money to restore the church to its former beauty, to aid with funding issues. It is hoped that former residents of Belleoram and friends of the church will contribute to the restoration fund (The Coaster, n.d.). The J. Petite & Sons' Museum has artifacts reflecting the age of the traditional schooner fishery on the Grand Bank's and outport lifestyle (Coast of Bays Corporation, n.d.).

Recreational fishing in Newfoundland and Labrador is a popular pastime for residents and visitors of the Coast of Bays region. There are eight scheduled salmon rivers and a number of non-scheduled inland waters within the region (DFO, n.d.).

As part of the Aboriginal Fisheries Strategy that was launched by DFO in 1992, the Miawpukek First Nation can maintain access to fish species managed under the federal jurisdiction for food, social and ceremonial purposes (DFO, n.d.).

8.3.11 Natural Areas

The Jipujij'kuei Kuesspem (Little River) Natural Park, near Conne River, provides an opportunity to learn about the Mi'kmaq culture. A variety of activities are available at the park, including hiking, canoeing and kayaking (The Coaster, n.d.). There is a trailway along the waters of Little River Pond that leads to a traditional Mi'kmaq village that is being reconstructed.

It has been suggested that the Little River Estuary be classed as an area of concern due to its intact biodiversity and importance to the aboriginal community as a traditional harvest and recreation area (Mi'kmaq Alsumk Mowimsikik Koqoey Association, 2006). According to area residents, there have been incidences of non-compliance in which dragging for scallops have occurred (Mi'kmaq Alsumk Mowimsikik Koqoey Association, 2006).

8.3.12 Marine Environmental Quality

The growth of the aquaculture industry in this region has raised environmental quality concerns with many individuals. Cumulative impacts of organic waste from raw sewage, increased fish plant effluent, offal dumping, and aquaculture waste may impact environmental quality if not properly managed.

Good water quality is required to sustain the aquaculture industry as well as the fishing industry. The provincial government is currently working with Fisheries and Oceans Canada and industry to develop proactive strategies to protect water quality in the Coast of Bays, including development of Best Management Practices for fish processing plants.

Concerns were also raised about municipal dumps being within close proximity to the coast, due to leachate concerns.

Marine debris is another issue that was raised in the region, however it was pointed out that there have been improvements through educating of residents in the region. According to the report on the Conne River Oceans Management Information Session for the Aboriginal People in Newfoundland, the Newfoundland Salmonid Growers Association (NSGA) has developed a program to handle shoreline clean-up.

Suggestions have been made to monitor and document how much of the marine debris on the beaches in the region actually comes from recreational users, commercial fish harvesters or aquaculture, as they feel polluters should be held responsible for their actions (Mi'kmaq Alsumk Mowimsikik Koqoey Association, 2006). This can also be used as an indication on which stakeholders groups should be targeted for further marine debris education.

The report on the Conne River Oceans Management Information Session for the Aboriginal People in Newfoundland also raised concern about potential impacts of Newfoundland and Labrador Hydro's operations on marine species. MFN has expressed concern over potential accumulation of mercury levels in marine sediment within the Bay D'Espoir estuary. Further, they feel it should be clearly stated who is responsible for testing and determining the effects of such potential impacts (Mi'kmaq Alsumk Mowimsikik Koqoey Association, 2006).

Impacts of historic sawmill waste (sawdust/bark) also contribute to localized degradation of water/sediment quality in Coast of Bays. A detailed assessment of the Barasway in St. Albans was conducted for Fisheries and Oceans Canada in 2006. This site is impacted by three historic sawmills, and was found to be in the early stages of eutrophication, leading to the production of foul odours resulting from the production of hydrogen sulphide gas during the warm summer months. There is anecdotal evidence that numerous other sites in the area are impacted by historic sawmill waste (DFO, pers. comm.).

Concerns with the effects of untreated sewage on the marine environment have been raised in the region. There are currently two communities within the Coast of Bays region that have sewage treatment, St. Alban's and Conne River. It is felt that the smaller communities in the region would not be able to afford to install or maintain a sewage treatment facility.

The Canada-wide strategy for management of municipal effluents will also require monitoring of small municipal sewage outfalls. Priority should perhaps be given to this area, given its sensitivity with regards to the levels of aquaculture development. Many communities in Coast of Bays have a significant number of private sewage outfalls. DFO has collected map locations of many of these private outfalls. According to DFO, eleven areas within Coast of Bays/Fortune Bay are currently closed due to bacterial contamination.

8.4 DATA GAPS / CHALLENGES

Groups in the Coast of Bays region suggested that further research be completed on:

- The region's cod, lobster and herring fisheries;
- An explanation as to why salmon do not seem to be returning to Conne River;
- The potential impacts of aquaculture operations, including:
    - Impacts of fish feces on the marine environment,
    - Effects of feed collecting on the seafloor,
    - Effects on wild fish stocks in the region.
- An evaluation of the effects of the aquaculture industry on waste management;
- Identifying the potential for leaching to occur from municipal dumps within close proximity to the coast.

There is currently a moderate understanding of integrated management within governmental departments associated with coastal and ocean activities. It has been suggested that efforts be taken to educate government employees on the concepts and benefits of integrated coastal and ocean management.

The wharves within the Coast of Bays region are small and serve several industries at once including, fishery, aquaculture, tourism and recreation. This creates many challenges within the region and residents indicated that efforts should be made to find a solution to this issue.

The Table 8-2 summarizes the challenges of coastal and ocean management within the Coast of Bays Region. Overall, the main challenges to addressing coastal and ocean issues in this region were associated with waste management, infrastructure, and competition for wharf access.

Table 8-2: Coastal and Ocean Management Challenges in the Coast of Bays

Aspects of Coastal and Ocean Management	Challenges
Aquaculture	• Time required for Environmental Assessment approval • Need for aquaculture fish processing facilities in the region
Commercial Fisheries and Fish Processing	• Labour shortage • Functioning fish plants • Consultation regarding location of aquaculture operations
Marine Infrastructure	• Wharf access and available wharf space
Land-Based Infrastructure	• Condition of provincial highway and municipal roads • Waste management (including vicinity of municipal dumps to the coast) • Shortage of support services/industries
Land-use Planning	• Inadequate land use planning for some communities • Waterfront access
Climate Change	• No plan to cope with climate change
Tourism	• Condition of provincial highway and municipal roads • Wharf access
Integrated Management	• Need for transparency within all levels of Govt. and management • Lack of awareness/understanding within the general public regarding Integrated Management • Need for combined efforts from all stakeholders
Community Sustainability	• Rural sustainability • Community contingency plan • Lack of economic diversification
Culture/ Heritage	• Need for more financial support • Lack of resources (financial, human)
Natural Areas	• Monitoring of Little River estuary (regarding commercial scallop fishery) • Consideration of Little River estuary as an area of concern (traditional use area)
Marine Environmental Quality	• Effects of aquaculture industry on MEQ • Vicinity of municipal dumps to the coast • More education needed on effects of marine debris • Potential impacts of NL Hydro's facilities (eg: mercury) • Untreated municipal sewage (lack of financial support, need for stringent regulations governing sewage disposal)

8.5 PATH FORWARD

It is felt that concern surrounding the aquaculture industry warrants more intensive consultations between community residents, fish harvesters and the aquaculture industry. These consultations may focus on the combined efforts for selection of potential sites for aquaculture operations to help avoid possible loss of fishing grounds.

Efforts should be made to improve public awareness of aquaculture within the region (further work to be done by the aquaculture awareness committee – Newfoundland Salmonid Growers Association). DFA also offers a loan guarantee program for the start-up of aquaculture facilities, however only one company has been approved to date; an evaluation of this program may be required.

Future research on the potential impacts of Newfoundland and Labrador Hydro's operations on marine species (i.e.: toxins such as mercury) may be required. Testing may be conducted on fish and marine sediment to determine the potential presence of mercury accumulation.

Currently MAMKA and the Coastal Planning Committee do work with each other, however a representative of MAMKA felt that the two groups could accomplish more by working more closely together.

9 COASTAL MANAGEMENT AREA (CMA) – PLACENTIA BAY

9.1 COASTAL MANAGEMENT IN PLACENTIA BAY

Figure 9: Coastal Management Area – Placentia Bay

9.1.1 History of Coastal Management in Placentia Bay

A Public Review on Tanker Safety and Marine Spills Response Capability, commonly known as the Brander-Smith Report (1990), was developed in response to growing concern regarding protection of the marine environment from the bulk movement of oil and chemicals in Canadian waters. One of the major findings released in this report including the identification of Eastern Canada, particularly Newfoundland, to have the highest risk for a spill in Canada. The report goes on to include a statement that many consider Placentia Bay to be the marine body of water in which a major spill is most likely.

In 1996, Petro-Canada submitted an application to the Canada-Newfoundland and Labrador Offshore Petroleum Board (CNLOPB) to develop petroleum resources in the offshore Terra Nova oil field. An environmental assessment panel was developed to review application documents and conduct public hearings after which a report was submitted. The report contained 75 recommendations for the CNLOPB and both the Federal and Provincial governments, one of which discussed the need for the establishment of a coastal management plan for the Avalon Peninsula and the west side of Placentia Bay.

Considering the results of both the Brander-Smith report and the panel review recommendations for Petro-Canada's development of the Terra Nova offshore oil field, guidance was provided by DFO to develop an integrated management committee within Placentia Bay.

Ocean technology, multi-sector use of marine space, and associated issues remain as key reasons why integrated management has been established in this area.

Prior to the formation of the Interim Placentia Bay Integrated Management Planning Committee, a community survey led by DFO took place throughout Placentia Bay (from Point May in the west to Point Lance in the east) between December 2003 and January 2004. The results of this survey indicated that many people were interested in improving the current management system for the Bay.

As a result of this survey, DFO held a workshop in Arnold's Cove in March of 2004 to discuss a report compiled from the survey and to begin initial talks on the potential formation of a committee and the possible stakeholder categories that would have representation on the committee.

Following the workshop, an Interim Integrated Management Planning Committee was formed, initiated by the Department of Fisheries and Oceans (DFO) as well as the Provincial Department of Environment and Conservation (DEC). The priorities for this interim committee were to adopt a mandate and terms of reference, as well as to set priorities and develop a work plan.

Since this stage, meetings have been held throughout 2005 to 2007. These meetings have covered a variety of topics, and many speakers with interests in Placentia Bay have requested to attend to inform the Committee of their activities– ranging from industry to government departments.

9.1.2 Committee Membership

Stakeholder:

- Aquaculture
- Business Organizations
- Regional Economic Development Boards
- Fish Harvesters
- Fish Processors
- Municipal Government
- Mining Industry
- Oil Industry
- Education and Research
- Ship Building and Repair
- Tourism and Recreation
- Regional Advisory Committee for Coast Guard (RAC)/ Placentia Bay Traffic Committee
- Harbour Authorities

Ex-Officio :

- Fisheries and Oceans Canada
- Department of Fisheries and Aquaculture
- Department of Environment and Conservation

9.2 ACTIVITIES IN PLACENTIA BAY

In the past, Placentia Bay has historically been used for fishing and transportation. While fishing and fish processing are still active industries within the Bay, the scope of industries has expanded in recent years to include a number of other industries and activities.

Currently, there is an oil refinery in Come By Chance operated by North Atlantic Refining Limited (NARL), the Marystown Shipyard and Cow Head Fabrication Facility operated by Kiewit Offshore Services (KOS), the Newfoundland Transshipment Terminal located at Whiffen Head, and a inter-provincial passenger ferry terminal in Argentia. There are also a number of inactive, decommissioned sites around the Bay; a phosphorus plant in Long Harbour, a naval base in Argentia, and mining sites in the St. Lawrence area.

Fishing remains to be a significant industry throughout Placentia Bay, with fish harvesters fishing species such as cod, lobster, lumpfish, scallop and crab for example. Fish processing also remains to be an active industry with 11 fish processing plants licensed and operating throughout the Bay. Of these 11 fish processing plants, eight are primary processing plants and one is a secondary processing plant, which process groundfish, pelagics, and snow crab. Two in-province retail plants, processing primarily groundfish restricted to be sold within the

province, are also found within Placentia Bay. These fish plants employ approximately 1,200 people in 2006 (DFA, pers. comm.).

There are a number of aquaculture sites located within the Bay, with the majority located on the western side of the Bay and near the islands located near the north end of the Bay.

Tourism has become increasingly important to the area and several groups, such as the Heritage Run Tourism Association (HRTA), have taken on initiatives to promote the culture and heritage of the region. One such project has involved the creation of several 'interpretive viewparks' that depict cultural, natural and geological history of the area. In the future, the group hopes to further promote tourism and the culture of the region by developing a hiking trail guidebook, as well as birding and geology guidebooks.

There are a number of proposed projects for Placentia Bay currently in the environmental assessment stage. The Newfoundland and Labrador Refining Corporation (NLRC) has proposed the construction of a 300,000 barrel per day refinery at Southern Head, near the community of Come by Chance. Newfoundland Liquefied Natural Gas (NLNG) has proposed the construction of a liquefied natural gas transshipment terminal at Grassy Point, near Arnold's Cove. Voisey's Bay Nickel Company (VBNC), a subsidiary company of INCO, has also registered for environmental assessment for the construction of a nickel processing plant in Long Harbour, Placentia Bay. They currently have a demonstration hydromet nickel processing facility in place in Argentia.

9.3 COASTAL AND OCEAN ISSUES IN PLACENTIA BAY

9.3.1 Aquaculture

The Placentia Bay region of Newfoundland and Labrador is seen as an area of potential for aquaculture expansion with the province. The bay's ice-free conditions and sheltered bays make excellent conditions for future aquaculture developments of several different species. Interest in aquaculture with the Bay has persisted for a number of years, and the western side of Placentia Bay is being targeted for a number of potential sites in the coming years.

A number of issues currently exist that stand as potential hurdles to the expansion of this industry within the region. For example, aquaculture operators have stated concern with the time required for completion of the regulatory application process.

The Centre for Aquaculture and Seafood Development and the Fisheries and Marine Institute of Memorial University of Newfoundland has conducted an Assessment of Western Placentia Bay for Seasonal and Year Round Marine Finfish Cage Culture Sites. This work has ensured the identification of adequate aquaculture sites within western Placentia Bay.

A challenge of the aquaculture industry is a deficiency within the service and supply sector. There is currently a potential for service and supply companies to both establish or expand within Placentia Bay. Opportunities exist in a range of areas, including welding and fabrication of nets and rope supplies.

It should be noted that past abandonment of mussel aquaculture sites have caused some level of concern within the fishing community. This lack of action has caused navigational hazards and concern continues to linger.

Several proposed large-scale industrial projects within Placentia Bay are perceived as potential concerns by the aquaculture industry. The risk of an oil spill is a concern for individuals involved in the aquaculture industry. When speaking to representatives of groups such as the Newfoundland Aquaculture Industry Association (NAIA), they felt that perhaps an environmental performance bond be put in place by the industries within Placentia Bay to ensure that if an incident did occur, the funds would be in place for clean up and compensation.

The introduction of invasive species in Placentia Bay causes much concern for the aquaculture industry. Recently, two sites within the Bay (Arnold's Cove and Long Harbour) have confirmed the presence of the *introduced* species Golden Star Tunicate. When speaking to NAIA regarding this situation, they stated that the aquaculture industry in Newfoundland and Labrador is concerned with current invasive species and species that may become invasive in the future. They stated that they are actively pursuing a plan to deal with invasive species, however the Golden Star Tunicate is not yet considered *invasive* - as it is not currently negatively affecting the industry.

This situation has highlighted the need for more effective monitoring and planning with regards to introduced and invasive species to ensure control of the spread of species such as these. There is also a need for governmental departments to work more closely with the aquaculture industry to determine a plan on how situations such as these should be approached in the future.

9.3.2 Commercial Fisheries and Fish Processing

A continuing topic of significant concern to the fish harvesters of Placentia Bay is the emergency response capabilities existing for Placentia Bay. Many questions surround the existing equipment currently stock-piled for use if an oil spill incident were to occur. Concerns surround whether current equipment is sufficient to control an oil spill of significant volume, and if the current equipment available for use in Placentia Bay is appropriate for use in the harsh weather conditions often found within the Bay.

In some regions, fishermen have received training on the deployment and operations of oil spill response equipment. By maintaining this store of individuals that are prepared to assist in spill response, the rate of response to emergency events is improved.

There is a perception through the Bay that spill response equipment stored by both the Eastern Canada Response Corporation (ECRC) and the Canadian Coast Guard is not adequate. The Placentia Bay Integrated Management Planning Committee has taken the position that there is a need for oil spill response equipment to be stored within Placentia Bay.

A new oil refinery has been proposed by Newfoundland and Labrador Refining Company (NLRC) on the Southern Head region of the bay, near Come-By-Chance. Concerns have been raised regarding the potential for an oil spill within the Bay due to increased tanker traffic. Should an incident ever occur, contamination, marine environmental quality, and occupational health and safety issues would result.

There are two additional proposed large-scale industrial projects currently in the environmental assessment stage within Placentia Bay: a liquefied natural gas transshipment terminal on Grassy Point near Come By Chance, as well as a nickel processing plant in Long Harbour. These proposed projects have further raised the concerns surrounding vessel traffic within the Bay.

In discussions with fish harvesters, the issue of the effects of increased vessel traffic on the livelihoods of fish harvesters within the Bay often came up. The level of vessel traffic within the Bay may potentially increase by approximately 400 tankers a year for the new proposed refinery (NLRC, 2006), up to 400 vessels a year for the proposed liquefied natural gas transshipment terminal (NLNG, 2006), as well as regularly scheduled vessel transports for the proposed nickel processing plant (VBNC Ltd, 2006).

This issue may be considered a competition for marine space within the Bay, particularly within the designated shipping lanes. It should also be noted that LNG carriers would likely require exclusion zones surrounding the vessels while in transit and at berth. The magnitude of the exclusion zones will be decided upon by Transport Canada at a future time (NLNG, 2006).

Considering the significant number of days with reduced visibility in the Bay and that much of the ideal crab fishing grounds are located within the deep water shipping lanes of the Bay, there are concerns by fish harvesters of the level of safety for small fishing vessels in the Bay. Several fish harvesters have allegedly been in “close-call” situations with tankers in recent years, however only one such incident has been investigated by Transport Canada due to possible infraction of the Collision Regulations of Canada’s Shipping Act (Captain C. Murphy, pers. comm.).

Much focus have been placed on the loss of fishing grounds within the shipping lanes of Placentia Bay. Attention has also been brought to the fact that fishing grounds near the marine facilities of proposed projects will also be lost.

To deal with issues such as these, several committees have been established in the past. Groups such as the Placentia Bay Traffic Committee, the Placentia Bay Integrated

Management Planning Committee, and Transport Canada's Regional Advisory Committee for Oil Spill Response have provided a forum for information exchange and aided in the addressing of relevant issues within Placentia Bay.

A series of Fisheries Roundtable discussions have also been held by the Schooner Regional Development Corporation (2007) to determine the concerns of fish harvesters in the area. Issues facing the herring fishery included the present depletion of stocks, while concerns surrounding the cod fishery focused on quotas and pricing. The recent increase in the number of lobster licenses per community being issued was also brought forward as a concern, as well as the potential impacts of seismic work on crab in the Laurentian Channel.

Concerns were also brought forward regarding the present grading system in place, the cost of ensuring monitors are in place at landing sites, mechanisms to deal with infrastructure at ports without harbour authorities, as well as possible interaction with the oil and gas industry with regards to vessel traffic and potential loss of fishing grounds.

9.3.3 Marine Infrastructure

After speaking to a number of groups, it became obvious that many people considered the current wharfage and marine infrastructure inadequate to meet the needs of the growing aquaculture industry. There are public wharves in many towns, such as Arnold's Cove, Long Harbour and Garden Cove, to name a few, that are used by fish harvesters and recreational users.

Concerns have also been raised over the issue of some wharves being used for both the aquaculture and fishing industry. This mix of activities occurring from the same area of wharf allows for a greater risk of a bio-security issue arising.

This has become a concern due to current handling measures occurring in many communities, in which fish harvesting, the removal of fishing gear, and the loading of smolt and fish feed onto boats is occurring from one wharf. This is not an ideal situation and suggestions have been given to the effect of needing separate wharves and landings designated separately as 'inflow' and 'outflow'. This would allow a separation of activities to maintain quality control and safety measures for the aquaculture operations in that area.

A Fisheries Infrastructure Report has been developed by the Schooner Regional Development Corporation (2006) to outline marine infrastructure present on the Burin Peninsula. Considering potential expansion of the aquaculture industry in western Placentia Bay, increased emphasis is being placed on the infrastructure available in the communities of Red Harbour, Rushoon, Baine Harbour, Parker's Cove, and Boat Harbour –Brookside.

Several fish harvesters have commented on the need for larger tugs to aid in the navigation of tankers into and out of Placentia Bay. Some individuals felt that the current tugs available were

not sufficient for the demands placed upon them. Other individuals thought that there was an issue with the current number of pilots available for Placentia Bay

Marine infrastructure associated with the 'SmartBay' project was deployed in 2006. This work is a key pilot project under Phase 1 of the OAP which provides "*simple access by all stakeholders to data and information in support of effective management and sustainable development of coastal oceans areas and the safety and security of life at sea.*" This system provides real-time and archived data – including live meteorological and oceanographic data, weather/sea state forecasts, water quality data, multibeam sonar data, and a metadata catalogue of Fisheries and Oceans Canada data holding for Placentia Bay (SmartBay, n.d.).

9.3.4 Land-Based Infrastructure

As the predicted expansion in the aquaculture industry of Placentia Bay occurs, vehicle traffic in areas around aquaculture sites will also increase. This increase in land-based transportation will be a requirement of the transport of feed, equipment and smolt as they are transported into the facilities and finished product and increased waste products are transported out. Small local roads were not built to support heavy traffic such as this and upgrades may be necessary.

Concerns were also raised concerning the current vessel traffic management system in Placentia Bay. When speaking to fish harvesters from around the Bay, it was evident that they have some level of doubt on the effectiveness of current services, such as the Marine Communications and Traffic Services (MCTS) Centre, due to alleged past 'close calls' between tankers and fishing vessels. However, as previously mentioned, when speaking with Transport Canada and the MCTS Centre in Argentia, it was made clear that Transport Canada has had to investigate only one incident in Placentia Bay within the last four years for alleged infractions under the Collision Regulations (Captain C. Murphy, pers. comm.).

9.3.5 Land-use Planning

The proposed development of large-scale industrial projects within Placentia Bay has also raised land-use concerns. The areas of land that would be encompassed within the geographical limits of these proposed projects may cause land use concerns with respect to wetland areas, and the limitation of traditional activities such as small game hunting and berry harvesting.

9.3.6 Climate Change

Due to the exposure of Placentia Bay to all southerly storm and wave systems (Catto et al, 1999), there is concern for storm surges and associated potential effects.

Evidence collected from Placentia Bay does suggest a sea-level rise of 4-7mm per year over the past 270 years (Catto et al, 1999). Communities, such as Placentia, are areas of high concern. The majority of the community of Placentia is at sea level, causing an increased

potential for flooding and storm surges as more frequent and stronger storms are experienced in the area. Other areas such as Holyrood Pond (east) and Burin are also at risk of similar occurrences.

Specific areas of Placentia Bay coastline have been classified as having a 'very high' level of vulnerability. Classification of vulnerability as 'very high' depends on a number of factors, including facing the prevalent storm direction, no vegetation cover, high tidal ranges, erosion rates of greater than one meter per year, and one-year maximum wave heights greater than 6.9 meters, among other factors.

9.3.7 Tourism

Emphasis is being placed on the role of coastal activities in the tourism industry of this province and Placentia Bay is no exception. Many of the tourist attractions around the Bay are marine-based activities. Activities such as sea kayaking and coastal hiking are becoming more popular for residents and tourists alike, with the many inlets and islands of Placentia Bay offering relatively protected coastal areas for use.

The provincial government has recognized this area of potential growth for the tourism industry in the province. The Department of Tourism, Culture, and Recreation (TCR) have therefore developed a development plan to address this opportunity. It is felt that the development of marine ecotourism will aid in the regeneration of many coastal communities around the province. Identifying emerging sectors within the tourism industry include scuba and underwater marine adventures, surfing/wind surfing, marine learning adventures, coastal hiking and marine eco-tourism. Issues include conflict of use, quality of marine shoreline, lack of high quality marine infrastructure and supporting amenities, marine safety, and coastal accessibility (Dept. of TCR, 2007).

TCR has also identified needs and opportunities that must be addressed in the coming years, including a fully-developed tourism strategy, better data and information on marine and coastal tourism, further development of guidelines and certification for marine tourism operators, the resolution of land use issues and incorporation of integrated planning (Dept. of TCR, 2007).

Comments have been made on the aesthetic impacts the current and proposed industrial projects may have on tourism in the area. Concerns have been raised over ensuring Placentia Bay maintains its status as an environmentally pristine region of the province and what impacts the industrial developments within the bay may have on this image.

Aquaculture does not pose any direct negative impacts on tourism in the industry currently, and tourism operators felt that future development of the aquaculture industry within Placentia Bay would not cause negative impacts – as long as proper consultations were held regarding placement of future sites.

9.3.8 Integrated Management

Representatives from several stakeholder groups within Placentia Bay made comments that they felt the Placentia Bay Integrated Management Planning Committee has greatly improved communications between various stakeholders groups throughout Placentia Bay.

Concerns have been raised in the past regarding general knowledge of integrated management throughout the bay. Considering this, further work should be done to ensure that education and communication initiatives are carried out for the benefit of the general public around the bay.

The benefits of committees such as the Placentia Bay Traffic Committee, North Atlantic Refining Ltd., and Newfoundland Transhipment's community liaison groups should also be noted. These groups have provided a forum by which information exchange can take place and an opportunity for concerns to be brought forward and addressed.

As with other areas of the province, there are multi-user conflicts within Placentia Bay. Current government policy requires the proponents of potential new aquaculture operations to conduct consultations with relevant stakeholders groups to address concerns raised. However, it was brought to our attention that some aquaculture operators felt that the consultations they did complete were not as effective as could possibly be, due to lack of resources and experience in conducting successful public consultations.

When speaking with fish harvesters from Placentia Bay, there was a general opinion that current aquaculture sites around the bay did not pose a direct concern for fish harvesters. When questioned about potential future expansion of the aquaculture industry in Placentia Bay, some level of concern has been raised. Some fish harvesters felt that the two industries could work together well as long as consultations were held with fish harvesters in the area to ensure that the placement of aquaculture sites did not affect prime fishing grounds.

9.3.9 Community Sustainability

The proposal of several large-scale industrial projects within Placentia Bay offers the potential future employment of hundreds of full time workers. These occupations range from trades to administration. These industries would also require various support services through local businesses and would create positive spin-offs within the communities near the proposed sites.

To meet predicted future labour and human resources needs, proponents have begun to involve College of the North Atlantic and other educational institutions in attempts to develop plans to support these proposed projects and have committed to local hiring policies.

Socio-economic effects of these proposed projects must be carefully analyzed and predicted within the provincial environmental assessment process to determine effects of aspects such as housing.

Communities in the Placentia Bay should consider preparing Community Emergency Preparedness Plans. Taking these steps would determine the effectiveness of communities to deal with potential emergency situations, such as an oil spill within the Bay, thereby affecting the communities' long-term sustainability.

9.3.10 Culture and Heritage

Many of Placentia Bay's heritage and cultural initiatives have been focused on the resettled communities of the islands within the Bay. During the 1960s resettlement program, the residents of small communities found on the islands in the Bay, such as Merasheen Island and Long Island, were resettled to larger centres around the Bay.

One group in particular has made efforts in the past to document and preserve the history associated with these past events – The Placentia Bay Islands and Area Heritage Foundation. This group has been established for approximately 15 years and has overseen the completion of a number of projects in the past.

Work has been done in the past to improve the physical condition of several abandoned communities. The Haystack Reunion Committee has improved the wharf and cemeteries within Haystack and has also built a small community centre to host events.

Work is currently being completed by the Heritage Run Tourism Association to develop a five year Tourism Strategy for the Burin Peninsula, which will identify common goals and concerns of stakeholders in the region. A focus of this initiative has included the need for preservation of an outport or heritage "look" within local towns by encouraging new developments to meet set guidelines in their design and materials to reflect past building styles.

The Heritage Run Tourism Association also indicated a number of concerns and issues facing groups when attempting to promote culture/ heritage in the region. One such issue is the lack of cooperation and coordination between heritage groups in the area, as well as less than sufficient attempts to promote a single united vision for the region.

Current and emerging concerns of the tourism association for the region were identified as the need for proactive plans to deal with possible future erosion of coastal hiking trails, the need for regular beach cleanups, retention of public access to beaches and coastlines, as well as further documentation and research on the history of past aboriginal groups in the area and the 1929 tidal wave.

It should also be noted that due to an aging population in the area, as well as the out migration of younger persons and the introduction of a high rate of transient workers, the culture and heritage of this region has been greatly impacted. There has been a significant shift in the traditional way of life of many small communities, which have traditionally based their livelihoods primarily on the fishing industry.

Proponents of large-scale industrial projects should ensure consultations address how their activities could potentially affect traditional cultural activities within their project areas (e.g.: fishing and berry picking).

All heritage groups in the area have similar issues with respect to securing funding sources, as well as a committed volunteer base.

9.3.11 Natural Areas

The Wetland Stewardship Area in Come By Chance was introduced in 1995. The management unit area covers 716 acres, while the total stewardship zone protects over 10,000 acres. A Habitat Management Plan has been developed for the area to protect the wetland habitat, and the various avian and fish species that it supports. ATV use has caused concern for this area in the past. As a result, barriers have been placed at trailheads, which has had some level of success in reducing ATV use in these sensitive areas (Eastern Habitat Joint Venture, 2003).

Arnold's Cove has developed a Bird Sanctuary within the town (Town of Arnold's Cove, n.d.), which allows the protection of various species of birds, ranging from Canada geese, ducks, black ducks, bald eagles, etc. The hunting, trapping, or snaring of birds within the limits is strictly prohibited. Given the location of Arnold's Cove within the Bay, there have been major issues with the marine debris tending to accumulate around the shores of the Bay and within the bird sanctuary itself. When speaking with a member of the wildlife ecosystem and planning division of DEC, the risk of an oil spill within this area and potential effects on visiting avian populations was also made apparent.

Concerns have been raised in the past with regards to tankers traveling within the protected limits of Cape St. Mary's. Further details on issues affecting Cape St. Mary's Ecological Reserve are discussed in Section 4.3.4.

9.3.12 Marine Environmental Quality

The potential risk of an oil spill within the bay, associated with the present oil tanker traffic, is a concern for many Placentia Bay residents and users. As discussed earlier, the proposal of several large-scale projects around Placentia Bay could potentially cause an increase in the number of oil tankers and large vessels traversing the bay.

Many believe this increase in vessel traffic will cause an increase in the risk of an oil spill within Placentia Bay. Considering the wide-variety of plant and animal life, and the many other industries dependent on the waters of Placentia Bay, an oil spill of any magnitude would have wide-spread effects on many current activities within the bay and could significantly decrease the environmental quality of Placentia Bay at least on a temporary basis.

Much concern currently exists throughout the bay regarding oil spill response capacity and storage location of this equipment. Many believe there is a lack of adequate equipment to ensure efficient response to a spill within Placentia Bay.

Concerns have also been raised surrounding the proposed new refinery for Placentia Bay and specifics associated with operations at this site. Comments have been made regarding the physical structures required for water intake for refining operations, as well as physical properties of released water (temperature specifically). Issues surrounding the potential introduction of sulphur into the waters of the Bay by way of air emissions have also been addressed. NLRC is addressing this particular issue through the development of specific air emission modeling for the region as part of their environmental assessment process.

There are possible sources of pollution associated with the proposed construction and operations of the liquefied natural gas transshipment terminal. As stated in NLNG environmental assessment registration document, potential sources of pollution and resource conflict during construction will include emissions from machinery and vessels, and some marine habitat disturbance and suspended sediments within the location marine facilities.

Hazards of liquefied natural gas (LNG) are associated with three of its characteristics: cryogenic temperatures, dispersion characteristics, and flammability characteristics. During operations, in the event of a release of LNG, there would be a sudden decrease in water temperature in the surface water layer. In the event of a spill, vapour clouds can also drift into nearby populated areas. Given a concentration of between five and 15 percent and an ignition source, ignition can occur. LNG fires also produce a tremendous amount of heat (California Energy Commission, 2003).

Another potential issue regarding this increase in tanker traffic is the possibility of the introduction of invasive species to the Bay by foreign traveling vessels through the flushing of bilge water and ballast water within the Bay.

Concerns have also been raised regarding the possible leaching of chemicals from industrial areas in Placentia Bay, specifically contamination from past activity at the Argentia Naval Base as well as cadmium traces from the Long Harbour area.

The marine debris of Placentia Bay has generally consisted of items such as nets, lines, plywood, beverage cans, and glass, to name a few (Catto et al, 2003). Many fish harvesters are now ensuring that bait boxes and plastic bags are being returned to wharves for proper disposal.

Cumulative impacts of fish plant effluent, offal dumping and sewage must also be addressed throughout Placentia Bay to ensure the marine environmental quality in the area in maintained at acceptable levels. Fisheries and Oceans Canada has completed water quality testing

throughout the Bay in the past - determining that some sheltered areas of the Bay have high levels of sewage and other organic waters.

As with many other areas of the province, untreated municipal sewage has been raised as an issue with respect to its potential effects on the marine environment of the Bay. It was recommended that work be done to prioritize areas with high levels of sewage pollution throughout the Bay.

Currently there are seven sheltered areas of the Bay that are closed to shellfish aquaculture due to bacterial contamination (DFO, pers. comm.). The issue of untreated municipal sewage within Placentia Bay must be addressed in the near future to ensure there is potential for future growth of the aquaculture.

9.4 DATA GAPS / CHALLENGES

It was suggested that further studies be completed throughout the Bay to identify areas that may not be suitable for aquaculture operations due to high levels of untreated sewage.

Much uncertainty exists as to whether the current oil spill response regime for Placentia Bay is sufficient. It is the position of the Placentia Bay Integrated Management Planning Committee that oil spill equipment should be located within Placentia Bay. Studies must take place to determine if changes should be made to current regime to ensure that current management plans can handle existing tanker traffic within the Bay, as well as potential increases in vessel traffic associated with the several proposed large-scale projects. An Oil Spill Risk Assessment for southern NL is currently underway by Transport Canada.

Tourism and heritage groups in the region identified that “red tape” involved with applying for government programs has caused the focus of proposed projects to be shifted and compromised in an attempt to better suit program regulations and increase chances of obtaining funding approval.

As identified in Table 9-1, the primary challenges to coastal and ocean management in this region may be considered to be the risk of an oil spill, marine-user conflicts, and the need to ensure infrastructure is in place to support marine-related industries.

Table 9-1: Coastal and Ocean Management Challenges in Placentia Bay

Aspects of Coastal and Ocean Management	Challenges
Aquaculture	• Shortage of support services/ industries • Risk of oil spill
Commercial Fisheries and Fish Processing	• Risk of oil spill • Vessel traffic • Marine-use conflicts (competition for marine space)
Marine Infrastructure	• Limited wharf space (i.e.: to accommodate all industries, incl. aquaculture)
Land-Based Infrastructure	• Condition of provincial highway and municipal roads • Vessel traffic management
Land-use Planning	• Inadequate land-use planning in some communities • Consultation between proposed projects proponents and interest groups (wetlands, berry-picking, hunting, etc)
Climate Change	• No plan to cope with climate change
Tourism	• More resources needed (human, financial)
Integrated Management	• Lack of awareness/ understanding regarding integrated management within general public
Community Sustainability	• Future potential labour shortages for proposed projects (trades)
Culture/ Heritage	• Lack of resources (financial, human)
Natural Areas	• More education on effects of marine debris • Risk of oil spill
Marine Environmental Quality	• Risk of oil spill • Need for more stringent regulations governing sewage disposal • Lack of financial support for sewage treatment facilities

9.5 PATH FORWARD

Considering the current and proposed industries within Placentia Bay, much emphasis will be placed on the Placentia Bay Integrated Management Planning Committee in upcoming years. Recently, the main focus of the Placentia Bay Integrated Management Planning Committee has surrounded the transition of the committee from an interim committee to a committee that is further established and more permanent in nature. This occurred in March of 2007 and the committee now stands with permanent status.

The Placentia Bay Integrated Management Planning Committee is also in the developing stages of a Committee Charter as well as an Integrated Management Plan for the Bay.

Focus will also be on the implementation of the communication strategy that was recently completed for the committee. A video has been developed as an informational tool to highlight integrated management to stakeholders and the general public, and a logo has been designed to help brand the Committee.

The environmental assessment process, which must be undertaken by proponents of projects within the province, must be seen as an important method of planning and public participation for future activity. These processes provide a means to raise awareness and education within the communities throughout Placentia Bay on current and proposed activities.

It is suggested that an emphasis be placed on questioning whether current oil spill response regimes and equipment are sufficient within Placentia Bay to support current and proposed industrial projects.

10 CONCLUDING REMARKS

There are four main conclusions coming out of the coastal and oceans management issues scan:

- Interviews, discussions and a review of literature have identified the coastal and ocean management aspects of interest to stakeholders in selected coastal areas of the province;
- Stakeholders have provided information regarding the real and perceived challenges facing coastal and ocean management in the province;
- There are a number of core groups in the regions of the province visited who are aware, informed and willing to take on the challenges to achieve effective coastal and ocean management;
- Coastal and ocean management needs a dedicated credible 'champion' at the provincial government level.

Canada's Oceans Strategy, issued in 2002, emphasized the need for an integrated approach to effective coastal and ocean management. This issues scan has presented comments on a range of types of integration: integrated ecosystem management; integration between land and ocean environments; integration among levels of government; and integration of information and actions among governments, the public, and interest groups. The information provided in the issues scan, and identification of actions and associated timelines, can assist in developing a provincial strategy.

The activity of the issues scan has not only provided information for the sponsoring departments but has raised the profile of coastal and ocean management, especially in the areas visited as well as with the various groups, individuals and associations contacted.

10.1 RECOMMENDATIONS

A Champion

- The Provincial Government designate a dedicated credible 'champion' for coastal and oceans management;
- Current Provincial Strategy and Policy Framework efforts are supported by regions around the province. Future strategy and commitment for strategy implementation should be made beyond March 2008.

Government Awareness

- Develop and implement specific awareness and education initiatives on the concepts and benefits of integrated coastal and ocean management and the role of the particular agency in the provincial government departments associated with coastal and ocean activities in the province;
- The Provincial Coastal and Ocean Network assist and facilitate with these initiatives;
- Awareness and education initiatives should include the political level to extend the reach of the initiatives into communities and build understanding and support for coastal and ocean management in the province.

Public Awareness

- The Province should assist in promoting education and outreach programs for coastal management areas and large ocean management areas;
- Further work should be done to encourage and facilitate communities to become stewards of the coastal and marine resources in their area, thereby increasing community's capacity to successfully manage their resources;
- Work with existing NGOs to advance marine stewardship;
- Programs should be further developed to ensure the participation of youth in coastal and ocean management within Newfoundland and Labrador.

Inter-governmental Consultation/Cooperation/Collaboration

- Cooperation with regards to coastal and ocean management must be further strengthened and encouraged within departments and between all levels of government;
- Joint Federal-Provincial/Territorial efforts should be made to determine the jurisdiction of current coastal and oceans issues, as well as to develop coastal and ocean strategies and action plans to address the issues outlined in this report;
- The provincial government should discuss with the federal government alternatives to the Ocean Action Plan that will ensure sustainable development of oceans resources and protect the fragile marine ecosystems;

Government/Community Interaction

- Throughout the coastal management process, an emphasis must be placed on building upon existing groups and committees at the community level;
- Further promotion and use of present environmental assessment processes as a means to involve communities in the identification and addressing of coastal and ocean issues associated with proposed projects;
- Joint effort should be made by the Provincial and Federal governments to support community-driven coastal management pilot projects in each CMA within the province;
- Due to varying coastal concerns, further effort should be made to extend similar efforts in other regions of the province, particularly the Notre Dame Bay region and coastal Labrador.

Aquaculture

- Address concerns and perceptions surrounding the aquaculture industry in the province. The Department of Fisheries and Aquaculture should take the lead role on this task (in collaboration with DFO and DEC);
- Develop and implement pre-emptive conflict resolution mechanisms between aquaculture operations and other users of the marine area, associated marine and community infrastructure (e.g. roads, waste management).

Sewage and Waste Water/Marine Environmental Quality

- Joint Federal/Provincial-Territorial research and investment is needed to resolve current municipal sewage problems;
- Encourage and support the work of the Canadian Council of Ministers of Environment on management of municipal waste water effluent (due for release in fall 2007);
- Access funding, information and other tools available under the new strategy to assist coastal communities to better manage sewage and other wastewater effluents.

Climate Change

- Provincial departments should strengthen and implement commitments under the Provincial Climate Change Action Plan.

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APPENDIX A

Relevant Documents for Future Use

Relevant Documents for Future Use

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APPENDIX B

Individuals Contacted for Consultations

Groups Contacted for Consultations

- ACAP Humber Arm
- 14B Lobster protection Committee
- ACAP Humber Arm
- Bay Sea Farms (Aquaculture) – Placentia Bay
- Coast of Bays Coastal Planning Committee
- Coast of Bays Corporation (Arts and Exploration Centre)
- Coast of Bays Economic Development Corporation
- Conne River Band Council
- Cooke Aquaculture
- Cow Head Heritage and Conservation Committee
- Crown of the Valley Development Cooperation - Pasadena
- Crystal Water Boat Tours
- DEC – Habitat and Wildlife Division
- DEC – Parks and Natural Areas
- DEC - Provincial Park Managers
- Dept. of Labrador and Aboriginal Affairs
- Dept. Tourism, Culture, & Recreation
- DFA
- DFO – Oceans Division
- Fisher, Northern Peninsula
- Fisher, Regional Advisory Committee (RAC) for Oil Spill Response member
- Fisher's Committee (Hermitage)
- Fisher's Committee (St. Bride's)
- Heritage Run Tourism Association
- Humber Valley Heritage Society
- Industry, Trade and Rural Development
- Lark Harbour resident, Fish Processing Plant employee
- Lark Harbour, Former resident
- Limestone Barrens Habitat Stewardship Program
- MAMKA/FNI - Aboriginal Aquatic Resource & Oceans Management
- Marine Communication and Traffic Services – Canadian Coast Guard
- Memorial University of Newfoundland, CURRA Applicant
- MUN – Coastal Geomorphology Professor
- Newfoundland and Labrador Aquaculture Industry Association (NAIA)
- Newfoundland Salmonid Growers Association (NSGA)
- Great Northern Peninsula ICZM Steering Committee
- OceanNet
- Parks Canada
- Placentia Bay Integrated Management Planning Committee
- Red Ochre Economic Development Board
- Schooner Economic Development Board
- Sir William Grenfell College (SWGS)
- The Placentia Bay Islands and Area Heritage Foundation
- Transport Canada - Marine Safety
- Woody Island Resort

APPENDIX C

Questions Posed During Consultations

Questions Posed During Consultations

1. Introductions and overview of the Issues Scan (the objective of the Work; what the final report will include; the outcome of this report; the role of BAE-Newplan Group in the work: emphasis on the opportunity for their concerns to be brought to DFA/ DEC, etc)

2. Describe your link/association with the coastal and ocean region in your area (and/or describe involvement in past coastal management work in the area).

3. What do you consider to be the coastal and ocean issues in your region? (Determine emerging issues, and status of issues mentioned in past reports)

4. How did these issues come about? (The history of the issues)

5. Has anything been done in the past to address these issues? Are you aware of plans to do so in the future?

6. What trends in industry/activities do you see developing for the future in your area?

7. What are perceived barriers to progress in these industries/ activities?

8. What potential issues could arise in the future if these trends continue to develop in that particular direction?

9. What information gaps, in your opinion, exist in your area? (ie: what additional research/ information would be useful to you?)

10. Any additional comments/ concerns? (Specific to each individuals involvement, work, etc)

APPENDIX D

Summary of Issues sorted by CMA and 'Aspects of Coastal and Ocean Management'

Summary of Coastal and Ocean Issues

April 19/07

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
Aquaculture	Bay of Islands	What is the potential for aquaculture – is the marine environment suitable?
	Northern Peninsula	Research into opportunities available for aquaculture industry in the area
		May need access to skills of aquaculture nutritionalist for the area
		Is the marine environmental quality suitable for aquaculture?
	Coast of Bays	Some conflict between fishers and aquaculture
		Comments made that there should be a clause in the licensing agreements of aquaculture operations that they must hold *annual* consultations with stakeholders in the area (throughout initial stages and operations)
		Potential for fishing gear being caught in aquaculture gear (mooring systems, etc). Fishers have raised the question of whether compensation would be rewarded in these situations
		Comment made that there is a need for a speedier process for approval of proposed aquaculture projects
		Concerns raised about past mussel farms that have abandoned equipment and gear in the bay – potential navigational hazard
		Waste management – silage/dead fish (opportunity for other businesses – ie: liquid fertilizer)
		Waste management – increase in plastic bags, boxes, etc. Increased pressure on existing dump facilities (compactor required to making shipping out of recyclable feasible)
		Need for more support industries: machine shops, welding shops, machine supply shops, fibreglass services, diving services
		Some fishers in the Belleoram area feel that they have not been consulted enough with respect to the placement of aquaculture facilitates in Fortune Bay
		Some safety concerns surrounding the mooring systems of aquaculture sites – may need better beacon system in some areas
		Concerns raised regarding sea lice concentrations near aquaculture sites. More public education needed?
		Concerns have also been raised by the aquaculture industry in the area regarding the ability of the wharves in the region to serve many industries, which include an increasing aquaculture industry, fishers and recreational users.

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		The provincial highway and municipal roads in this region will likely have to be improved to support this increase in heavy traffic.
		The effects of aquaculture facilities on the wild population in the Coast of Bays Region should be studied further and measures should be taken to protect wild stocks. The residents of the Coast of Bays region should be educated on the research that has been completed on the effects of aquaculture on the wildlife stocks.
	Placentia Bay	Some groups would like to see an Environmental Performance Bond put in place by industries of Placentia Bay (so that if an incident did occur, the funds would be in place for clean up and compensation)
		Issues with industries in Long Harbour (Nickel Processing Plant)– concerns of potential leeching of cadmium, metals, etc
		Potential effect of oil spill on aquaculture industry operations within Placentia Bay
		Sufficient wharf space to support the growth of the aquaculture industry in PB (bio-security concerns)
		Sufficient consultations must be held by aquaculture operators with other stakeholders in the area
		Lingering concerns over past abandonment of mussel aquaculture site - navigational hazard
	NL	Public awareness – educating about aquaculture industry
		Access to preferred aquaculture sites – (eg: little access to several prime south coast locations)
		Price of fish feed (protein sources) increasing
		Ensure detailed decommissioning plans are included in proposals for new or expanded aquacultures sites
		Bio-security Risks – many activities from same wharf (e.g.: putting fish in the water, removal of dead fish, feed storage, etc)
		Current and future potential labour shortages in Placentia Bay, Coast of Bays (for fish processing plants, etc)
		Need for more salmon processing facilities as the number of salmon aquaculture sites increase

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
Commercial Fisheries & Fish Processing	Bay of Islands	Concerns around the management strategy to ensure maintenance of current lobster stocks level
		The effect of water quality on fisheries in the area needs more research
		Poor water quality has resulted in closure of shellfish fishery in some areas
		Release of grey water from fish processing facilities – how is this affecting marine environmental quality?
	Northern Peninsula	Research needed to determine if opportunities for Secondary Processing exist in the area (To add value to the fish products)
		Seal products - harvesters are getting low value for the resources (complete secondary processing in the area?)
		Lobster research in St. John Bay needed (population studies, is V-notching program making a difference?)
		Exploration of some level of protected area within St. John Bay wanted
		Greater effort to document traditional knowledge and activities
	Coast of Bays	Hermitage – recent difficulties finding people to work in fish plant
		Concerns of some fishers regarding aquaculture expansion (some areas want more consultation)
		The expansion of the aquaculture industry in Coast of Bays will result in an increase to the amount of fish processing in the region. Cumulative impacts of organic waste from raw sewage, fish plant effluent, offal dumping, and aquaculture waste may impact environmental quality if not properly managed
	Placentia Bay	Concerns raised over effect of increased tanker traffic on fishers livelihoods
		Safety issues raised by fishers due to potential increase in tanker traffic
		Concerns raised over potential introduction of invasive/introduced species to the Bay (bilge water, ballast water, hulls of vessels)

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		Concern over risk of oil spill in Placentia Bay – is existing oil spill response equipment and regime sufficient?
		Fishery policy concerns (ie: quotas, pricing, lobster licences, cost associated with monitors, etc)
Marine Infrastructure	Bay of Islands	Potential increase in cruise ship industry– is existing infrastructure sufficient?
		There is a lack of information provided on access points to wharves and slipways for both tourists and residents
	Northern Peninsula	Town of Cow Head - trying to obtain funding to improve cribbing and boardwalk
		Harbour Infrastructure Issues: Cow Head, Trout River, Sally's Cove Comment made that money should be invested now for repairs or will have to pay much more money to build new structures in the future
		Woody Point is trying to develop cruise ship docking – need waterfront development (tourism friendly – ie: waterfront bathroom facilities)
		Norris Point wants to further develop their marina
		Parson's Pond and Cow Head would like to re-develop around the waterfront
		Port au Choix and Bird Cove need repairs to docking facilities
		St. Barbe – issues with docking space available for both ferry and fishers
	Coast of Bays	In several communities the wharves are small and are service several industries at once including, fishery, aquaculture, tourism and recreation. Competition for limited docking space is a growing concern (Pool's Cove, Belleoram, Hermitage, Harbour Breton)
		Provincial ferries currently operated from two of the wharves, Pool's Cove and Hermitage, which raises additional problems for the users.
		The Conne River Band Council feels that their harbour infrastructure is unsuitable to support their commercial fishing fleet.
	Placentia Bay	Must be sufficient wharf space to support all industries (aquaculture, fisheries, tourism, etc), especially considering potential growth for aquaculture on western side of the Bay
Land-based Infrastructure	Bay of Islands	Storm and sanitary sewers must be separated for possible sewage treatment plant in Corner Brook

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		Some areas are at a great risk for flooding and slope failure due to alteration in drainage patterns from developments in the area
	Northern Peninsula	Labrador Highway - Will cause increases in traffic in the area because it will produce a circular route (through Atlantic Provinces and Quebec) - Highways on the Northern Peninsula need to be improved to handle more traffic
		To prepare for increased traffic: Safety and Emergency Response services may need to be improved, for ex: if there were a chemical spill near coast
		Soil erosions issues call for a need for the highway to be moved or improved in some areas (such as Sally's Cove – highway dangerously close to coastline)
	Coast of Bays	Municipal Dumps - leeching concerns (McCallum, Harbour Breton, near St. Jacques, etc)
		Many groups in the Coast of Bays Region raised concerns about the current municipal road and provincial highway conditions.
		Improvements to road infrastructure are required for a number of reasons, including more efficient access to wharf by transport trucks and the ability of roads to handle additional transportation requirements for the increasing aquaculture industry and tourism in the area
	Placentia Bay	Capability of road infrastructure to support growth of industries, such as aquaculture
		Concerns raised by fishers as to the effectiveness of services provided by the MCTS centre. These concerns were raised due to a number of alleged "close call" incidents with fishing vessels and tankers within the Bay
Land-use Planning	Bay of Islands	Landfill site at Wild Cove is reaching capacity – need to secure new site
		Need for more land-use planning, particularly in non-municipal areas
	Northern Peninsula	Walking trails near the town of Cow Head are becoming destroyed by ATV's
		A number of human activities are causing destruction of the Limestone Barrens
		Coastal sand dune erosion in areas not protected by National Park (Gros Morne) – areas near the town of Cow Head
		Conflict use issues on 'the head' (cultural vs. cabin owners vs. recreational, etc)

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
	Coast of Bays	Residential and industrial zoning concerns in the area
		Concerns with waterfront access due to road infrastructure and available waterfront space. Many of the roads leading to the wharf are narrow and when a transport truck attempts to access the wharf they limit access to the area
	Placentia Bay	Disruption of local activities in areas proposed for future development of large-scale industrial projects
	NL	JT Cheeseman Park: Piping Plover nesting site – ATV use destroying habitat
		Codroy Valley - Piping Plover nesting site – ATV use destroying habitat
Climate Change	Bay of Islands	Coastal erosion & storm surge issues: Lark Harbour
		Will climate change have an effect on tourism in the Bay of Islands area?
	Northern Peninsula	Coastal erosion & storm surge issues: Daniel's Harbour, Trout River, Sally's Cove, Parson's Pond, Raleigh
		The Arches: currently no monitoring of erosion
	Coast of Bays	No plan to cope with climate change
	Placentia Bay	Areas with 'very high' levels of vulnerability to flooding and storm surges (ex: Placentia, Burin, Swift Current, etc)
	NL	Storm Surges: Burgeo Sandbanks Park - grave site eroding and measures should be taken
Tourism	Bay of Islands	Is poor water quality having an effect on tourism in the Bay of Islands?
		Tourists like to see fishermen "in action". There is interest in the development of a fisheries interpretation center near Lark Harbour
	Northern Peninsula	Increases in tourism will place increasing pressure and demands on existing infrastructure/ facilities
		Potential loss of opportunities due to recent decline in funding and activity by Viking Trail Tourism Association

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		Need for marine-tourism infrastructure – wharf space for yachts, waterfront facilities, etc
		Perceived lack of government support for marine-tourism based initiatives (to attract yachts, small cruise ships, etc)
	Coast of Bays	Improvements to road infrastructure (Provincial highway and municipal roads)
		The development of waterfront tourist facilities and the improvement of port development in the region will encourage marine-related tourism
	Placentia Bay	Effect of oil spill on tourism industry
		Aesthetic impacts of current and proposed industrial projects on tourism
Integrated Management	Bay of Islands	Need more capacity for IM within Federal and Provincial governmental departments
		In future- more interaction between NL CMA groups and within LOMAs
		Need to strengthen relationship and communications with fishing community through IM Committee
		Need to encourage residents to realize their connection with IM and how it affects them
		Inadequate resources for IM (finances, data, mapping, software, human, etc)
	Northern Peninsula	Money for an ICZM coordinator will allow action - leverage this money to obtain other sources of funding
		Need better coordination between tourism association, development boards, and government departments, etc
		Need to improve integration within communities and between REDBs
		Lack of involvement of communities north of Port Aux Choix (to Cape Bauld) in IM
		Must strengthen two pilot projects to show the potential of IM to general public
		Implement communication plan – better educate the general public on IM, show progress of pilot projects, etc

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		Emphasis cannot be based solely on website as tool for communication – many people have inadequate computer skills, and high illiteracy rates
		Need to secure funding to expand Books for Boats program
		Comment made that IM needs more public support by local politicians and high-level government employees
	Coast of Bays	The need for transparency with Provincial IM initiatives was stressed. Specifically, there was a call for DFA and DEC to allow coastal management reports, such as this report, to be open for public access.
		Governmental departments, such as DFA should educate all employees about the concepts and benefits of integrated coastal and ocean management.
		Efforts of MAMKA and Coastal Planning Committee should be further combined in the area
	Placentia Bay	Further work required to ensure education initiatives on IM are carried out for the general public
	NL	Public awareness & education - More education of general public about IM concepts and goals
Community Sustainability	Bay of Islands	The need to further diversify business and industry, such as through possible oil and gas developments (need to further educate public on seismic testing)
		Comment made that fishing licenses should be kept in communities to encourage younger generations to stay
	Northern Peninsula	Need more research on demographics, various social aspects of Northern Peninsula, etc
		More research efforts for a business analysis, markets studies for the area
		Must research the effects of changing demographics on local businesses, communities, schools, etc
		High levels of out migration
		Need to help chance the perception that there is no work in the area for young people
		Further diversification of the economy in the area required

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		Need economic diversification in the area, such as secondary processing (the idea of a tire recycling facilities has been suggested in past)
	Coast of Bays	The goals of IM should be linked to rural sustainability in NL
		Small communities need to have a contingency plan in place to help the residents cope with high unemployment rates due to the collapse of a particular industry and allow the community to survive when put in this situation.
		There is a need for economic diversification in the Coast of Bays region.
	Placentia Bay	Socio-economic effects of current proposed projects must be carefully analyzed
Culture and Heritage	Bay of Islands	Poor water quality may be affecting human health, traditional activities and may be hampering economic gains in some areas
		Need to foster attitudes towards responsible coastal use
		Plans should be developed to manage potential rise in tourism on Woods Island
		Concerns with waterfront development and residential areas –around the Bay, Humber Valley Resort area, etc. May be affecting traditional coastal activities
		Price of coastal land is increasing due to individuals from outside the province and country buying land and houses in the region. Residents of some areas are no longer able to afford houses in their own communities
	Northern Peninsula	Funding needed to keep small community museums in place
		Signage needed for Cow Head heritage area (trails, etc)
		Small amount of money needed to develop brochures describing heritage in Cow Head Area
		Lack of resources for cultural initiatives (human, financial, etc)
	Coast of Bays	Need for more resources (financial, human, etc.) to promote culture and heritage of the region
	Placentia Bay	Potential to further promote heritage of resettled communities of Placentia Bay's islands (ex: Marasheen Island)

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		Resources (human, financial, etc) required for groups such as the Placentia Bay Islands and Area Heritage Foundation, the Heritage Run Tourism Association, etc
		Difficult to maintain volunteer base due to aging and transient worker force
		Groups often have to compromise their efforts to better suit proposals for government funding
		Plans must be developed to ensure retention of public access to beaches and coastlines
		Efforts to encourage new developments to meet set guidelines in their design to reflect an "outport look"
		Consideration must be given as to how large-scale industrial projects will effect traditional cultural activities in the projects areas
Natural Areas	Bay of Islands	Blow Me Down Provincial Park – some poaching occurring in river within park boundaries
		More information provided regarding the effects of poaching
	Northern Peninsula	Sand dunes in Cow Head - there has been past talk about development at this site
		Limestone Barrens – need for further stewardship initiatives
		Limestone Barrens - Need to further educate people on the results of human actions (ie: ATV use, etc)
	Coast of Bays	The aboriginal people feel that the Little River (Jipuijikuei Kuespum) estuary should not be open to commercial fishery because it is a traditional harvest and recreation area for scallop fishing that is unique to Bay d'Espoir and it should be protected.
		It is suggested that the Little River Estuary be classed as an area of concern due to its intact biodiversity and importance to the aboriginal community as a traditional use area
	Placentia Bay	Must ensure all vessels entering Placentia Bay have up to date nautical charts showing the restriction of vessel movements near ecological reserves (eg: Cape St. Mary's)
		Monitoring of ATV use near Wetland Stewardship Area in Come By Chance
		Marine debris in Bird Sanctuary located in Arnold's Cove

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
	All	Enforcement concerns - more resources for conservation officers (ex: more helicopter time)
		Must continue with educational initiatives
		Must continue work for stewardship initiatives in the province
		Seabird Ecological reserves around the province– concerns surrounding vessel traffic, distance restrictions for different size vessels, tour boat operations, marine pollution, debris, oil discharge risks, permitting systems
		There is a need for Visitor Management Plans: (Signage, limitations, etc…) for all parks and natural area in the province
		Fisheries by-catch near Ecological Reserves: gillnets – murres, etc being caught (result = starving chicks)
		Concern that there is a lack of communication between DFO and Protected Areas managers
Environmental Quality	Bay of Islands	Untreated sewage issues – effect on marine environment?
		Cabin construction on Goose Arm – baseline studies on water quality, etc needed before further development occurs
		Bark build-up on seabed limiting available oxygen. Further studies needed to direct future action
	Northern Peninsula	Bonne Bay: must enforce no dumping
		Untreated sewage issues – effect on marine environment?
	Coast of Bays	Untreated sewage issues – effect on marine environment?
		The growth of the aquaculture industry in this region also raised environmental quality concern with many individuals, including waste management and the proper storage of feed (attracting seagulls, rats, etc)
		Environmental effects of chemical spraying of feed questioned

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		Municipal Dumps - leeching concerns (McCallum, Harbour Breton, near St. Jacques, etc)
		Marine debris is another issue that was raised in the region, however it was pointed out that there have been improvements through educating of residents in the region.
		The hydro development inland has potentially caused increased accumulation of mercury in the bottom sediment and fish and MFN would like to know who is responsible for testing to determine these effects
		Impacts of historic sawmill waste (sawdust/bark) also contribute to localized degradation of water/sediment quality in Coast of Bays
	Placentia Bay	Untreated sewage issues – effect on marine environment?
		Risk of oil spill – tanker traffic
		Possible leeching of chemicals from industrial areas (e.g.: concerns raised about cadmium in the Long Harbour area)
		Accumulation of marine debris at the head of the Bay
Sewage	Bay of Islands	Sewage treatment facility needed in Corner Brook
		Levy system should be evaluated to quantify residential versus business/industry discharges
		"Mobilizing the people to see the issue as a BOI issues instead of a Corner Brook issue"
		People around the Bay have come to accept the closure of shellfish industry – need to change mindset so improvements can be made
		Challenge to get people to see sewage treatment is an investment as opposed to just an expense
	Northern Peninsula	Many communities (Rocky Harbour, Cow Head, Parson's Pond, etc) have treatment facilities, but do not have money to maintain, start-up or run them
		Do not know what impact the raw sewage is having on the environment in the area (Ex: St. John Bay)
		Many un-incorporated communities do not have regulations regarding sewage disposal

Aspects of Coastal and Ocean Managements	Coastal Management Area	Details of Issue Raised
		May need to introduce levy tax now for re-mediation in the future (use Corner Brook as an example).
		Have to develop plans to deal with increased pressure on existing infrastructure and facilities (ex: increases in people due to tourism etc)
	Coast of Bays	Untreated sewage issues – effect on marine environment?
		Lack of financial support for sewage treatment facilities
		Need for more stringent regulations governing sewage disposal
		Many communities in Coast of Bays including Harbour Breton, Belleoram, Morrisville, Gaultois, Boxy, St. Joseph's, and St. Veronica have a significant number of private sewage outfalls which also need to be addressed
	Placentia Bay	Untreated sewage issues – effect on marine environment?
		Work should be done to ensure the environmental quality is protected from sewage disposal, etc near identified future potential aquaculture sites

APPENDIX E

Natural Areas Systems Plan: Study Areas

Table E-1: Study Areas in the Natural Areas System Plan (NASP) located within the GOSLIM and PB-GB LOMAs (Parks and Natural Areas, 2005).

Study Area	Eco-region	Significance	Current Status
Cape John	Western Newfoundland Forest/Codroy Sub-region	• Excellent representative portion of the Anguille Mountains • Deep protected valleys with heavy forestation • Many species of wildlife and birds occur in this area	Interim Protection
Highlands of St. John	Long Range Barrens/Northern Long Range Sub-region	• Highlands are unique in Newfoundland • Arctic-alpine species are dominant due to high elevation • Harlequin duck may occur in this area	Interim Protection
Red Bay Barrens	Forteau Barrens (Labrador)	• Contains barrens unique to Labrador • Plants are sub-arctic and tree growth is limited to sheltered valleys • Area supports several mammals not found on the island, including voles and porcupine	Interim Protection
Cape Norman	Strait of Belle Isle Eco-region	• Contains some of the rarest plants in the Province • Fifteen rare plants have been found in the area, many of which do not occur at nearby Burnt Cape Ecological Reserve	Interim Protection
Eastern Tolt	Long Range mountains/ Southwestern Newfoundland	• Eastern Tolt Wave Forest is one of the most viable wave forests in the world. • Scientists study these rare phenomena to determine the effect of wind on forest resources	Interim Protection
Sandy Cove	Strait of Belle Isle Eco-region	• Habitat for Endangered Long's Braya, endemic to the Great Northern Peninsula • Contains tundra-like vegetation on the island including limestone barrens	None
Spirity Cove	Northern Peninsula	• Spirity Cove Wave Forest is the largest and best wave forest in the world • Greatly assists researchers in determining the impact of wind on forest resources	Interim Protection
St. Paul's Inlet	Northern Peninsula	• Contains the largest tern colony in the Province • One of the most important in Atlantic Canada.	Interim Protection
Devil Bay	Maritime Barrens/South Coast Barrens sub-region	• Protects the barren cliffs and forested valleys of the south coast • Highest parts of this area contain arctic-alpine vegetation while the sheltered valleys protect more southerly species like yellow birch	Interim Protection

Study Area	Eco-region	Significance	Current Status
Garia Bay	Maritime Barrens/South Coast Barrens sub-region; Long Range Barrens/Southern Long Range sub-region	• Contains portions of two eco-regions • Plateaus of these mountains contain arctic-alpine vegetation • Sheltered areas may contain plants that are normally found in more southerly areas	Interim Protection
Random Island 1	6A- Maritime Barrens/North-eastern Barrens sub-region	• Contains softwood forest, bogs and heath lands common to this eco-region • Introduced caribou herd of approximately 70 individuals in the area	Interim Protection
Random Island 2	Maritime Barrens/North-eastern Barrens sub-region	• Contains softwood forest, bogs and heath lands common to this eco-region • Introduced caribou herd of approximately 70 individuals in the area	Interim Protection
St. Shott's Barrens	Eastern Hyper-Oceanic Barrens	• St. Shott's Barrens contain *Rhacomitrium* barrens, which are unique in North America • North Atlantic has an intense effect on these coastal barrens which produces barren communities found nowhere else	Interim Protection
Middle Lawn Island	Avalon Forest	• Only known nesting site of Manx Shearwater in North America; usually restricted to islands off North-western Europe • Nocturnal and only visits the nesting island at night, nest in burrows like Atlantic Puffins, although the burrows of the Shearwaters are much deeper • Accurate estimate is not known, although it is suspected that the nesting population is in the low hundreds.	Interim Protection

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