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MUSQUASH ESTUARY

A MANAGEMENT PLAN FOR THE
MARINE PROTECTED AREA AND
ADMINISTERED INTERTIDAL AREA

ACKNOWLEDGEMENTS

The management plan for the Musquash Estuary Marine Protected Area and Administered Intertidal Area was prepared by the Oceans and Coastal Management Division, Fisheries and Oceans Canada, Maritimes Region, with assistance from the Musquash Estuary Marine Protected Area Advisory Committee and the Government of New Brunswick. Many organizations contributed to the review of the management plan.

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ABBREVIATIONS

AIA	Administered Intertidal Area
C&P	Conservation and Protection Branch
CAPP	New Brunswick Coastal Areas Protection Policy
CCG	Canadian Coast Guard
CCNB	Conservation Council of New Brunswick
DFO	Fisheries and Oceans Canada
EC	Environment Canada
FAM	Fisheries and Aquaculture Management Branch
HADD	Harmful Alteration, Disruption, and Destruction
HPSD	Habitat Protection and Sustainable Development Division
MAC	Musquash Estuary Marine Protected Area Advisory Committee
MPA	Marine Protected Area
MPA Regulations	Musquash Estuary Marine Protected Area Regulations
OCMD	Oceans and Coastal Management Division
REET	Regional Environmental Emergencies Team
SAR	Search and Rescue
SJPA	Saint John Port Authority
TC	Transport Canada

DEFINITION OF BOUNDARIES

Marine Protected Area (MPA) – those waters below the ordinary water mark at low tide in Musquash Estuary that are administered by Fisheries and Oceans Canada as a Marine Protected Area (MPA). The Marine Protected Area includes Musquash River and Harbour, Gooseberry Cove, and the mouth of Musquash Estuary between Western Head and Musquash Head. It also includes the seabed and subsoil to a depth of two metres.

Administered Intertidal Area (AIA) – those lands and waters bounded by the ordinary water mark at low tide and ordinary water mark at high tide in Musquash Estuary that are administered by Fisheries and Oceans Canada as an Administered Intertidal Area (AIA).

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EXECUTIVE SUMMARY

Musquash Estuary is located in the Bay of Fundy approximately 20 km southwest of Saint John, New Brunswick. It encompasses a productive estuary and salt marsh habitats which provide habitat for many species of fish, invertebrates, and marine plants. The estuary is one of only a few that remains in the region that has not been significantly impacted by human development. In 1998, the Conservation Council of New Brunswick, with support from the Fundy North Fishermen's Association, proposed Musquash Estuary and the surrounding intertidal area, as a candidate Marine Protected Area (MPA) under the *Oceans Act*. An MPA is a coastal or marine area given special status to conserve and protect its natural habitat and marine life. On December 14, 2006, the proposed Musquash Estuary MPA and Administered Intertidal Area (AIA) received formal designation as a protected area.

As a result of this designation, the waters of the estuary below the ordinary water mark are now a federal MPA. Submerged Crown Lands and Waters between the ordinary water mark at low tide and ordinary water mark at high tide, referred to as the 'Administered Intertidal Area (AIA)', have also been afforded conservation status through an agreement between the Government of New Brunswick and the Government of Canada. The Musquash Estuary MPA Regulations provide legal protection status to the MPA, while the New Brunswick Coastal Areas Protection Policy, along with the *Fisheries Act*, will be used to manage the AIA in a manner that is consistent with the MPA. Additionally, through the efforts of non-government groups, the areas around the estuary are being given conservation status, further contributing to the protection of the area.

The vision for the MPA and AIA is the conservation and protection of the marine ecosystem. Accompanying conservation objectives were developed that are aimed at protecting the biodiversity, productivity and habitats of the estuary. This document provides details on the relevant regulations and Acts. It also outlines management priorities from 2010-2015. Details are provided on the roles and responsibilities of the Musquash Advisory Committee and various government departments and agencies in the management of the MPA and AIA.



INTRODUCTION

Musquash Estuary is a unique coastal marine ecosystem located in the Bay of Fundy approximately 20 km southwest of Saint John, New Brunswick (Figure 1). It encompasses a productive estuary and salt marsh environment that provide habitat for many species of fish, invertebrates and marine plants. The estuary is one of only few remaining in the region that has not been significantly impacted by human development. In addition to its natural attributes, Musquash Estuary plays an important role in the heritage of the region. It is believed that Aboriginal groups established seasonal camp sites along the shores of the estuary. French settlers, fol-

lowed by United Empire Loyalists, are thought to be associated with early settlement of the area. Today, the surrounding coastal communities continue to make use of the estuary for fishing, marine plant harvesting and recreation.

In 1998 the Conservation Council of New Brunswick, with support from the Fundy North Fishermen's Association, proposed Musquash Estuary and the surrounding intertidal area as a candidate Marine Protected Area (MPA) under the *Oceans Act*. On December 14, 2006, the proposed Musquash Estuary MPA and Administered Intertidal

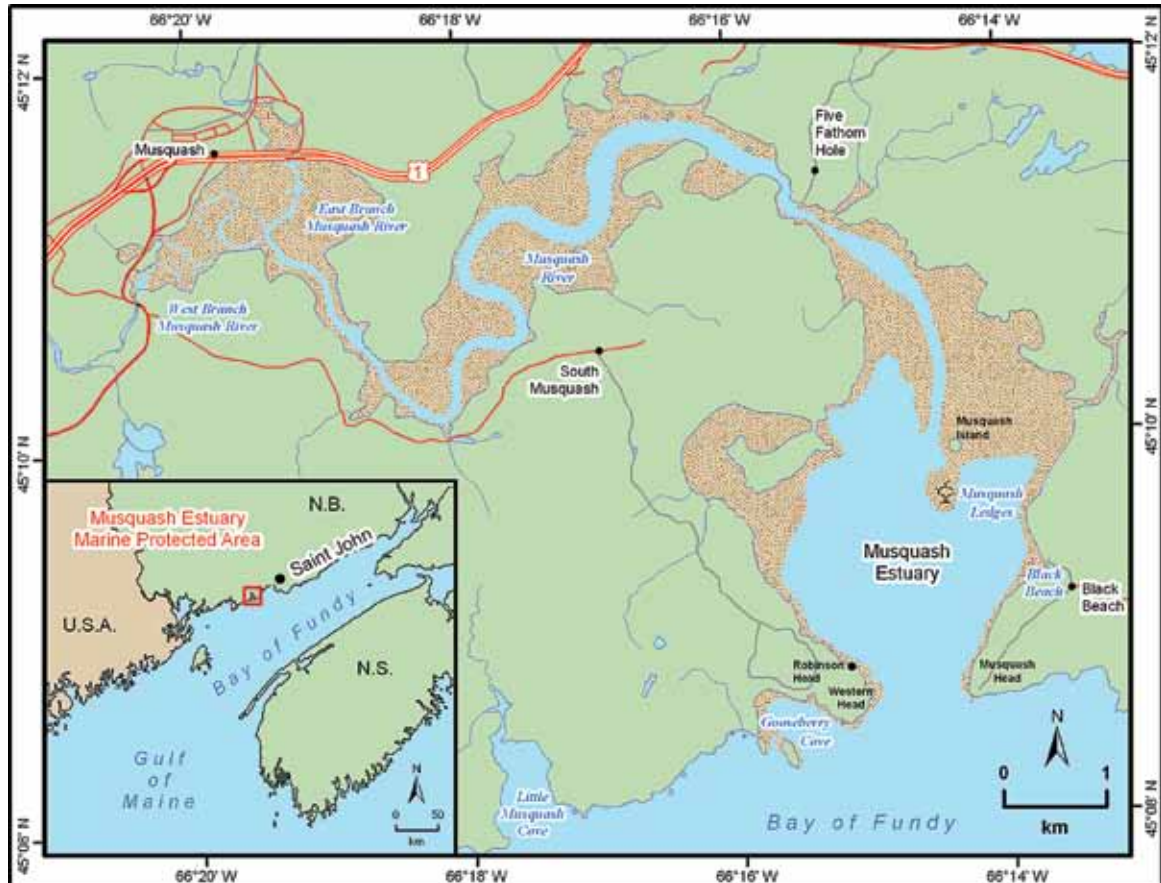


Figure 1 Map of Musquash Estuary



Area (AIA) received formal designation as a protected area. The estuary's protected status reflects the cooperative efforts of community and government. Fisheries and Oceans Canada, on behalf of the Government of Canada, is responsible for managing the MPA and AIA in collaboration with the Musquash Estuary MPA Advisory Committee. Members of the Musquash Estuary MPA Advisory Committee represent government, non-government organizations, industry, First Nations and community groups that have an interest in the MPA and AIA.

1.1 PURPOSE AND SCOPE

The purpose of this Management Plan is to outline Fisheries and Oceans Canada's plan to manage activities in the Musquash Estuary MPA and AIA. It pertains to those areas in Musquash Estuary that Fisheries and Oceans Canada has authority to manage.

The management plan is divided into four main sections: 1) Introduction; 2) Background; 3) Management Vision, Guiding Principles, Conservation Objectives and Priorities; and 4) Managing the Musquash Estuary MPA. The management plan has been prepared in consultation with the Musquash Estuary Marine Protected Area Advisory Committee and the Government of New Brunswick, as well as many other partners.

1.2 LEGISLATIVE AUTHORITY IN THE MUSQUASH ESTUARY

The *Oceans Act* provides the Federal Government with the authority to designate a Marine Protected Area in the marine environment up to the ordinary water level at low tide. In order to support the



federal MPA, the Government of New Brunswick transferred the administration and control of the submerged and certain intertidal provincial Crown lands in the estuary to the Government of Canada through an Order in Council.

1.2.1 TRANSFER OF ADMINISTRATION AND CONTROL

The Government of New Brunswick transferred the administration and control of submerged provincial Crown Lands in the estuary to the Government of Canada pursuant to the Government of New Brunswick Order in Council 2006-407 (later

amended pursuant to the Government of New Brunswick Order in Council 2006-443) to support a federal MPA. The Government of Canada considers the transfer of administration and control of submerged provincial Crown lands and waters from the Government of New Brunswick to mean 'full federal authority and jurisdiction', with recognition of the reversion clause outlined in the Government of New Brunswick Order in Council.

The reversion clause ensures that the transferred lands and waters revert back to the administration and control of the Government of New Brunswick (managed by the New Brunswick Department of Natural Resources), free of any and all encumbrances, in the event that the Government of Canada does not conserve and protect the transferred lands as a protected area. The Government of New Brunswick reserves the right to all coal, minerals, oils and natural gas, bituminous shale and mines in the transferred lands. Although, the lands have been withdrawn from prospecting and staking pursuant to the Government of New Brunswick Order in Council 2008-54. The Government of Canada will abide by

all Government of New Brunswick laws, regulations and policies that apply to the transferred submerged provincial Crown Lands.

1.2.2 FEDERAL AUTHORITY TO MANAGE MUSQUASH ESTUARY

The legislative basis for designation of the Musquash Estuary MPA is the *Oceans Act*. Section 35 of the *Act* outlines the purposes that a site must meet to be considered an Area of Interest under the federal Marine Protected Areas Program (Box 1). In accordance with Section 35, MPAs can be established for one or more of five purposes. Musquash Estuary met three purposes for MPA designation pursuant to the *Act* (Table 1). The Musquash Estuary MPA Regulations (hereafter referred to as the MPA Regulations) made pursuant to the *Oceans Act* legally designate the MPA and afford authority and guidance regarding the management of human activities within the MPA boundary. The *Oceans Act*, however, only has authority in the marine environment up to

BOX 1: OCEANS ACT AND MARINE PROTECTED AREAS

35. (1) *A marine protected area is an area of the sea that forms part of the internal waters of Canada, the territorial sea of Canada or the exclusive economic zone of Canada and has been designated under this section for special protection for one or more of the following reasons:*
- (a) *the conservation and protection of commercial and non-commercial fishery resources, including marine mammals, and their habitat;*
 - (b) *the conservation and protection of endangered or threatened marine species, and their habitat;*
 - (c) *the conservation and protection of unique habitat;*
 - (d) *the conservation and protection of marine areas of high biodiversity or biological productivity; and*
 - (e) *the conservation and protection of any other marine resource or habitat as is necessary to fulfil the mandate of the Minister.*
- (2) *For the purposes of integrated management plans referred to in sections 31 and 32, the Minister will lead and coordinate the development and implementation of a national system of marine protected areas on behalf of the Government of Canada.*
- (3) *The Governor in Council, on the recommendation of the Minister, may make regulations*
- (a) *designating marine protected areas; and*
 - (b) *prescribing measures that may include but not be limited to*
 - (i) *the zoning of marine protected areas,*
 - (ii) *the prohibition of classes of activities in marine protected areas, and*
 - (iii) *any other matter consistent with the purpose of the designation.*

TABLE 1: MUSQUASH ESTUARY MPA DESIGNATION PURSUANT TO SECTION 35 OF THE *OCEANS ACT*

CRITERIA FOR MPA DESIGNATION PURSUANT TO SECTION 35 (1) OF THE <i>OCEANS ACT</i>	MUSQUASH ESTUARY CHARACTERISTICS THAT SUPPORT THE DESIGNATION CRITERIA
(a) conservation and protection of commercial and non-commercial fishery resources, including marine mammals and their habitat	<ul style="list-style-type: none"> • Approximately two-thirds of all commercially-harvested fishery resources rely on estuaries at some stage in their life • Several commercial and non-commercial fishery resources are found in Musquash Estuary • Links between Musquash Estuary and critical life stages of commercial and non-commercial fishery resources are well documented (e.g. larval and juvenile stages)
(c) conservation and protection of unique habitat	<ul style="list-style-type: none"> • In the Bay of Fundy, more than 85% of the salt marsh ecosystems have been altered or destroyed by human activities over the past 300 years • Musquash Estuary is unique due to its size, expansive salt marsh, diverse habitat types, and natural condition • Musquash Estuary is the largest ecologically intact estuary in the Bay of Fundy
(d) conservation and protection of marine areas of high biological diversity or biological productivity	<ul style="list-style-type: none"> • Musquash Estuary supports a diverse range of species, including large populations of invertebrates, marine plants, fish, and rare birds

the ordinary water level at low tide; thus, the MPA Regulations do not have authority in the AIA since it is above low water. The Government of Canada however committed to the Government of New Brunswick, in good faith under the transfer of administration and control agreement, to manage human activities in the AIA in a manner similar to the MPA.

Without the ability to uphold the MPA Regulations in the AIA, an alternative means is used to manage human activities in this area. In accordance with Section 18 of the *Federal Real Property and Federal Immovables Act*, a Minister of the Government of Canada has the authority to restrict and control human activities on lands and waters administered for the purposes of the department. With this authority, and as land owner of the AIA, DFO will uphold the conditions to human activities in the AIA as they are described in the MPA Regulations and the Government of New Brunswick Coastal Areas Protection Policy (CAPP). In the circumstance where a condition described in the MPA Regulations and CAPP may not be in agreement, the condition described in the MPA Regulations shall take pre-

cedence. To enforce land owner rights pursuant to the *Federal Real Property and Federal Immovables Act*, DFO is limited to the application of civil action pursuant to the New Brunswick Trespass Act. In contrast, the *Fisheries Act* provides DFO the authority to manage fisheries, marine resource harvesting, and works and undertakings in both the MPA and AIA.

Pursuant to the *Fisheries Act*, DFO manages marine resource harvesting activities in accordance with various fishery regulations, and works and undertakings are managed in accordance with the Habitat Protection Provisions. Violation of the *Fisheries Act* may carry significant fines and/or imprisonment upon conviction. Thus, the *Federal Real Property and Federal Immovables Act* gives DFO, as land owner, the authority to determine which human activities can be undertaken in the AIA, and the *Fisheries Act* and New Brunswick *Trespass Act* are the legal means in which DFO will ensure that the human activities it deems acceptable are undertaken in a manner consistent with the objectives of the MPA and AIA. Refer to Appendix 1 for the MPA regulations.



BACKGROUND

2.1 THE MUSQUASH ESTUARY ECOSYSTEM

An estuary is a partially enclosed coastal body of water where freshwater from rivers and streams flow into the ocean and mixes with saltwater. Estuaries are considered one of the most productive ecosystems on earth and host several habitat types that support a diverse range of marine life. Estuaries are often surrounded by tidal flats and low-lying coastal grasslands called salt marshes. Tidal flats provide habitat for an abundance of salt marsh plants, fish species, and rare bird species. Salt marshes that fringe estuaries perform a variety of functions including the filtration of sediment and pollution, buffering of upland areas from storm surges and floods, and the protection of shorelines from erosion. More than 85% of the original salt marshes in the Bay of Fundy have been altered or destroyed by humans over the past 300 years.

Musquash Estuary is a shallow tidal estuarine ecosystem. Mid-channel water depths are 1–6 m at low tide and a tidal range of 6–8 m, where the water is well mixed between the surface and bottom. The estuary consists of a large embayment with a relatively narrow and deep entrance between the two rocky headlands of Western Head and Musquash Head. Musquash Harbour is highly turbid (muddy) due to the re-suspension of bottom sediment associated with strong tidal currents. Musquash River flows into the shallow Musquash Harbour and drains the Musquash watershed. The estuary's size, expansive salt marshes and relatively undisturbed natural condition make it unique. Its location, shape and oceanographic characteristics support eight distinct ecosystem types, or ecotypes, found within the estuary.

The estuary consists of rocky shores at its seaward boundary, large tidal flats in the upper Musquash Harbour and an expansive salt marsh that sur-

rounds Musquash River. The rocky shores provide habitat for many fish and some marine plants. A variety of fish species take shelter in areas where stands of marine plants protect them from the power of the waves and provide an abundant food source. Notable marine species that occupy the rocky shores of the estuary include periwinkle and rockweed. Although on the tidal flats most organisms live unseen within the sediment, these areas can be extremely productive. Relative to most other habitat elsewhere in the area, the tidal flats within the estuary are home to a large number of different organisms. Notable marine species that occupy the tidal flats include soft-shell clams, periwinkle, rockweed and an abundance of worms and shrimp. Lastly, the expansive salt marsh supports several different types of salt marsh plants and shorebirds that congregate in the estuary prior to their annual migration.

2.2 COMMUNITY AND ECONOMIC VALUES

Musquash Estuary and the surrounding areas are used for commercial and recreational fishing, as well as for other human activities. A herring fishery has been carried out in the estuary since the area was first settled. The fishery has been pursued by weirs, shut off seines and until the mid-1970's by purse seine during winter months. The herring fishery has declined since the early 1980s and no herring weirs have operated in the Musquash Estuary since 1987. Currently lobster is the main fishery in the area and twelve vessels fish traps at Gooseberry Island, Musquash Head and across the mouth of the Musquash Estuary during the fall fishing season (November and December). Twenty-five vessels fish lobster traps just outside the MPA boundaries. About six boats involved in the fall fishery also fish within the MPA during the spring (May and June) lobster fishing season. A small scallop fishery involving four to six vessels occurs in the



outer Musquash Estuary from mid-January through March. Scallops are not plentiful here and dragging is usually only carried out inside the mouth of the estuary when weather conditions do not permit the boats to go elsewhere. In addition, one licensed commercial elvers harvester fishes in the area outside of the inner boundaries of the MPA near the Musquash hydro station.

Limited recreational fishing occurs within the MPA. Periwinkles (winkles), clams and dulse have been harvested within the estuary both commercially and recreationally. The amounts harvested for all three intertidal species are small and commercial harvesting occurs only on an irregular basis. Hunting for certain bird and animal species also occurs throughout the marshes and woodlands surrounding the estuary.

Musquash Estuary is presently closed to some harvesting activities. The estuary is designated as a Rockweed (*Ascophyllum*) long-term study area. As a result, no harvesting of *Ascophyllum* is being conducted in the area and the rockweed industry has conceded this area for protection. Currently there is no area legally opened for claming in the estuary.

There is moderate shipping activity in the area, mainly from local fishing vessels traveling to and from Five Fathom Hole wharf. Seven lobster and scallop vessels regularly use this facility during the fishing seasons. There is no public boat launch for small craft, but there is limited small craft activity for recreational purposes.

Prior to designation, many academic and government institutions conducted scientific research on

BOX 2: MEMBERS OF THE MUSQUASH MPA PLANNING GROUP

- Conservation Council of New Brunswick
- Ducks Unlimited
- Eastern Charlotte Waterways
- Eastern Habitat Joint Venture
- Environment Canada's Canadian Wildlife Service
- First Nations (including Union of New Brunswick Indians, New Brunswick Aboriginal Peoples Council, First Nations Fisheries Coordinators, and Maliseet Advisory Council on Archaeology)
- Fisheries and Oceans Canada
- Friends of Musquash
- Fundy North Fishermen's Association
- Government of New Brunswick
- Local land owners and community members
- Lorneville Recreation Association
- Musquash Local Service District
- Nature Conservancy of Canada
- Saint John Naturalists' Club
- World Wildlife Fund Canada

various aspects of Musquash Estuary. Since the designation there has been an increase in research by oceanographers, benthic ecologists and many other scientists.

At present Aboriginal activities are relatively limited, although there is evidence of historical use of the resources in the area, and of several seasonal camps. A few individuals from the Saint John River Band frequently collect sweet grass in the area.

The undeveloped nature of the area and the largely intact ecosystem - with extensive salt marshes, mudflats, rocky and sandy beaches and subtidal habitats - provide visitors and residents with relaxing and scenic views of the area.

2.3 CONSERVATION HISTORY

The waters of Musquash Estuary were proposed as a candidate MPA site in 1998 by CCNB, with support from the Fundy North Fishermen's Association. The Conservation Council of New Brunswick and DFO facilitated community meetings to raise awareness and discuss the conservation issues regarding the estuary. This resulted in the formation of the Musquash MPA Planning Group in 1999 which consisted of a range of stakeholders (Box 2). The Musquash MPA Planning Group further developed the MPA proposal submitted by CCNB and subsequently gave its endorsement and recommendation that Musquash Estuary be considered an Area of Interest (AOI) under the federal Marine Protected Areas Program. Fisheries and Oceans Canada evaluated Musquash Estuary as an AOI, which included an overview of its ecological and socio-economic significance, in order to determine the potential effects that MPA designation would have on the local community.

In February 2000, DFO announced Musquash Estuary as an AOI under the federal MPA program. The Musquash MPA Planning Group worked closely with DFO and CCNB to further evaluate the proposed MPA and facilitate dialogue with stakeholders who held an interest in the estuary. In 2001, the Musquash MPA Planning Group was dissolved and in December of that same year, several members of the Planning Group formed a not-for-profit corporation called 'Friends of Musquash'. The group identified issues in the estuary that they believed would compromise its long-term conservation and protection. Today, Friends of Musquash continues to work with DFO, in cooperation with other government and non-government organizations, to support conservation and protection of the estuary. In 2002, a Musquash Estuary MPA Advisory Committee was established and consisted of a broader range of stakeholders and regulators with interest in the proposed MPA. The committee supported MPA designation of the estuary, and continues to facilitate dialogue between DFO, other regulators and stakeholders. In 2005, consultation on the regulatory intent of the Musquash Estuary MPA was undertaken. In that same

BOX 3 MILESTONES IN DESIGNATION OF THE MUSQUASH ESTUARY MPA AND AIA

- 1998** Conservation Council of New Brunswick proposed Musquash Estuary as a candidate federal MPA, with support from the Fundy North Fishermen's Association
- 1999** Musquash MPA Planning Group was established
- 2000** Musquash Estuary was accepted as an Area of Interest under the federal MPA Program, and an ecological overview and socio-economic overview of the estuary were completed
- 2001** Musquash MPA Planning Group was dissolved and Friends of Musquash established. The new group identified issues in Musquash Estuary viewed to potentially compromise its long-term conservation and protection
- 2002** Musquash Estuary MPA Advisory Committee was established, which consists of a broader range of stakeholders that have an interest in the proposed MPA and AIA
- 2005** Consultation on the intent of the MPA Regulations, and the Regulatory Impact Analysis Statement and proposed MPA Regulations were published in Canada Gazette Part I
- 2006** Government of New Brunswick transferred the administration and control of submerged provincial Crown lands in the estuary to the Government of Canada, the MPA Regulations were published in Canada Gazette II, and the MPA and AIA were officially-designated a protected area

year, the MPA Regulations and Regulatory Impact Analysis Statement were published in Canada Gazette Part I for public comment.

In 2006, the Government of New Brunswick transferred submerged provincial Crown Lands and some of the adjacent intertidal lands in the estuary to the Government of Canada through a transfer of administration and control agreement. In that same year, the official Musquash Estuary MPA Regulations were published in Canada Gazette II. On December 14,



2006, waters in Musquash Estuary, up to the ordinary water level at low tide, were designated an MPA through regulations pursuant to the *Oceans Act*. The MPA includes the seabed and subsoil to a depth of 2 metres and is 7.4 km². The adjacent intertidal lands and waters in Musquash Estuary under the administration of DFO – that is, those lands and waters between the ordinary water level at low tide and high tide – is 4.0 km². Refer to Box 3 for milestones in designation of the Musquash Estuary MPA and AIA.

2.3.1 ADJACENT COASTAL AND WATERSHED CONSERVATION MEASURES

Musquash Estuary is supported by the conservation and protection of much of the land that surrounds it, which includes sensitive salt marshes. As of 2010, approximately 80% of the coastal land surrounding Musquash Estuary is under some form of conservation ownership. This includes land owned and managed by Ducks Unlimited Canada, Eastern Habitat Joint Venture (some of which is held by the New Brunswick Department of Natural Resources), Nature Conservancy of Canada and the Government of New Brunswick. The Conservation Council of New Brunswick also contributes to the conservation and protection of Musquash Estuary through its Marine Conservation Program. More recently, the land and lighthouse at the head of the estuary

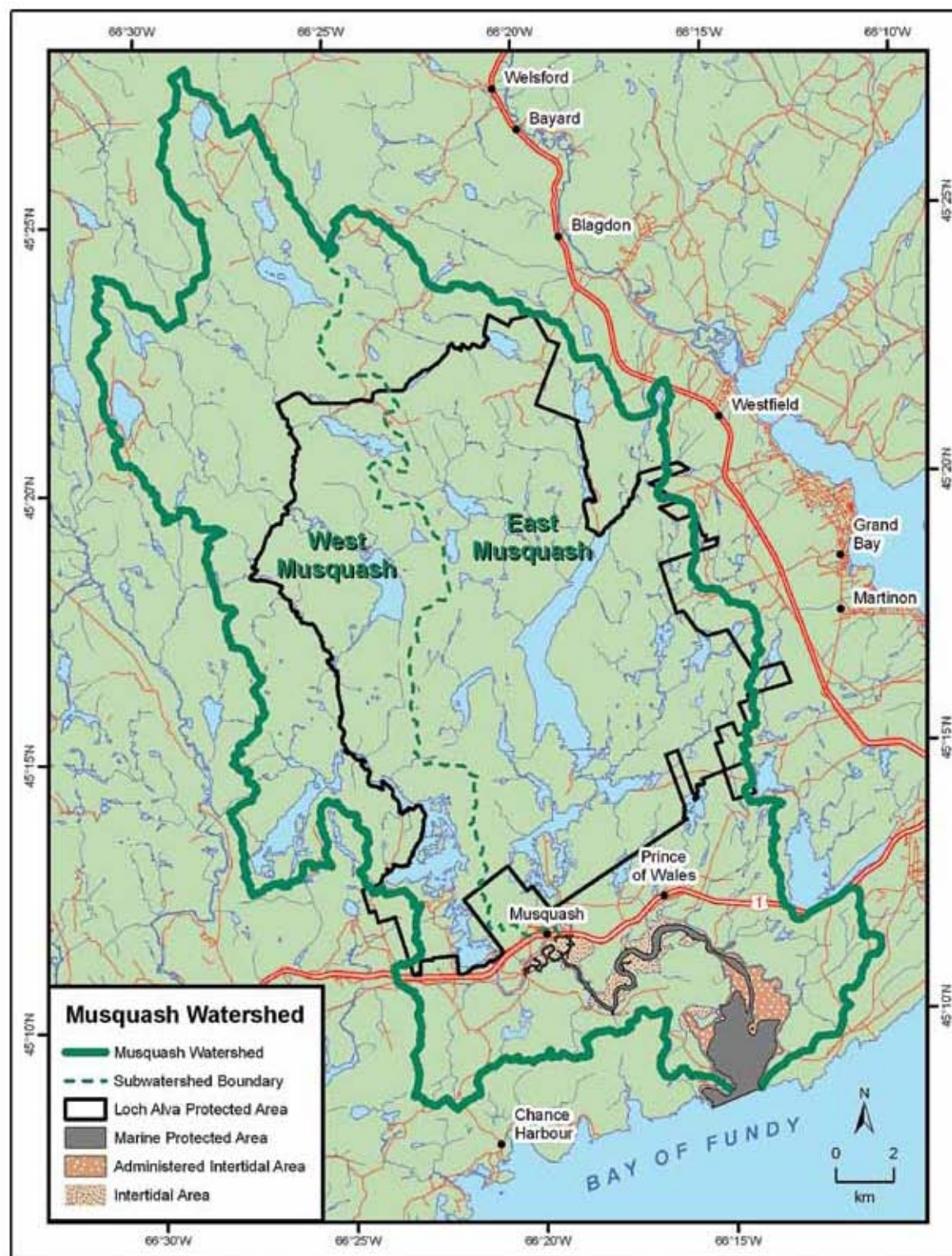


Figure 2: Musquash watershed



were transferred from the Government of Canada to Musquash Head Light Station Incorporated. Some of this land was transferred to the Nature Conservancy of Canada for long-term conservation, further contributing to the conservation and protection of the lands that surround the estuary.

Musquash Estuary is also supported by conservation and protection measures taken in the Musquash watershed. The Musquash watershed is a drainage area that is 470 km² in size and contains a network of dams and diversions that provide water to the City of Saint John. It is managed pursuant to the Watershed Protected Area Designation Order of the New Brunswick *Clean Water Act* to prevent contamination of the municipal drinking water supply. Under the Order, activities on various sectors of land and water in the watershed are controlled. The watershed includes the provincial Loch Alva Protected Area, and the East and West Musquash Subwatersheds (Figure 2). The Loch Alva Protected Area consists

of approximately 220 km² of land that protects a network of lakes, rivers, wetlands and forests. It limits human use to low impact recreational activities such as hiking, canoeing, camping, fishing and hunting. The larger East and West Musquash Subwatersheds are relatively undeveloped. Agriculture, forestry, road construction, commercial and industrial development, mining, recreation, aquaculture and residential development are allowed to occur in the watershed outside of the Loch Alva Protected Area boundaries.

Despite the conservation and protection of lands that surround Musquash Estuary and in the Musquash watershed, the waters, seabed and intertidal area within the estuary remain vulnerable to human activities. Due to the unique natural environment, and its place in the cultural fabric of the region, members from surrounding communities have worked with government and non-government organizations to conserve and protect the waters of Musquash Estuary.

MANAGEMENT VISION, GUIDING PRINCIPLES, CONSERVATION OBJECTIVES AND PRIORITIES

The vision, guiding principles, conservation objectives and priorities provide guidance in the management of human activities in the MPA and AIA.

3.1 VISION

The vision for the MPA and AIA is the conservation and protection of the marine ecosystem.

3.2 GUIDING PRINCIPLES

The guiding principles regarding management of the MPA and AIA are described in detail in Canada's Federal Marine Protected Areas Strategy. They are:

Integrated Management: Integrated management is a collaborative, flexible, and transparent planning and management process. It recognizes the shared responsibility of stakeholders to support conservation and protection of the MPA and AIA. The concept respects the jurisdiction and legislative mandate of other government departments and agencies.

Ecosystem approach: Ecosystems are complex and include many components and functions that contribute to their overall well-being. The ecosystem approach considers the conservation and protection of the marine ecosystem components and functions when managing human activities in the MPA and AIA.

Precautionary approach: The precautionary approach in decision-making errs on the side of caution in the absence of scientific certainty. It will be applied to the management of the MPA and AIA when human activities are being assessed for approval.

Knowledge-based decision making: Scientific and traditional knowledge (including knowledge from

Aboriginal, local and historical sources) will be incorporated into management of the MPA and AIA.

Collaboration and consultation: Collaboration and consultation mechanisms will be used to ensure that stakeholder and public participation are incorporated into management of the MPA and AIA.

Public awareness, education, and stewardship initiatives: Public awareness and education initiatives will be used to increase awareness and understanding of the rules and regulations of the MPA and AIA. Stewardship initiatives will be encouraged to build capacity and promote the conservation, protection and sustainable use of the MPA and AIA.

Management effectiveness: Management effectiveness is the evaluation of management actions against predefined objectives. It will be incorporated into the management plan review process.

Adaptive management: Adaptive management incorporates new knowledge and the evaluation of management actions into ongoing management of the MPA and AIA. The management actions described below will be reviewed regularly and adapted as necessary when new information and knowledge is available.

3.3 CONSERVATION OBJECTIVES

An ecological overview of Musquash Estuary identified commercial and non-commercial fishes, unique habitat, and areas of high biological diversity and biological productivity in the estuary. The information contained in the ecological overview reinforced the reasons for the conservation of the MPA and AIA. Based on DFO's national objectives for ecosystem-based management, overarching ecosystem objectives were proposed for Musquash Estuary. The ecosystem objectives provide the foundation for the conservation objectives, which will be used



to guide management of the MPA and AIA.

The conservation objectives are to ensure no unacceptable reduction or human-caused modification in:

- A. Productivity so that each component (primary, community, population) can play its role in the functioning of the ecosystem by maintaining abundance and health of harvested species;
- B. Biodiversity by maintaining the diversity of individual species, communities, and populations within the different ecotypes;
- C. Habitat in order to safeguard the physical and chemical properties of the ecosystem by maintaining water and sediment quality.

3.4 PRIORITIES

Priorities for the MPA and AIA from 2010–2015 (Table 2) are to:

- Inform federal and provincial regulators of their roles and responsibilities in management of the MPA and AIA;
- Inform estuary users regarding the allowed and prohibited activities in the MPA and AIA;
- Develop and implement an activity plan application form submission and evaluation process for the MPA and AIA;
- Develop and implement a monitoring plan for the MPA and AIA; and
- Develop a review process to evaluate the effectiveness of the MPA and AIA management plan in 2015.

TABLE 2: PRIORITIES FOR THE MUSQUASH ESTUARY MPA AND AIA FROM 2010-2015

PRIORITY	PRIMARY ACTION
Inform federal and provincial regulators of their roles and responsibilities in management of the MPA and AIA	Identify and coordinate roles and responsibilities for enforcement pursuant to various pieces of legislation that include, but are not limited, to the <i>Oceans Act</i> , <i>Fisheries Act</i> , <i>Federal Real Property and Federal Immovables Act</i> , and the <i>New Brunswick Trespass Act</i> . In addition, develop a contingency plan for marine accidents, spills, environmental emergencies, and Search and Rescue (SAR) initiatives in the MPA and AIA.
Inform estuary users of the allowed and prohibited activities in the MPA and AIA	Identify federal and provincial regulators, users, and the public who undertake activities in the MPA and AIA, and inform them of activities that are allowed, prohibited, restricted, or need to be approved by DFO.
Develop and implement an activity plan application form submission and evaluation process for the MPA and AIA	OCMD will develop and implement an activity plan application form submission and evaluation process for the MPA and AIA.
Develop and implement a monitoring plan for the MPA and AIA	Work with the DFO Science Branch to develop a monitoring plan that allows managers to evaluate the MPA and AIA conservation objectives. The monitoring plan will be based on the ecological overview and ecosystem framework completed for Musquash Estuary.
Develop a review process to evaluate the effectiveness of the MPA and AIA management plan in 2015	Identify performance indicators to evaluate the success of management actions in achieving the conservation objectives, as well as a process to incorporate MAC and public participation in the plan review process.



MANAGING THE MUSQUASH ESTUARY MPA

This section describes in detail the Musquash Estuary MPA regulations and the governance structure for managing the MPA. Details on various sections in the MPA regulations are provided including the management zones, general prohibitions, exceptions to the general prohibitions, activities allowed via activity plan applications, reporting of violations and accidents and fines and imprisonment. The New Brunswick Coastal Areas Protection Policy (CAPP) is also used to guide the management of the AIA. The governance structure for the MPA includes DFO and the Musquash Advisory Committee (MAC). The advisory committee is made up several stakeholders and other government departments and agencies that have regulatory roles and responsibilities.

4.1 OVERVIEW OF THE MPA REGULATIONS

Human activities allowed in the Musquash Estuary MPA and AIA are based on those described in the MPA Regulations and CAPP. Again, the MPA Regulations only have legal authority to enforce human activities within the MPA boundary and, in contrast, the *Fisheries Act* and New Brunswick *Trespass Act* are the primary authoritative instruments that will be used to enforce human activities within the AIA boundary. Prosecution, however, is not limited to these *Acts* and individuals undertaking activities in the MPA and AIA must abide by all other applicable legislation, regulations, and policies that may apply to the activity. Table 3 provides an overview of the human activities that are allowed and prohibited to occur in the Musquash Estuary MPA and AIA.

4.1.1 MUSQUASH ESTUARY MANAGEMENT ZONES

Musquash Estuary is divided into distinct management zones that provide the foundation for managing

human activities in the MPA and AIA (Figure 3). The level of conservation and protection in each management zone depends on the ecological sensitivity of the zone and the ability of the zone to accommodate human activities. The management zones are:

1. **MPA Zone 1** consists of the upper region of Musquash River. This habitat is species-rich and surrounded by a sensitive salt marsh. Zone 1 is afforded the highest degree of protection and few activities are allowed;
2. **MPA Zone 2** consists of the lower region of Musquash River, upper Musquash Harbour, and Gooseberry Cove. It is subdivided into two zones. **MPA Zone 2A** consists of the lower reach of Musquash River and upper Musquash Harbour, and is the largest zone in the MPA. It is characterized by a mix of soft bottom sediment and hard bottom substrate. **MPA Zone 2B** consists of Gooseberry Cove located at the mouth of the estuary. It is predominantly characterized by gravel substrate. A broader range of activities is allowed in Zones 2A and 2B compared to Zone 1;
3. **MPA Zone 3** consists of the mouth of Musquash Estuary between Western Head and Musquash Head, and inward to Black Beach. Bottom sediment in the zone is continually mixed by natural processes associated with tides and waves. The largest range of activities is allowed in Zone 3 compared to the other MPA zones; and
4. **The AIA** consists of the expansive intertidal area that is adjacent to MPA Zones 2A and 2B, and the rocky shores that are adjacent to MPA Zone 3. The intertidal areas and salt marsh adjacent to Zone 1 are not part of the lands administered by DFO. Activities within the AIA will be managed in a manner consistent with the MPA and both provincial and federal regulations will be applied to human activities in the AIA to achieve the management objectives.

Permanent boundary markers located on the shores

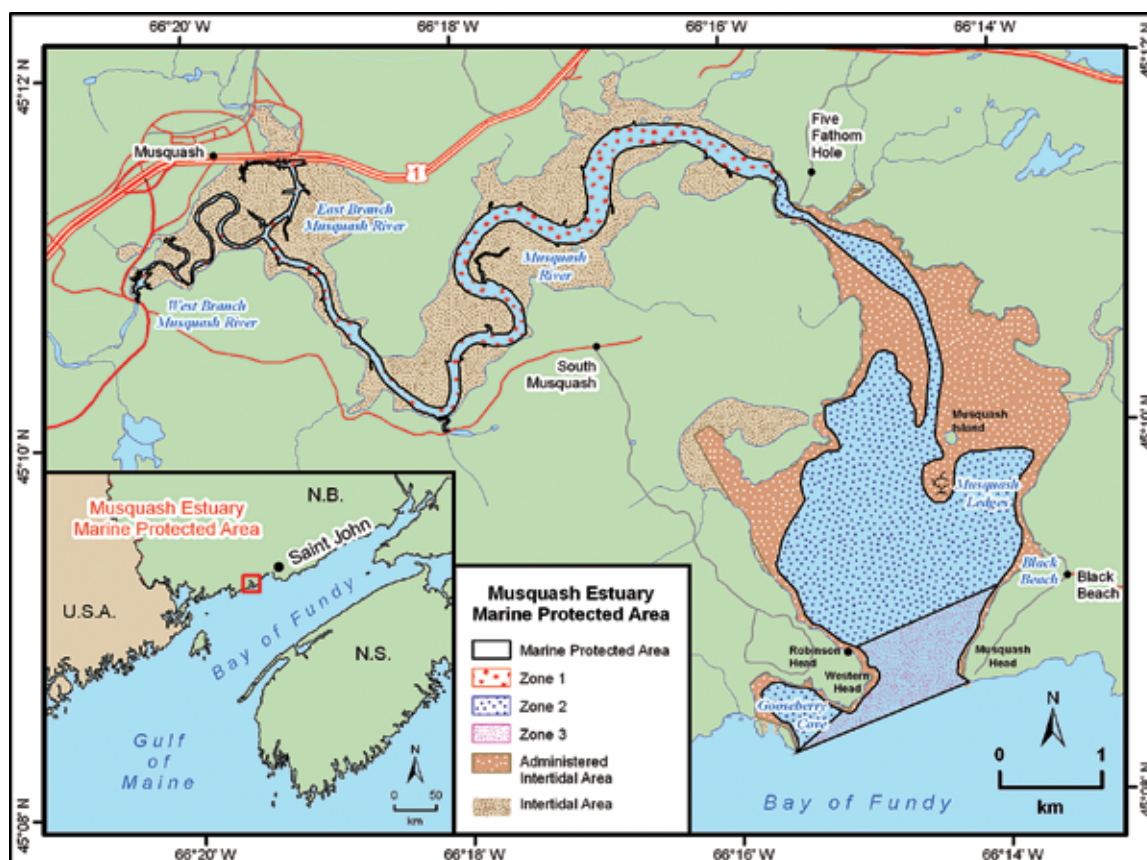


Figure 3: Musquash Estuary management zones

of the estuary demarcate the division between MPA Zones 1 and 2A, and MPA Zones 2A and 3. A permanent boundary marker was placed on the southern shore of Western Head, although it was not possible to place a permanent boundary marker on the shore of Gooseberry Island. As a result, there is no permanent boundary demarcation between MPA Zones 2B and 3.

4.1.2 GENERAL PROHIBITION TO HUMAN ACTIVITIES

The general prohibition provides guidance on man-

aging human activities in the MPA, and makes it illegal for any person to:

disturb, damage or destroy, or remove from the Area, any living marine organism or any part of its habitat; or

carry out any activity – including depositing, discharging or dumping any substance, or causing any substance to be deposited, discharged or dumped – that is likely to result in the disturbance, damage, destruction or removal of a living marine organism or any part of its habitat.



In addition, CAPP provides further guidance regarding the management of human activities in the MPA and AIA. The policy provides direction regarding works and undertakings that are allowed in intertidal areas in the Province of New Brunswick. Pursuant to the policy, activities allowed in intertidal areas include existing legal activities, traditional non-commercial uses, surveying and sign posting, education, research and habitat management activities, access to coastal location for essential activities, boardwalks, use of boats and removal of control structures to allow dyked land to revert to natural wetland. Coastal salt marshes are managed under this policy, and are considered provincially significant wetlands under the New Brunswick Wetlands Conservation Policy.

The general prohibition to human activities does not make direct reference to non-commercial recreation activities. Non-commercial recreation activities (e.g. swimming, canoeing, kayaking, and scuba-diving) are allowed in the MPA and AIA provided that they do not contravene the general prohibition and CAPP or any other applicable legislation, regulations or policies. Many other activities, other than those described in the sections below, are also allowed to occur in accordance with the general prohibition and CAPP. In contrast, all-terrain vehicles are prohibited in all management zones with the exception of their use to support activities carried out for the purpose of public safety, national defence, national security, law enforcement or environmental emergency response and clean up.

If all-terrain vehicle use is observed to compro-

mise the MPA and AIA ecosystem, enforcement can occur under Section 2.1(1) of the New Brunswick *Trespass Act*, which states ‘no person shall trespass by means of a motor vehicle in an ocean shore area.’ An ‘ocean shore area’ is defined as the land lying between the ordinary low tide mark and three hundred metres above the ordinary high tide mark of any ocean or any inlet, and includes any bed, bank, beach, shore, bar, flat, mud flat or sand dune associated with the ocean or inlet. An all-terrain vehicle is considered a motor vehicle under the *Act*. Fisheries and Oceans Canada will cooperate with the Government of New Brunswick to enforce the New Brunswick *Trespass Act*, although enforcement is DFO’s least-desired approach to discouraging all-terrain vehicle use in the MPA and AIA.

4.1.3 EXCEPTIONS TO THE GENERAL PROHIBITION

It is recognized that certain activities in the MPA and AIA may affect the natural environment but may still be allowed to occur provided that they abide by other applicable legislation, regulations and policies. Human activities exempted from the general prohibition are listed below and summarized in Table 3.

Aboriginal fishing may be carried out in accordance with the Aboriginal Communal Fishing Licences Regulations is allowed in all management zones.

Commercial fishing may be carried out in accordance with the Atlantic Fishery Regulations 1985, or the Maritime Provinces Fishery Regulations, for elvers or eels by means of a hand-deployed fyke net or dip net is allowed in Zone 1. Fishing for lobster by means of individual traps and for herring by means of a weir, beach seine, bar seine, or drag net is allowed in Zones 2A, 2B, and the AIA. Fishing for scallops is allowed in Zone 3, and manually fishing for clams is allowed in all management zones.

Recreational fishing may be carried out in accordance with the Atlantic Fishery Regulations 1985, or the Maritime Provinces Fishery Regulations is allowed in all management zones. This includes fishing for scallops and clams by manual means, and recreational fishing for any other species by means of angling or a dip net.

Recreational and commercial dulse harvesting by manual means is allowed in all management areas except Zone 1.

Operation of a marine vessel (any large vessel including ships, sail boats, and motorized personal watercraft) is allowed in Zones 2A and 2B at a maximum speed of 5 knots, and in Zone 3 at a maximum speed of 8 knots. Operation of a marine vessel is prohibited in Zone 1 except for the purpose of public safety, national defence, national security, law enforcement, or environmental emergency response and clean up. Special consideration may also be given to allow a marine vessel in Zone 1 in support of scientific research activities or habitat restoration projects.

Boat launches, wharfs, or navigational channels may be constructed, repaired, removed, or maintained in Zone 2A, if an approval or authorization is not required under the *Navigable Waters Protection Act* or *Fisheries Act*, or when the work or activity is carried out in accordance with an approval or authorization pursuant to these Acts. This type of activity is only allowed in the AIA if it supports such an activity in Zone 2A.

Other exceptions to prohibitions in all management zones include activities carried out for the purpose of public safety, national defence, national security, law enforcement, or environmental emergency response and clean up.

4.1.4 ALLOWED HUMAN ACTIVITIES PURSUANT TO ACTIVITY PLANS

Certain other human activities are also exempted from the general prohibitions but require an activity plan to be approved by DFO prior to being undertaken in the MPA and AIA. Human activities that require an activity plan to be approved are scientific monitoring and research, educational activities, archaeological studies, commercial tourism and habitat restoration projects. A habitat restoration project is considered any physical restoration project that contributes to the maintenance or improvement of the estuarine ecosystem. To undertake the above-mentioned activities in the MPA and AIA, proponents must submit an activity plan application form that provides information which describes the proposed activity and its potential effects on the MPA and AIA ecosystem (refer to Section 4.3.2).

4.1.5 REPORTING VIOLATIONS AND ACCIDENTS

Every person involved in, or aware of, accidents, violations or environmental emergencies in the MPA and AIA must report them to the appropriate authorities. Marine accidents, spills, or environmental emergencies must be reported to the Canadian Coast Guard (CCG) immediately or as soon as reasonably possible within two hours of occurrence. In the event of marine accidents, spills or environmental emergencies, individuals are legally obligated to take reasonable measures to prevent a deposit or to remedy or mitigate any damages to minimize potential impacts of the accident or spill on the MPA and AIA ecosystem.

Marine Protected Area Regulations and Fisheries Violations must be reported to:
Musquash Estuary MPA and AIA Violations
Fisheries and Oceans Canada
Tel: 506-636-5051

Search and Rescue (SAR) incidents must be reported to:
Joint Rescue Coordination Centre / Search and Rescue (SAR)
National Defence Canada
Tel: 800-565-1582

Marine accidents, spills or environmental emergencies must be reported immediately or as soon as reasonably possible within two hours of occurrence to:
Marine Accidents, Spills and Environmental Emergencies
Canadian Coast Guard
Tel: 800-565-1633

4.1.6 FINES AND IMPRISONMENT

Violation of the MPA Regulations carries penalties under the *Oceans Act* up to \$100,000 for an offence punishable on summary of conviction and up to \$500,000 for an indictable offence. Violation of the *Fisheries Act* may carry additional significant fines and/or imprisonment upon conviction. Individuals responsible for a discharge, management or control of a substance immediately before an environmental emergency, or cause or con-

TABLE 3: Human activities allowed and prohibited in the Musquash Estuary Marine Protected Area (MPA) and Administered Intertidal Area (AIA) provided that they abide by applicable legislation, regulations, and policies (Check Mark, ✓ – Activity is allowed and/or activity plan is required, No Check Mark – Activity is prohibited, and C – Condition with which the activity may be allowed).

ACTIVITY	MANAGEMENT ZONE					ACTIVITY PLAN REQUIRED	NOTES
	1	2A	2B	3	AIA		
NATIONAL INTEREST							
a. Public safety (e.g. SAR)	✓	✓	✓	✓	✓		
b. National defence	✓	✓	✓	✓	✓		
c. National security	✓	✓	✓	✓	✓		
d. Law enforcement	✓	✓	✓	✓	✓		
e. Environmental response and clean up	✓	✓	✓	✓	✓		
PERSONAL RECREATION (e.g. swimming)	✓	✓	✓	✓	✓		• Allowed provided it does not violate the General Prohibition, CAPP, and any other applicable legislation, regulations, and policies
ABORIGINAL FISHING	✓	✓	✓	✓	✓		• Allowed pursuant to the Aboriginal Communal Licences Regulations
COMMERCIAL FISHING							
a. Scallops				✓	✓		• Allowed pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
b. Clams	✓	✓	✓	✓	✓		• Allowed by manual means pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
c. Elvers or eels	✓						• Allowed by means of a hand-deployed fyke net or dip net pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
d. Lobster		✓	✓	✓	✓		• Allowed by means of individual traps pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
e. Herring		✓	✓	✓	✓		• Allowed by means of a weir, beach seine, bar seine, or drag net pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
RECREATIONAL FISHING							
a. Scallops	✓	✓	✓	✓	✓		• Allowed by manual means pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
b. Clams	✓	✓	✓	✓	✓		• Allowed by manual means pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
f. Any other species	✓	✓	✓	✓	✓		• Allowed by means of angling or dip net pursuant to the Atlantic Fishery Regulations 1985 or the Maritime Provinces Fishery Regulations
DULSE HARVESTING							
a. Recreational harvesting		✓	✓	✓	✓		• Allowed by manual means
b. Commercial harvesting		✓	✓	✓	✓		• Allowed by manual means
MARINE VESSELS AND ALL-TERRAIN VEHICLES							
a. Marine vessels	C	✓	✓	✓			• Marine vessel refers to any large vessel including ships, sail boats and motorized personal water craft • Allowed in Zone 1 for purposes of national interest (e.g. public safety), and special consideration given in support of a scientific activity and habitat restoration. Allowed in Zone 2A and 2B at a maximum speed of 5 knots, and in Zone 3 at a maximum speed of 8 knots
b. All-terrain vehicles					C		• Allowed for purposes of public safety, national defence, national security, law enforcement or environmental emergency response and clean up

ACTIVITY	MANAGEMENT ZONE					ACTIVITY PLAN REQUIRED	NOTES
	1	2A	2B	3	AIA		
PHYSICAL WORKS AND UNDERTAKINGS							
a. Boat launches, wharfs, or navigational channels		✓			C		<ul style="list-style-type: none"> • Allowed when approval or authorization is not required pursuant to the <i>Navigable Waters Protection Act</i> or <i>Fisheries Act</i>, or is carried out in accordance with an approval or authorization pursuant to this legislation, in support of construction, repair, maintenance or removal • This type of activity is only allowed in the AIA if it supports such an activity in Zone 2A
OTHER							
a. Scientific research (including monitoring)	✓	✓	✓	✓	✓	✓	• Allowed pursuant to an approved activity plan and is consistent with any other applicable legislation, regulations and policies
b. Educational activities							• Allowed pursuant to an approved activity plan and is consistent with any other applicable legislation, regulations and policies
c. Archaeological studies	✓	✓	✓	✓	✓	✓	• Allowed pursuant to an approved activity plan and is consistent with any other applicable legislation, regulations and policies
d. Commercial tourism	✓	✓	✓	✓	✓	✓	• Allowed pursuant to an approved activity plan and is consistent with any other applicable legislation, regulations and policies
e. Archaeological studies	✓	✓	✓	✓	✓	✓	• Allowed pursuant to an approved activity plan and is consistent with any other applicable legislation, regulations and policies
f. Habitat restoration	✓	✓	✓	✓	✓	✓	• Allowed pursuant to an approved activity plan and is consistent with any other applicable legislation, regulations and policies

tribute to an environmental emergency have a legal obligation to report them to the appropriate authorities pursuant to the *Canadian Environmental Protection Act*. Operators may also have obligation to report pursuant to legislation that governs the activity they are undertaking. Conviction of a violation or accident may also result in additional fines and imprisonment pursuant to the New Brunswick *Trespass Act* or other applicable legislation, regulations and policies.

4.2 GOVERNANCE STRUCTURE

The Musquash Estuary MPA and AIA are managed by the Oceans and Coastal Management Division (OCMD) within Fisheries and Oceans Canada (DFO), on behalf of the Government of Canada. Guidance for the management of the MPA and AIA is provided by the Musquash Advisory Committee (MAC) while several other government departments and agencies have regulatory roles and responsibilities.

4.2.1 ROLES AND RESPONSIBILITIES

4.2.1.1 FISHERIES AND OCEANS CANADA

Fisheries and Oceans Canada consists of several sectors that are responsible for different aspects of oceans governance pursuant to the *Oceans Act*, *Fisheries Act*, and *Species at Risk Act*. Within DFO, OCMD is the lead authority responsible for managing the MPA and AIA. The Real Property Branch officially holds title to the Provincial Crown Lands that were transferred from NB to DFO. The Conservation and Protection Branch (C&P) is responsible for the enforcement of human activities in the MPA and AIA, as set out in this management plan and pursuant to the *Oceans Act*, *Fisheries Act*, and *Species at Risk Act*. The Science Branch will contribute to sci-

entific monitoring and research in the MPA and AIA, contingent on the availability of funds and resources. The Oceans and Coastal Management Division continues to work with Real Property, C&P, and Science.

The Fisheries and Aquaculture Management Branch (FAM) is responsible for regulating fisheries and marine plant harvesting activities in accordance with various regulations pursuant to the *Fisheries Act*. Harvesting activities are managed through license conditions, integrated fisheries management plans, and conservation harvesting plans. Last, the Habitat Protection and Sustainable Development Division (HPSD) regulates works and undertakings pursuant to the Habitat Protection Provisions of the *Fisheries Act*. Proposed works and undertakings are reviewed to determine if they may cause a harmful alteration, disruption, or destruction (HADD) of fish habitat. Works and undertakings proposed for the MPA and AIA that comply with the conditions of this management plan are also reviewed pursuant to the Habitat Protection Provisions of the *Fisheries Act* to determine if a HADD is likely to occur, and if an Authorization should be issued pursuant to Subsection 35(2) of the Act. The Oceans and Coastal Management Division has coordinated efforts with FAM and HPSD to ensure that marine resource harvesting and physical works and undertakings proposed for the MPA and AIA are undertaken in a manner that is consistent with the conditions described in the management plan.

Through coordination by OCMD, DFO will align its policies, programs, and management strategies related to the MPA and AIA. Fisheries and Oceans Canada will implement the management actions set out in this plan to ensure long-term conservation, protection, and sustainable use of the MPA and AIA. Fisheries and Oceans Canada's core responsibilities under the management plan are to: 1) implement and coordinate management activities in DFO, and with other federal and provincial government departments and non-government agencies that have jurisdiction in the MPA and AIA; 2) promote user awareness regarding allowed and prohibited human activities in the MPA and AIA, as well as awareness of the *Oceans Act* (and the MPA Regulations), *Fisheries Act*, *Species at Risk Act*, *Federal Real Property and Federal Immovables Act*, *New Brunswick Trespass Act*, CAPP, and other applicable legislation, regulations, and policies; 3) coordinate and conduct surveillance and enforcement in the MPA and AIA; 4) support and

undertake monitoring and scientific research in the MPA and AIA, contingent on the availability of funds and resources; 5) facilitate public awareness and distribute educational materials to stakeholders and users of the MPA and AIA, contingent on the availability of funds and resources; 6) build capacity in support of stewardship initiatives; and 7) review the MPA and AIA management plan to determine if the conservation objectives are being upheld.

4.2.1.2 ENVIRONMENT CANADA

Environment Canada is responsible for enforcement of the Pollution Prevention Provisions of the *Fisheries Act*, certain Sections of the *Species at Risk Act*, as well as the *Canadian Environmental Protection Act*, *Canada Wildlife Act*, *Migratory Birds Convention Act*, and *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act*. Environment Canada enforcement is separated into two divisions: the Environmental Enforcement Division and Wildlife Enforcement Division. Each division will provide a lead enforcement role in the MPA and AIA in the event of a violation of the *Acts* that they enforce. A violation may be subject to prosecution pursuant to more than one *Act*, and DFO and Environment Canada will cooperate with enforcement when appropriate.

In the event of an environmental emergency, Environment Canada plays a lead role under the Regional Environmental Emergencies Team (REET). REET undertakes two main roles in emergency preparedness: planning and response. In its planning function, REET members meet to exchange scientific and technical information on matters such as contingency planning and spill response, update and review their respective roles in any emergency response situation and participate in emergency response exercises. In its response function, REET acts as a team of advisors to the On-Scene-Commander and/or Federal Monitoring Officer. In many instances, REET communicates its advice by way of the Canadian Coast Guard. In the Maritimes Region, DFO plays a large role in REET due to its breadth of expertise regarding marine sciences. Environment Canada has included the MPA and AIA in its environmental response contingency plan for the area.

4.2.1.3 CANADIAN COAST GUARD

Canadian Coast Guard is responsible for Search and Rescue on water, navigational aids maintenance and planning, and environmental emergency response and planning. The Coast Guard is aware of the MPA and AIA, as well as the environmental response plan for the area. In the event of an environmental emergency in the estuary, the Coast Guard will support Environment Canada in its environmental emergency response. The Oceans and Coastal Management Division has published information regarding the MPA Regulations, conservation measures, and specific guidance on the transit of vessels in Musquash Estuary in the Canadian Coast Guard's *Notice to Mariners*.



travene the allowed activities in the AIA. Last, DFO will coordinate with provincial departments to ensure that applications for works and undertakings in the AIA are referred to DFO's Habitat Protection and Sustainable Development Division.

4.2.1.4 TRANSPORT CANADA (TC)

Transport Canada is responsible for matters related to marine safety and ship source pollution in Canadian waters. These responsibilities are exercised through various regulations pursuant to the *Canada Shipping Act* and Canada's international commitment to the International Maritime Organization. Transport Canada will provide a lead enforcement role in the MPA in the event that regulations pursuant to the *Canada Shipping Act* are violated. For the AIA, Transport Canada has provision to work with other federal government departments to enforce ship-sourced incidents that may occur in this area. A violation may be subject to prosecution pursuant to more than one *Act*, and DFO and Transport Canada will cooperate with enforcement when appropriate.

4.2.1.6 SAINT JOHN PORT AUTHORITY

Pursuant to the *Canada Marine Act* and Letters Patent, the Saint John Harbour Port Authority is responsible for 'maintaining navigation, safety, protection of the environment, and good order in the waters of the Port.' Jurisdiction under the Saint John Harbour Port Authority extends up to the ordinary water mark at high tide in Musquash Estuary, inward to Five Fathom Hole Wharf. The Port Authority has enforcement jurisdiction in much of MPA Zone 2A, and throughout all of MPA Zones 2B and 3. The Saint John Harbour Port Authority also has jurisdiction in much of the AIA. Shipping activities in the estuary will continue to adhere to the practices and procedures established by the Port Authority, with the exception that vessels must adhere to the shipping prohibitions and vessel speed limits outlined in the MPA Regulations and this management plan. The Port Authority is exempt from the *Navigable Waters Protection Act* for its own works, although DFO will collaborate on navigational projects proposed by the Port Authority that may affect the MPA and AIA.

4.2.1.5 GOVERNMENT OF NEW BRUNSWICK

The Government of New Brunswick is responsible for enforcing provincial laws. The Government of Canada will abide by all Government of New Brunswick laws, regulations, and policies that apply to the AIA, such as CAPP. Fisheries and Oceans Canada may rely on the Government of New Brunswick to enforce the provincial *Trespass Act*, in the event individuals con-

4.2.1.7 MUSQUASH ESTUARY MPA ADVISORY COMMITTEE (MAC)

The Musquash Estuary MPA Advisory Committee, or MAC, facilitates dialogue between DFO, other

regulators, and stakeholders regarding implementation of the MPA and AIA management plan. MAC members represent government, non-government organizations, industry, First Nations, and community groups that have an interest in the MPA and AIA. It provides skills, local knowledge, and experience related to conservation, management, and general use of the estuary. The Musquash Estuary MPA Advisory Committee will continue to provide input on management issues for the MPA and AIA, however it does not replace the regulatory mandate or decision-making authority of any government department or agency that has legal jurisdiction in Musquash Estuary. Fisheries and Oceans Canada is committed to integrating advice from MAC in decisions regarding the MPA and AIA, provided that the advice is consistent with legislation, regulations, and policies that guide management of the area.

On-going collaboration will continue to define the roles and responsibilities of MAC. The roles of MAC are to: 1) advise on the development and implementation of MPA and AIA plans, policies, protocols, conservation measures, management strategies, and operational procedures; 2) assess the accuracy and quality of ecological and socio-economic information used by DFO for decision-making; 3) review activity plan application forms and provide comments with respect to appropriateness, consistency with MPA and AIA conservation objectives, and approval conditions; 4) endorse and recommend strategies and plans for effective management of the MPA and AIA; 5) provide input on activities of other organizations mandated or involved in conservation and protection of the estuary; 6) discuss and propose monitoring and research needs for the MPA and AIA; 7) identify outreach opportunities and assist with the development and delivery of educational materials for the general public; and 8) participate in the review and evaluation of management effectiveness. Priority implementation actions for the coordination of roles and responsibilities regarding the management of the MPA and AIA are outlined in Appendix 2.

4.3 MANAGEMENT PRIORITIES

The management vision, guiding principles, conservation objectives, and priorities will be achieved through management actions (Figure

4). Management actions are a series of measures that DFO will take to ensure the conservation and protection the MPA and AIA. These build on the primary management action of designating Musquash Estuary a protected area. The management actions set out in this plan include:

1. Defining management roles and responsibilities of regulators and other partners;
2. Managing human activities pursuant to existing legislation and activity plans;
3. Coordinating effective and timely enforcement and compliance;
4. Undertaking scientific monitoring and research;
5. Increasing public awareness, education, and stewardship;
6. Developing management agreements for adjacent lands and coastal waters; and
7. Developing a formal management plan review process.

Reducing the risk associated with human activities through these management actions will help ensure that the conservation objectives for Musquash Estuary will be upheld.

4.3.1 DEFINING MANAGEMENT ROLES AND RESPONSIBILITIES

The roles and responsibilities of various departments and agencies arise out of their respective legislative authority. Their management roles, with respect to the MPA and AIA, will be defined by DFO in consultation with the MAC.

4.3.2 SUBMISSION AND EVALUATION OF ACTIVITY PLANS

Human activities in the MPA and AIA are managed pursuant to various pieces of legislation that include, but are not limited, to the *Oceans Act*, *Fisheries Act*, *Species at Risk Act*, *Real Property and Federal Immovables Act*, and *New Brunswick Trespass Act* (refer to Section 4.2 and Appendix 3). Proponents of scientific research and monitoring, educational activities, archaeological studies, commercial tourism, and habitat restoration projects must submit an activity plan application form to DFO prior to undertaking such activities in the MPA and AIA.

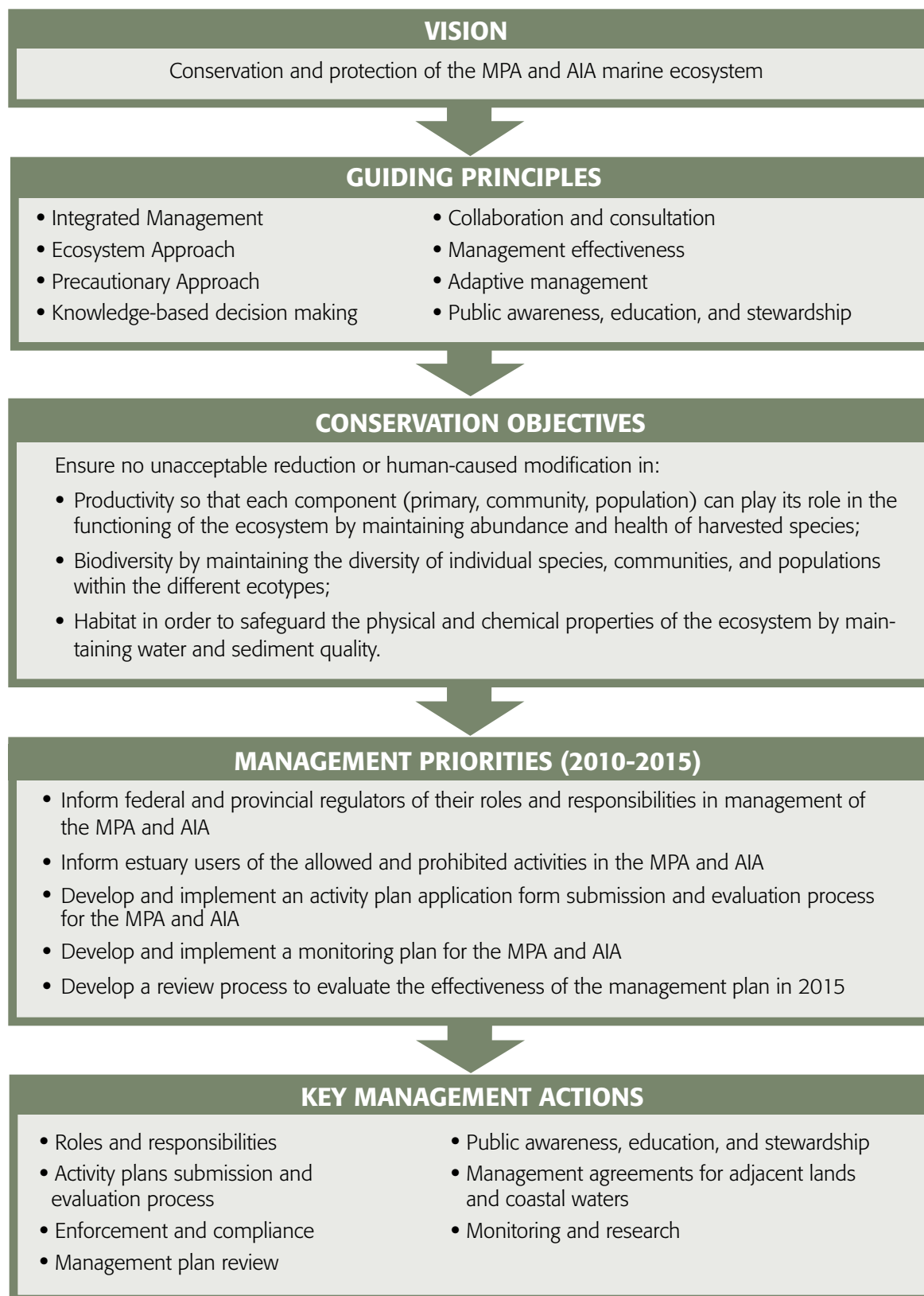


Figure 4: Overview of the management approach

In the case of a habitat restoration project, the proposed activity can be allowed if it is to be carried out for the purpose of managing the MPA and AIA.

The Oceans and Coastal Management Division has developed an application form and guidelines for submission of activity plans for the above-mentioned proposed activities in the MPA and AIA. An activity plan application form is available from OCMD, and will be made available through the Musquash Estuary MPA and AIA website when it has been established. In addition, OCMD, DFO Real Property and DFO Science Branch have developed a process for evaluating proposed activity plan application forms and a decision-making framework against which proposed activities are assessed (Figure 5). In addition, OCMD informs DFO Fishery Officers of activities that have been approved to be undertaken in the MPA and AIA and coordinates with FAM and HPSD regarding any additional requirements that may be necessary.

In the event of proposed works and undertakings in the MPA or AIA that require both a submission of an activity plan to OCMD and fish habitat referral review to HPSD, OCMD will work with HPSD through the fish habitat referral review process. To meet the additional information requirements of an activity plan approval without increased regulatory burden on the proponent, a simple supplemental form is required when proposed projects undergo the fish habitat referral review. This form is supplied to the proponent along with the mandatory forms required by proponents of physical works and undertakings. The intent is to reduce the regulatory burden on proponents.

Information requirements of the activity plan application form include:

1. Proponent contact information:
 - (a) Name, title, and affiliation;
 - (b) Address;
 - (c) Telephone number;
 - (d) Fax number; and
 - (e) Email address.
2. Description of activity:
 - (a) Purpose of activity;
 - (b) Time period of activity;
 - (c) Map identifying activity location;
 - (d) Type of vessel used and its identity;
 - (e) Type of equipment being used and how it is deployed/anchored;

- (f) List of other licences, permits, or authorizations that are required; and
- (g) List of substances that may be deposited, discharged, or dumped.

3. Description of potential effects of activity:
 - (a) Assessment of likely effects of the activity on the environment; and
 - (b) Assessment of likely effects of the environment on the activity.

An activity plan application form must be submitted to DFO for review at least 60 days in advance of the proposed activity date. The Musquash Estuary MPA Advisory Committee will review and provide input to DFO on the proposed activity prior to a decision on its approval. The Regional Director General, Maritimes Region, on behalf of the Minister of Fisheries and Oceans, will approve an activity plan within 30 days of DFO receiving a completed submission if the activity or its associated cumulative effects are not likely to damage or destroy the habitat of a living marine organism in the MPA and AIA. Fisheries and Oceans Canada recognizes that activities may arise opportunistically and on short notice and, if reasonably possible, DFO will aim to review proposed activity plans in a shorter time period than that described above, particularly for proposed activities that contribute to conservation and protection of the estuary (e.g. scientific monitoring activities).

An approved activity plan application form is not considered approval of other licences, permits, or authorizations that may be required by the proponent to undertake an activity in the MPA and AIA. It is the responsibility of the proponent to ensure that other required licences, permits, or authorizations are acquired prior to undertaking an approved activity. Proponents of scientific research and monitoring, educational activities, archaeological studies, commercial tourism, and habitat restoration projects can contact DFO for guidance regarding the requirements of the submission and evaluation process at:

Musquash Estuary Marine Protected Area
 Fisheries and Oceans Canada
 99 Mount Pleasant Rd., P.O. Box 1009
 St. George, New Brunswick
 Canada
 E5C 3S9
 Ph. (506) 755-5050
 Fx. (506) 755-5061
 Em. Musquash@dfo-mpo.gc.ca

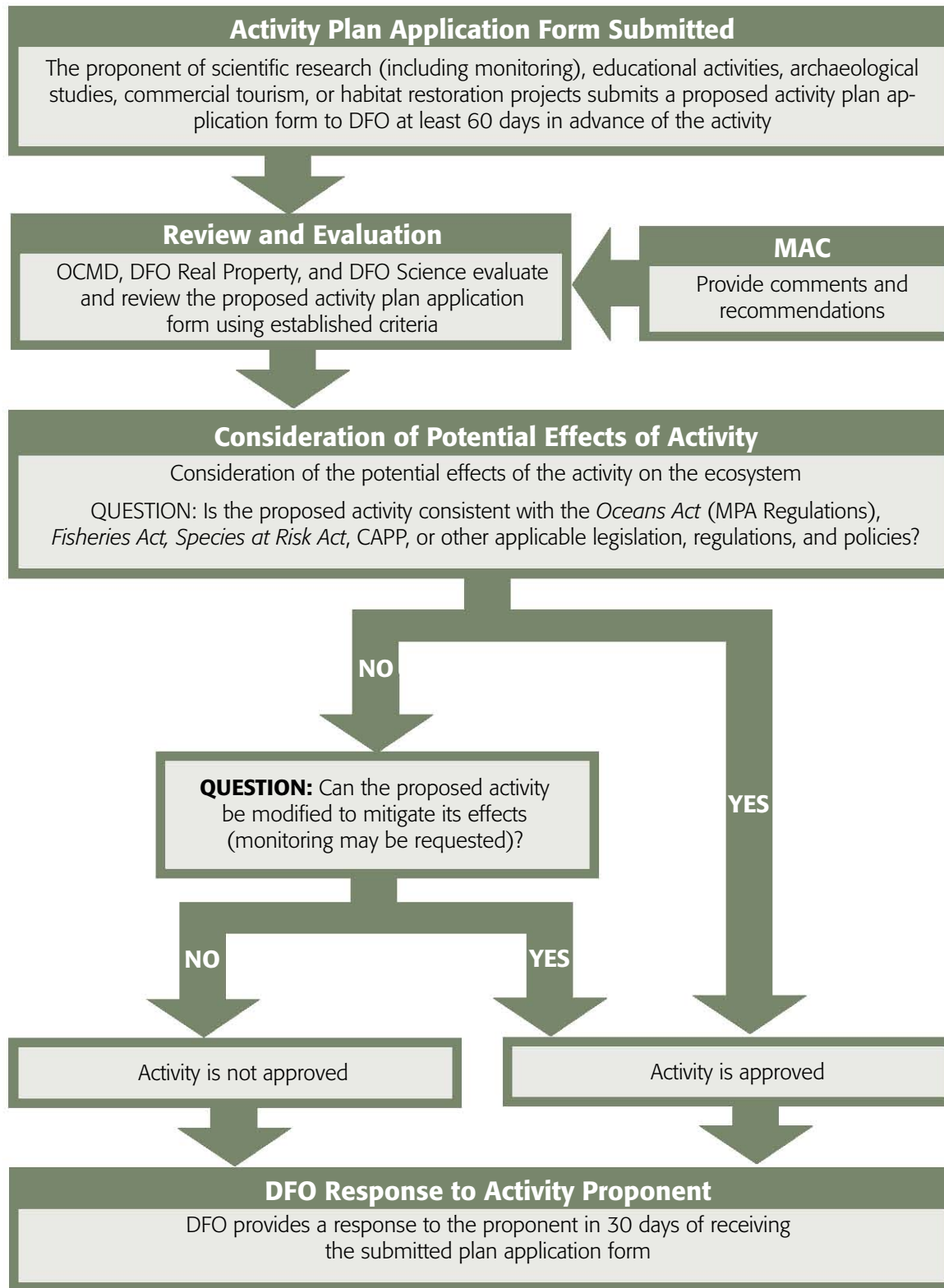


Figure 5: Overview of the activity plan application and evaluation process. Proponents must submit an activity plan to DFO for review 60 days in advance of the proposed activity date. Proponents will receive a response within 30 days of DFO receiving the activity plan.

A database of proposed activity plan application forms, evaluations, and decisions has been established and is maintained by OCMD. Priority implementation actions for the activity plan application form submission and evaluation process are outlined in Appendix 2.

4.3.3 ENFORCEMENT AND COMPLIANCE

A coordinated approach to enforcement is required in the MPA and AIA given the area's multiple users, many regulators, and potential interactions and impacts with adjacent areas. Fisheries and Oceans Canada is responsible for ensuring that the *Oceans Act*, *Fisheries Act*, and *Species at Risk Act* are enforced in the MPA and AIA. This is undertaken by DFO Fishery Officers, who are the primary authority regarding enforcement in the MPA and AIA. The costs associated with enforcement in the MPA and AIA will primarily be assumed by DFO.

Other government departments and agencies, as outlined in Section 4.2, may also contribute to the surveillance, monitoring, and enforcement of activities in the MPA and AIA. Fisheries and Oceans Canada will coordinate inter-agency surveillance and enforcement activities where appropriate. Surveillance and monitoring in the MPA and AIA will be reviewed to determine if users are complying with the allowed human activities. Review of ocean use patterns will be used to determine the level of surveillance and degree of enforcement that is required by DFO Fishery Officers in the estuary. Effectiveness of inter-agency communication and planning regarding surveillance and enforcement will also be reviewed.

DFO will promote compliance through the use of best practice guidelines for various activities, the adoption of industry codes of practice, public awareness, education programs, and stewardship initiatives. The intensity and nature of compliance promotion will be contingent on the availability of funds and resources. Marine users, coastal landowners, and local residents will be encouraged to participate in the surveillance, monitoring, and reporting effort for the MPA and AIA. This will be promoted through the establishment of a "Musquash Watch" community surveillance program. Priority surveillance, enforcement and com-

pliance implementation actions for the MPA and AIA are outlined in Appendix 2.

4.3.4 SCIENTIFIC MONITORING AND RESEARCH

Scientific monitoring and research of the natural environment in and around Musquash Estuary was instrumental in supporting its designation as a protected area. Now that the MPA and AIA has been designated a protected area, monitoring and research will continue to contribute to its management. Monitoring and research will be coordinated where possible with programs that already exist in Musquash Estuary and will aim to incorporate community participation. Priority monitoring and research implementation actions for the MPA and AIA are outlined in Appendix 2.

4.3.4.1 MONITORING

An ecosystem framework for the MPA and AIA has been completed by DFO Science (Singh and Buzeta, 2007). It proposed performance indicators and operational strategies for monitoring the MPA and AIA ecosystem. A monitoring plan based on this work will provide managers with information that informs management, in support of the conservation objectives for the MPA and AIA. Monitoring is central to informing management actions that are designed to minimize the effects of human activities on the ecosystem. A monitoring plan is currently being developed that will contribute to the understanding of the health of the marine ecosystem in the MPA and AIA. Baseline information will provide a bench mark against which future evaluations of ecosystem health can be compared. Monitoring of the MPA and AIA will be coordinated between OCMD and DFO Science.

Monitoring will aim to complement programs that already exist in Musquash Estuary, such as those undertaken by the Conservation Council of New Brunswick, Ducks Unlimited Canada, Nature Conservancy of Canada, Environment Canada, Government of New Brunswick and the Gulf of Maine Council. It will also aim to incorporate community participation. Monitoring should:



- Provide information on the health of the marine ecosystem in the MPA and AIA;
- Provide information on natural variability in the MPA and AIA;
- Provide information regarding the impacts of human activities occurring in or near the MPA and AIA;
- Measure performance indicators with adequate frequency to enable detection of trends or changes in the environment at scales appropriate for management action; and
- Be cost and resource effective.

In the event that negative ecosystem effects are observed in the MPA and AIA a range of actions may be undertaken. In the short-term, mitigation measures may be implemented through management actions to address the cause of negative effects (e.g. temporary fishery closure). In addition, more intensive monitoring may be undertaken to evaluate the effectiveness of management actions. Observed negative effects due to human activities may be grounds for increased enforcement and/or

prosecution. The need for enforcement and prosecution will be determined on a case-by-case basis.

Over the long-term, DFO may implement policy changes to prevent similar negative effects from occurring in the future (e.g. permanent fishery closure). This is fundamental to the principles of adaptive management; monitoring informs and guides management actions. In addition, DFO may implement a public awareness campaign to raise awareness about the effects of human activities in the estuary, including measures that individuals may take to protect the MPA and AIA ecosystem. Last, DFO will work with stakeholders, including the Government of New Brunswick and local land-owners, to develop further management actions that can be undertaken to ensure the long term conservation, protection and sustainable use of the estuary. This may include a broader approach regarding the management of activities upland in the Musquash watershed and the adjacent waters of the Bay of Fundy.

4.3.4.2 RESEARCH

Research in the MPA and AIA should improve understanding of the physical, chemical and biological processes that influence the health of the marine ecosystem. It should also support information needs identified by monitoring. Research that contributes to knowledge of human history and socio-economic importance in the MPA and AIA will be encouraged. Research should:

- Contribute to conservation and protection of biodiversity, productivity and habitat in the estuary;
- Address issues arising from human activities that are incompatible with the conservation objectives;
- Support multidisciplinary cooperation, partnerships and resource sharing; and
- Be conducted in an ecologically sensitive manner.

Individuals approved to conduct scientific research in the MPA and AIA will be required to communicate results to DFO and the broader community in a timely manner.

4.3.5 PUBLIC AWARENESS, EDUCATION AND STEWARDSHIP

It is important that stakeholders and the public are aware of the Musquash Estuary protected area and the applicable legislation, regulations and policies that are used to manage it. Fisheries and Oceans Canada will promote public awareness, education and stewardship for the MPA and AIA aimed at federal and provincial regulators, estuary users and the public. Education, awareness and stewardship initiatives will be coordinated where possible with outreach programs that already exist in Musquash Estuary, such as those undertaken by the Conservation Council of New Brunswick, Ducks Unlimited Canada, Nature Conservancy of Canada, Environment Canada, Government of New Brunswick and the Gulf of Maine Council.

Public awareness and education materials will be developed to raise awareness of the MPA and AIA. A DFO Musquash Estuary MPA and AIA website will be established to provide information on the MPA and AIA

and to facilitate public inquiries. Fisheries and Oceans Canada will encourage stewardship of the MPA and AIA where possible by supporting local activities, contingent on the availability of funds and resources. Priority public awareness, education and stewardship implementation actions are outlined in Appendix 2.

4.3.6 LIABILITY AND SAFETY PRACTICES

Fisheries and Oceans Canada will undertake reasonable measures to inform the public of the unique nature of the MPA and AIA. Ensuring due diligence will be achieved through field signage and other means of general awareness promotion such as communication materials, including an MPA and AIA website. Musquash Estuary users should exercise caution when undertaking activities in the MPA and AIA. Factors that need to be considered when planning a safe and enjoyable activity include: 1) environmental conditions can rapidly change, including fog, rain, wind, waves, tides and surges/swells; 2) rising tides are large and currents can be strong, rapidly flooding tributary channels and covering mudflats; 3) mudflats, marshlands and rocky shores can be slippery and may contain hidden mud patches, standing water and sensitive habitat; 4) shoals, debris and old marine vessels can float or be hidden below water during high tide; 5) old marine vessels, weir stakes and wharfs can be unsteady and their historic significance should be enjoyed from a distance; and 5) fishing equipment and navigational aids may be located in the water ways. Musquash Estuary is used by many individuals and the activities and property of others should be respected.

4.3.7 MANAGEMENT AGREEMENTS FOR ADJACENT LANDS AND COASTAL WATERS

The MPA and AIA are linked to the surrounding Musquash watershed and Bay of Fundy ecosystems (Figure 2). Musquash Estuary is the end point for freshwater discharge from Musquash watershed, which makes its way through the MPA and AIA to the sea. More than 75% of the water in Musquash Estuary is renewed with each flood tide from the Bay of Fundy. The health of the marine ecosystem

in the MPA and AIA is, therefore, dependent on the quality of freshwater from the Musquash watershed and the seawater of the Bay of Fundy. This creates a unique management challenge for the MPA and AIA. Proximity to the population centre of the City of Saint John, New Brunswick, vulnerability to impacts of land-based human activities in the watershed and adjacent coastal waters and complex jurisdictional and management issues emphasize the need to coordinate the management of lands and waters adjacent to the MPA and AIA.

Many of the legal instruments used to manage the Musquash Estuary MPA and AIA do not have authority over activities undertaken outside the management boundary. As a result, they cannot be used to address many issues of concern that may impact the health of the estuary. Over the long-term, DFO may work with other government agencies, private land owners and other stakeholders to develop agreements on the management of lands and coastal waters adjacent to the MPA and AIA, including Musquash Watershed and the Bay of Fundy, in a manner that supports conservation and protection of the estuary. Priority actions for management agreements for adjacent lands and waters are outlined in Appendix 2.

4.3.8 MANAGEMENT PLAN REVIEW

The Musquash Estuary MPA and AIA management plan guides the management of human activities in the MPA and AIA. Management actions in the plan will be formally reviewed every five years, or as deemed necessary by DFO and MAC. Fisheries and Oceans Canada will consult with MAC on a regular basis regarding management priorities and actions. If issues arise prior to formal review of the management plan, the plan will be adapted to address issues in consultation with MAC. In 2015, OCMD will lead a formal review of the management actions outlined in this iteration of the plan. The review will examine the conservation objectives of the MPA and AIA to determine if they remain appropriate, evaluate the success of management actions in achieving the conservation objectives and identify emerging priorities for the next iteration of the plan. Performance indicators for each management action may be developed, in order to track the effectiveness of management actions over the next five years. Priority management plan implementation actions are outlined in Appendix 2.



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APPENDIX 1: MUSQUASH ESTUARY MPA REGULATIONS

Musquash Estuary Marine Protected Area Regulations
SOR/2006-354

Registration December 14, 2006

OCEANS ACT

Musquash Estuary Marine Protected Area Regulations

Her Excellency the Governor General in Council, on the recommendation of the Minister of Fisheries and Oceans, pursuant to subsection 35(3) of the *Oceans Act*^a, hereby makes the annexed *Musquash Estuary Marine Protected Area Regulations*.^a S.C. 1996, c. 31

Musquash Estuary Marine Protected Area Regulations

INTERPRETATION

1. (1) The following definitions apply in these Regulations.
 "Area" means the Musquash Estuary Marine Protected Area designated under section 2. (zone)
 "vessel" has the same meaning as in section 2 of the *Canada Shipping Act. (bâtiment)*
 "waters" means, in addition to the waters, the seabed and subsoil below the waters to a depth of two metres. (*eaux*)
 (2) In these Regulations, all geographical coordinates (latitude and longitude) are expressed in the North America Datum 1983 (NAD 83) geodetic reference system.
 (3) In the schedule, the lines connecting the points are rhumb lines.

DESIGNATION

2. The areas of the sea in the Musquash Estuary comprised of the management zones described below – and depicted in the schedule – are together designated as the Musquash Estuary Marine Protected Area:

- (a) Zone 1, consisting of waters lying generally northwest of a rhumb line connecting points at 45°11'19.63" N, 66°15'37.35" W and 45°11'23.96" N, 66°15'33.38" W, that are in an area bounded by the low-water line of the estuary and by
 - (i) the rhumb line to its points of intersection with the low-water line,
 - (ii) the northeasterly limit of Highway 790, where it crosses the southwestern arm of the West Branch Musquash River,
 - (iii) the southeasterly limit of the abandoned Canadian Pacific Railway right-of-way, where it crosses the northeastern arm of the West Branch Musquash River, and
 - (iv) the southerly limit of Route 1, where it crosses the East Branch Musquash River;
- (b) Zone 2A, consisting of waters that are in an area bounded by the low-water line of the estuary and by the following rhumb lines to their respective points of intersection with the low-water line, namely,

(i) a line connecting points at 45°11'19.63" N, 66°15'37.35" W and 45°11'23.96" N, 66°15'33.38" W, and

(ii) a line connecting points at 45°08'47.00" N, 66°15'11.00" W and 45°09'08.91" N, 66°13'55.87" W;

- (c) Zone 2B, consisting of waters that are in an area known as Gooseberry Cove and bounded by the low-water line of the cove and by a rhumb line, to its points of intersection with the low-water line, connecting points at 45°08'28.46" N, 66°15'12.23" W and 45°08'14.39" N, 66°15'35.50" W; and

- (d) Zone 3, consisting of waters that are in an area bounded by the low-water line of the estuary and by the following rhumb lines to their respective points of intersection with the low-water line, namely,
 - (i) a line connecting points at 45°08'47.00" N, 66°15'11.00" W and 45°09'08.91" N, 66°13'55.87" W,
 - (ii) a line connecting points at 45°08'28.46" N, 66°15'12.23" W and 45°08'14.39" N, 66°15'35.50" W, and
 - (iii) a line connecting points at 45°08'14.39" N, 66°15'35.50" W and 45°08'35.60" N, 66°14'16.77" W.

PROHIBITED ACTIVITIES

3. (1) In the Area, no person shall
 - (a) disturb, damage or destroy, or remove from the Area, any living marine organism or any part of its habitat; or
 - (b) carry out any activity – including depositing, discharging or dumping any substance, or causing any substance to be deposited, discharged or dumped – that is likely to result in the disturbance, damage, destruction or removal of a living marine organism or any part of its habitat.
- (2) Despite subsection (1), a person may carry out any activity excepted under section 4 or any scientific, educational, archaeological, commercial tourism or habitat restoration activity for which a plan is approved under section 6.

EXCEPTIONS

4. The following activities may be carried out in the Area:
 - (a) the following fishing activities, namely,
 - (i) fishing that is carried out in accordance with the *Aboriginal Communal Fishing Licences Regulations*,
 - (ii) any of the following recreational fishing activities carried out in accordance with the *Atlantic Fishery Regulations*, 1985 or the *Maritime Provinces Fishery Regulations*, namely,
 - (A) manually fishing for scallops or clams, and
 - (B) fishing for any other species by means of angling or a dip net, and
 - (iii) any of the following commercial fishing activities carried out in accordance with the *Atlantic Fishery*

Regulations, 1985 or the Maritime Provinces Fishery Regulations, namely,

- (A) in Zone 1, fishing for elvers or eels by means of a hand-deployed fyke net or dip net,
 - (B) in Zone 2A, 2B or 3, fishing for lobster by means of individual traps and for herring by means of a weir, beach seine, bar seine or drag seine,
 - (C) in Zone 3, fishing for scallops, and
 - (D) in any Zone, manually fishing for clams;
- (b) in Zone 2A, 2B or 3, the recreational or commercial harvesting of dulse manually;
- (c) the operation of a vessel in Zone 2A or 2B at a speed no greater than five knots or in Zone 3 at a speed no greater than eight knots;
- (d) in Zone 2A, the construction of a boat launch, the maintenance, repair or removal of a wharf or boat launch or the maintenance of a navigation channel, for which approval or authorization is not required under the *New Brunswick Clean Water Act*, S.N.B. 1989, c. C-6.1, the *Navigable Waters Protection Act* or the *Fisheries Act*, as the case may be, or that is carried out in accordance with an approval or authorization required under any of those Acts; and
- (e) any activity that is carried out for the purpose of public safety, national defence, national security or law enforcement or in response to an emergency.

ACTIVITY PLAN

5. Every person who proposes to carry out a scientific, educational, archaeological, commercial tourism or habitat restoration activity in the Area shall submit to the Minister for approval, not less than 60 days before the day on which the activity is proposed to begin, a plan that contains the following information and documents:

- (a) the name, address and telephone number and, if applicable, the facsimile number and electronic mail address of a person who can be contacted in respect of the plan;
- (b) a detailed description of the proposed activity that sets out
 - (i) its purpose,
 - (ii) the period or periods during which it is to be carried out,
 - (iii) a map on which its location is identified,
 - (iv) the types of data that are to be collected, if any, and the sampling protocols or other techniques to be used to collect the data,

- (v) the types of equipment, if any, that are to be used during the proposed activity, including those for gathering data and, if any of the equipment is to be anchored or moored in the Area, the methods by which the anchoring or mooring is to be conducted,
- (vi) the type and identity of every vessel that is to be used to carry out the proposed activity, and
- (vii) every substance, if any, that is to be deposited, discharged or dumped in the Area during the proposed activity;

- (c) an assessment of the environmental effects that are likely to occur in the Area as a result of the proposed activity; and
- (d) a list of every licence, permit, authorization or consent obtained or applied for in respect of the proposed activity.

6. (1) The Minister shall, in 30 days after the day on which a plan that is submitted in accordance with section 5 is received, approve the plan if the proposed activity is not likely to damage or destroy the habitat of a living marine organism in the Area and, in the case of a habitat restoration activity, the proposed activity is to be carried out for the purpose of managing the Area.

(2) Despite subsection (1), the Minister shall not approve a plan if the cumulative environmental effects of the proposed activity, in combination with any other past and current activities carried out in the Area, are likely to damage or destroy the habitat of living marine organisms in the Area. REPORTING OF

ACCIDENTS

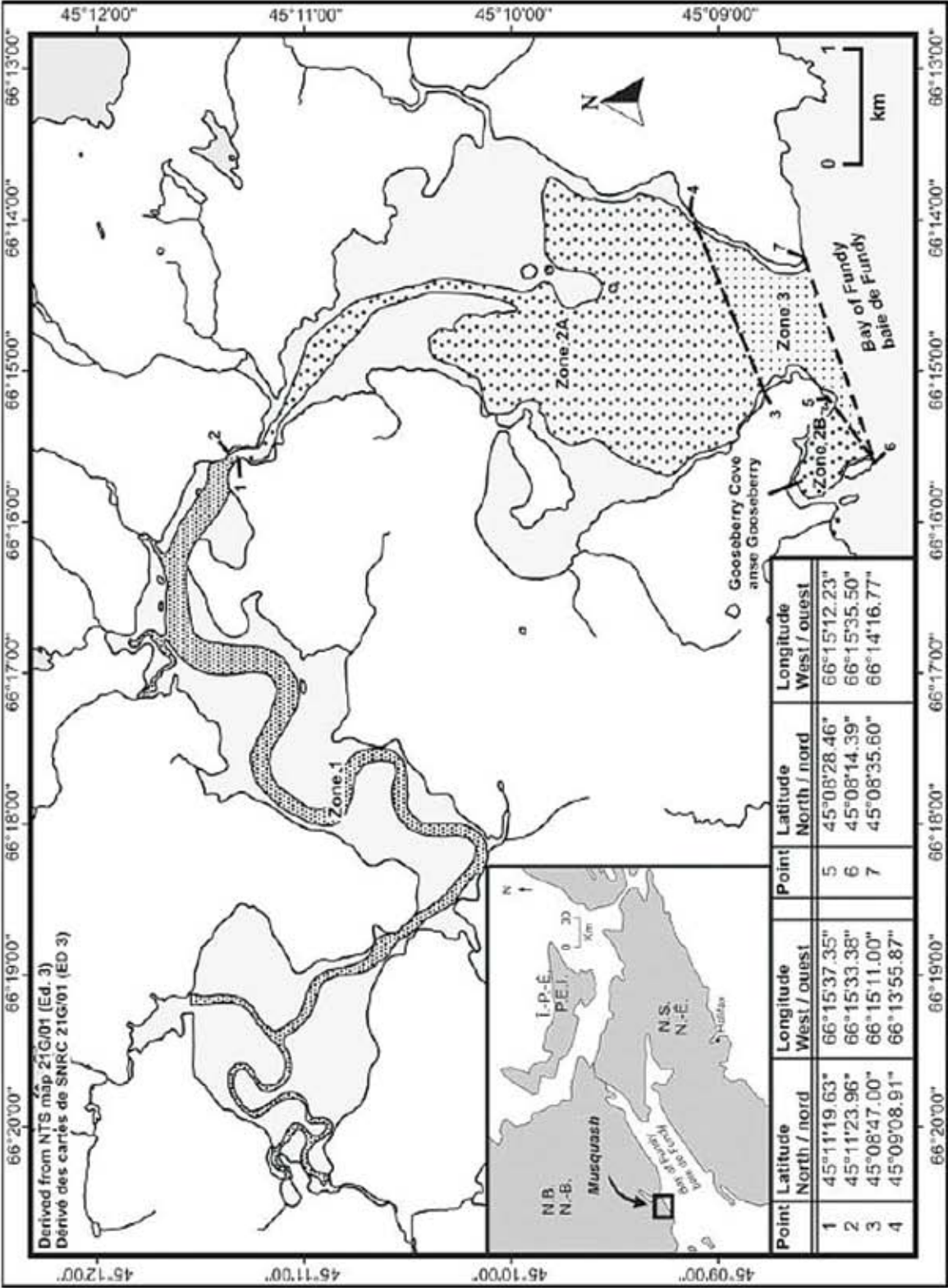
7. Every person involved in an accident that is likely to result in any prohibited activity shall, in two hours after its occurrence, report the accident to the Canadian Coast Guard.

COMING INTO FORCE

8. These Regulations come into force on the day on which they are registered.

SCHEDULE/ANNEXE

(Subsection 1(3) and section 2/paragraphe 1(3) et article 2)
MUSQUASH ESTUARY MARINE PROTECTED AREA/ ZONE DE PROTECTION MARINE DE L'ESTUAIRE MUSQUASH



APPENDIX 2: Actions for management of the MPA and AIA (2010–2015).
The nature of the actions is contingent on the availability of funds and resources. Refer to the abbreviations section at beginning of management plan for a description of the acronyms used in this table.

Management Priorities	Actions
Roles and Responsibilities	<ul style="list-style-type: none"> • OCMD has coordinated efforts with DFO Sectors, other government departments and stakeholders on respective roles in management of the MPA and AIA (refer to Appendix 3) • DFO Conservation and Protection Fishery Officers are undertaking surveillance in the MPA and AIA • OCMD and FAM will coordinate to include conditions of the MPA Regulations in licence conditions, integrated fisheries management plans and conservation harvest plans for marine resource harvesting activities allowed in the MPA and AIA • OCMD and HPSD will coordinate to include conditions of the MPA Regulations in the review of fish habitat referral prior to the issuance of a fish habitat Authorization pursuant to subsection 35(2) of the <i>Fisheries Act</i> for works and undertakings allowed in the MPA and AIA • In collaboration with DFO and CCG, EC has developed a Regional Environmental Emergencies Team (REET) response plan in the event of an environmental incident or emergency in the MPA and AIA • OCMD will coordinate with EC on enforcement in the MPA and AIA of the <i>Species at Risk Act</i>, <i>Canadian Environmental Protection Act</i>, <i>Migratory Birds Convention Act</i> and the Pollution and Wildlife Protection Provisions of the <i>Fisheries Act</i> • CCG has included the MPA and AIA in the area environmental response plan in support of EC's REET and will undertake SAR in the MPA and AIA • OCMD has published information regarding the MPA Regulations, conservation measures and guidance on the transit of vessels in the estuary in the CCG <i>Annual Notice to Mariners</i> • SJPA has identified its role in enforcement of navigation, safety, protection of the environment and good order in waters under their jurisdiction in Musquash Estuary • TC has identified its role in enforcing regulations under the <i>Canada Shipping Act</i> in the MPA and AIA • OCMD will work with the Government of New Brunswick to uphold provincial laws, regulations and policies that apply to management of the MPA and AIA
Managing Human Activities (Activity Plans)	<ul style="list-style-type: none"> • OCMD has developed an activity plan application form and guidelines that help guide proponents who propose to carry out applicable activities in the MPA and AIA • OCMD, DFO Real Property and DFO Science review proposed activity plan application forms and MAC provides comments and recommendations on proposed activities prior to a decision regarding an allowance • OCMD and DFO Science have developed a decision-making framework for assessing activity plan applications • OCMD informs DFO Conservation and Protection Fishery Officers of approved activity plans • OCMD archives submitted activity plan application forms into a database • OCMD will coordinate with FAM and HPSD on the review of applications for proposed fishery and marine plant harvesting activities and works and undertakings in the MPA and AIA
Enforcement and Compliance	<ul style="list-style-type: none"> • DFO Conservation and Protection Fishery Officers are undertaking surveillance in the MPA and AIA • DFO may review the success of surveillance and implement improved surveillance strategies if necessary (e.g. increased surveillance at times of year to reflect seasonal activities) • OCMD will coordinate with EC on enforcement in the MPA and AIA of the Pollution and Wildlife Protection Provisions of the <i>Fisheries Act</i>, <i>Species at Risk Act</i>, <i>Canadian Environmental Protection Act</i> and <i>Migratory Birds Convention Act</i> • OCMD, with support from MAC, will establish a 'Musquash Watch' community surveillance program for the MPA and AIA and will encourage best practices for users undertaking activities in the estuary

Management Priorities	Actions
Scientific Monitoring and Research	<ul style="list-style-type: none"> • OCMD and DFO Science are currently developing a monitoring plan for the MPA and AIA • OCMD and DFO Science will aim to coordinate MPA and AIA monitoring with monitoring programs that already exist in the estuary, such as those undertaken by the Conservation Council of New Brunswick, Ducks Unlimited Canada, Nature Conservancy of Canada, Environment Canada, Government of New Brunswick and the Gulf of Maine Council • DFO Science will aim to develop a baseline understanding of the marine ecosystem in the MPA and AIA, against which future evaluations will be measured • OCMD, DFO Science and MAC will facilitate collaborative monitoring and research in the MPA and AIA with other government departments and agencies, universities, non-government organizations, industry and the public • OCMD and DFO Science will make available to the public monitoring and research data in a timely manner • OCMD will support habitat restoration projects, contingent on the availability of funds and resources
Public Awareness, Education and Stewardship	<ul style="list-style-type: none"> • OCMD will continue to identify and contact users of the MPA and AIA to inform them of allowed activities, as well as applicable legislation, regulations and policies that may prohibit or restrict activities that previous to protected area designation were permitted in Musquash Estuary • OCMD will continue to develop education and awareness materials such as an information brochure, interpretative field signs and an activity awareness map, which will be used to raise awareness of the MPA and AIA • OCMD will continue to participate in national and international forums to raise awareness of the MPA and AIA and share its experiences and knowledge with others • OCMD will establish a DFO Musquash Estuary MPA and AIA website to include background information regarding the MPA and AIA, applicable contact information, the MPA Regulations, MPA and AIA management plan and other information including the activity plan submission and evaluation process • OCMD will coordinate education, awareness and stewardship of the MPA and AIA with programs that already exist for Musquash Estuary, such as those undertaken by the Conservation Council of New Brunswick, Ducks Unlimited Canada, Nature Conservancy of Canada, Environment Canada, Government of New Brunswick and the Gulf of Maine Council • OCMD will encourage stewardship of the MPA and AIA by facilitating local activities and, if possible, support stewardship activities led by other organizations, contingent on the availability of funds and resources • MAC will continue to support education, awareness and stewardship initiatives in the area
Managing Adjacent Lands and Waters	<ul style="list-style-type: none"> • OCMD will work with other DFO sectors and the Government of New Brunswick to ensure that aquaculture development in the Bay of Fundy considers proximity to and potential effects on the MPA and AIA • OCMD will coordinate with HPSD to review applications for proposed works and undertakings in proximity to the MPA and AIA, to ensure that they consider potential effects on the MPA and AIA • OCMD will aim to work with other government agencies, private land owners and other stakeholders to develop agreements on the management of lands and coastal waters adjacent to the MPA and AIA, which may include Musquash Watershed and Bay of Fundy, in a manner that supports conservation and protection of the estuary • OCMD and MAC will aim to work with local landowners and community members to encourage compatible land and coastal water use practices in proximity to the MPA and AIA
Management Plan Review	<ul style="list-style-type: none"> • OCMD will develop performance indicators for evaluation of management actions, in which to determine the success of the management plan in 2015

APPENDIX 3 ROLES AND RESPONSIBILITIES IN MPA MANAGEMENT

ADVISORY BODY		ROLE AND RESPONSIBILITIES WITHIN
Canadian Coast Guard	<ul style="list-style-type: none"> • Responsible for maintenance of navigational aids, waterways management, icebreaking, marine communications and traffic services, search and rescue and environmental response • Conducts search and rescue (SAR) and assists with fisheries patrols 	<ul style="list-style-type: none"> • Assists environmental response strategies and planning, navigational aids maintenance and planning and search and rescue
Canadian Environmental Assessment Agency	<ul style="list-style-type: none"> • Administers and promotes compliance with the federal environmental assessment process, assists in the process and promotes sound environmental practices 	<ul style="list-style-type: none"> • Assists with environmental assessments carried out in and in the vicinity of the MPA and AIA
Department of National Defence (MARLANT)	<ul style="list-style-type: none"> • Responsible for national defence and national security • Conducts search and rescue (SAR) and assist with fisheries patrols and ocean monitoring 	<ul style="list-style-type: none"> • Ensures that defence activities are carried out in accordance with the MPA Regulations and other applicable legislation, regulations and policies
Environment Canada	<ul style="list-style-type: none"> • Responsible for regulating pollution discharged into the marine environment and for managing disposal of waste at sea (<i>Fisheries Act, Canadian Environmental Protection Act</i>) • Manages environmental emergencies • Monitors and protects migratory birds (<i>Migratory Birds Convention Act</i>) • Key responsibilities for non-aquatic species at risk (<i>Species at Risk Act</i>) • Monitors water quality in shellfish growing areas (Canadian Shellfish Sanitation Program and Shellfish Water Quality Protection Program) 	<ul style="list-style-type: none"> • Coordinate management and clean-up activities of an environmental emergency in the MPA and AIA • Enforces the pollution prevention provisions of the <i>Fisheries Act</i> • Undertakes water quality surveys to determine the suitability of waters for the harvesting of molluscs and shellfish
Fisheries and Oceans Canada	<ul style="list-style-type: none"> • Lead authority for managing Canada's oceans • Development of a system of Marine Protected Areas (<i>Oceans Act</i>) • Development and implementation of integrated management plans (<i>Oceans Act</i>) • Undertakes marine science research (<i>Oceans Act</i>) • Regulates fisheries (<i>Fisheries Act</i>) • Protects fish habitat (<i>Fisheries Act</i>) • Protects critical habitat and develops recovery plans for aquatic species at risk (<i>Species at Risk Act</i>) 	<ul style="list-style-type: none"> • Manager of the MPA and AIA • Enforces the <i>Oceans Act</i> and <i>Fisheries Act</i> • Coordinates management and implementation of the management plan • Chair of Musquash MPA Advisory Committee • Responsible for activity approvals • Undertakes surveillance of activities • Provides information about the MPA and AIA to industry, stakeholders and the public • Develops and maintains website • Undertakes monitoring and research • Responsible for the authorization of a harmful alteration, disruption and destruction of fish habitat pursuant to Subsection 35(2) of the <i>Fisheries Act</i> • Responsible for fisheries and aquaculture management, including Aboriginal fisheries and recreational fisheries
Industry Canada	<ul style="list-style-type: none"> • Responsible for communications infrastructure, including licences for submarine cables (<i>Telecommunications Act</i>) 	<ul style="list-style-type: none"> • Ensures submarine cable licensing proposals are in accordance with the MPA Regulations and other applicable legislation, regulations and policies
Musquash MPA Advisory Committee (MAC)		<ul style="list-style-type: none"> • A multi-stakeholder group that provides advice to DFO on managing the MPA and AIA. Meetings of the committee provide a forum for communicating information and concerns with stakeholders
NB Department of Agriculture and Aquaculture	<ul style="list-style-type: none"> • Regulates aquaculture development (NB <i>Aquaculture Act</i>) 	<ul style="list-style-type: none"> • Ensures that the approval of aquaculture sites in the Bay of Fundy will consider the proximity to and potential effects on the MPA and AIA

ADVISORY BODY		ROLE AND RESPONSIBILITIES WITHIN
NB Department of Fisheries	<ul style="list-style-type: none"> Regulates fish processing Provides advice on fisheries policy, planning and resource management 	<ul style="list-style-type: none"> Ensures that fisheries policy and planning will not impact the MPA and AIA
NB Department of Energy	<ul style="list-style-type: none"> Regulates the construction and operation of submarine cables and pipelines to transport oil, gas, or minerals (<i>Pipeline Act</i>) 	<ul style="list-style-type: none"> Ensures that pipeline licensing proposals are in accordance with the MPA Regulations and other applicable legislation, regulations and policies
NB Department of the Environment	<ul style="list-style-type: none"> Regulates land use activities that could impact aquatic habitat Regulates wetlands under the <i>Clean Water Act</i>, Watercourse and Wetlands Alteration Regulations and the New Brunswick Wetlands Conservation Policy Administers the <i>Clean Environment Act</i>, which aims to protect the environment Administers the <i>Clean Water Act</i>, which monitors the cleanliness and contamination of water Responsible for implementing New Brunswick's <i>Coastal Areas Protection Policy</i>, which provides direction to coastal development Administers compliance with the provincial environmental impact assessment process and promotes sound environmental practices Administers the <i>Clean Water Act</i>, <i>Clean Environment Act</i> and <i>Community Planning Act</i> 	<ul style="list-style-type: none"> Ensures that authorized works or construction in coastal areas will not impact the MPA and AIA Assists with environmental assessments carried out in the vicinity of the MPA and AIA
NB Department of Natural Resources	<ul style="list-style-type: none"> Issues licences, leases, or easements for approved land use applications for proposed developments (e.g. erosion control measures, break waters, docks, marinas, intake/outfall pipes, ocean dumping, dredging and submerged logging) on submerged lands Regulates wetlands under the New Brunswick Wetlands Conservation Policy Regulates provincial fisheries and hunting (<i>Fish and Wildlife Act</i>) Regulates exploration, development and production of the province's minerals and mines (<i>Mining Act</i>) and hydrocarbon resources (<i>Oil and Natural Gas Act</i>) 	<ul style="list-style-type: none"> Mineral and hydrocarbon exploration and development likely would violate the general prohibitions under the MPA Regulations and can not be undertaken in the MPA or AIA Ensures that mineral and hydrocarbon leases/licences and related activities will not impact the MPA and AIA Ensures that fishing and hunting permits/licences are in accordance with the MPA Regulations and other applicable legislation, regulations and policies
NB Department of Wellness, Culture & Sport	<ul style="list-style-type: none"> Manages the province's cultural resources, including archaeological heritage 	<ul style="list-style-type: none"> Ensures that archaeological and research licences are in line with the MPA Regulations and other applicable legislation, regulations and policies
Other organizations		<ul style="list-style-type: none"> Other organizations (e.g. industry, user groups, university researchers, or non-government organizations) play a role by complying with the MPA Regulations, promoting awareness of the MPA and AIA and undertaking monitoring and research activities that contribute to improved understanding of the MPA and AIA
Saint John Harbour Authority	<ul style="list-style-type: none"> Under the <i>Canada Marine Act</i> and Letters Patent, is responsible for enforcing navigation, safety, protection of the environment and good order in waters of the Port Jurisdiction of the Port Authority is up to the ordinary high water mark in Musquash Estuary and extends up to Five Fathom Hole wharf 	<ul style="list-style-type: none"> Responsible for enforcing navigation, safety, protection of the environment and good order in waters of the Port in the MPA and AIA
Transport Canada	<ul style="list-style-type: none"> Responsible for ship safety, ship source pollution prevention and surveillance for all commercial and fishing vessels (<i>Canada Shipping Act</i>) Regulates ballast and bilge discharges 	<ul style="list-style-type: none"> Administers <i>Canada Shipping Act</i> in the MPA and has provision to work with other federal government departments to enforce the Act in the AIA

CONTACT INFORMATION

General Information

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Fax: 506-755-5061
Email: Musquash@dfo-mpo.gc.ca

Conservation and Protection Enforcement

Fisheries and Oceans Canada
Tel: 506-636-5051

Joint Rescue Coordination Centre / Search and Rescue (SAR)

National Defence Canada
Tel: 800-565-1582

Marine Accidents, Spills and Environmental Emergencies

Canadian Coast Guard
Tel: 800-565-1633